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A study on using bottom-up techniques in teaching listening skills to the first-year students at Thai Nguyen University of Technology

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Abstract
In Vietnam, learning and mastering a foreign language has become increasingly common. However, achieving fluency and proficiency in language use remains a challenge for many learners, particularly in English. While some students demonstrate a strong command of grammatical structures, they often struggle with communication, specifically in listening and speaking skills.
As an educator, my primary objective is to equip students to use English effectively. Among the various language skills, listening comprehension poses a significant challenge for learners. This study, conducted at Thai Nguyen University of Technology (TNUT), aimed to identify an effective learning approach to improve students' listening comprehension skills in English. The research employed the Bottom-up Technique in listening instruction and conducted a comparative experiment with two student groups (K47Y and K47K1). A quantitative research methodology was adopted, drawing on data from three tests and a structured questionnaire. Comments, observations, comparisons, recommendations, and conclusions are grounded in empirical findings.

Keywords: Thai Nguyen University of Technology, listening skills, bottom-up techniques, intensive listening, extensive listening

Introduction

Traditionally, listening has been perceived as a passive language skill, similar to reading. This perspective suggests that learners engage in listening activities in the classroom with minimal active involvement. They often hear the content without fully attending to key discourse elements, such as the speakers' background knowledge, intentions, attitudes, implications, and nuanced meanings. Learners tend to focus solely on decoding individual syntactic and semantic components rather than comprehending the message holistically. As a result, their ability to communicate effectively is significantly hindered.

This passive perception of listening is also reflected in instructional approaches, where teachers frequently assess listening comprehension rather than actively teaching it. The predominant method involves evaluating learners' ability to recall spoken utterances immediately after hearing them. However, this approach is inherently flawed, as memory retention does not equate to comprehension. Much like a child who can recite songs or poems without grasping their meaning, learners may remember segments of speech but fail to extract their intended message. Additionally, learners are often not adequately prepared before engaging in listening tasks, leading to difficulties in processing auditory input and ultimately preventing them from gaining meaningful listening experiences.

In recent years, contemporary research on listening comprehension has challenged this traditional view, recognizing that listening is an active, rather than passive, cognitive process. It is now widely acknowledged as a receptive skill alongside reading, essential for both first and second language acquisition. Scholars have provided various definitions of listening, reflecting evolving perspectives on its role in language learning.

Theoretical frameworks describe listening comprehension as a dynamic process in which individuals selectively focus on auditory input, construct meaning from spoken passages, and integrate new information with prior knowledge (O'Malley, Chamot, & Kupper, 1989) [7]. Nunan (1998, cited in Newton, 2009) emphasizes the fundamental role of listening in language learning, asserting that learners who lack proficient listening skills will struggle to communicate effectively. He further notes that more than half of a language learner's engagement in a foreign language is dedicated to listening.

Rost (1994) [8] characterizes listening as a complex cognitive process that facilitates the comprehension of spoken language. Similarly, Harmer (2004) classifies listening as a receptive skill that enables individuals to extract meaning from discourse. Buck (2001) [2] expands on this view, describing listening as an active meaning-construction process that involves both linguistic and non-linguistic knowledge. He argues that comprehension is influenced by a range of variables, including characteristics of the speaker, listener, and situational context.

Anderson and Lynch (1988) [1] reinforce the notion of listening as an active skill, stating that learners should not merely receive auditory input but also engage in tasks that require them to articulate or write about what they have heard. They introduce the term "active model builder" to describe the listener's role in constructing a coherent interpretation of spoken messages. This process involves integrating new auditory information with prior knowledge to develop a structured mental representation of the discourse.

Littlewood (1981) [9] also underscores the active nature of listening comprehension, emphasizing that successful listeners must actively apply both linguistic and non-linguistic knowledge. To interpret spoken messages effectively, they must segment continuous speech into meaningful units and compare these units with their existing knowledge and contextual understanding. This reinforces

the necessity of an interactive and meaning-driven approach to listening.

In conclusion, effective listening comprehension is not a static skill that can be acquired once and then neglected. Instead, it requires continuous, structured practice with increasingly complex materials. Developing listening proficiency demands engagement in active cognitive processes that integrate linguistic knowledge with contextual and experiential understanding. Consequently, pedagogical approaches should prioritize teaching listening as an interactive, meaning-oriented skill rather than merely assessing learners' ability to recall auditory input.

The bottom-up processing model was initially proposed by Rumelhart and Ortony (1977) and later expanded by Chaudron and Richards (1986), Richards (1990), and other scholars. According to Jack C. Richards *et al*., this perspective has been predominant in language pedagogy since the early 1980s. The bottom-up processing approach conceptualizes listening as a linear decoding process, in which auditory input is processed sequentially, starting from the smallest meaningful units (phonemes) and progressing to complete texts.

Bottom-up techniques are primarily text-based, requiring listeners to rely on linguistic elements within the message, including sounds, words, and grammatical structures, to derive meaning. In this framework, phonemic units are first decoded and combined to form words, which are then structured into phrases. These phrases are further organized into clauses and sentences or utterances, ultimately resulting in coherent, meaningful texts or conversations.

To facilitate students in mastering English listening skills, educators must have a comprehensive understanding of the challenges their students encounter. Additionally, it is essential to identify appropriate learning methods and strategies. This study aims to investigate the application of the Bottom-up Technique in developing listening skills among students at Thai Nguyen University of Technology. The findings of this research will provide educators with valuable insights and guidance for enhancing students' listening proficiency.

Research method

This study was carried out with the participation of 70 first-year non-major English students. They were all in the second term and from two different classes namely 47Y and 47K1. Of these 70 students, 65 are male and 5 are female ages ranging from 19 to 21. They are at the elementary level.

The research was conducted as a quantitative study, using the pre-test, mid-term test, and post-test along with the questionnaire to collect data.

All three tests were designed for the elementary level and based on the requirements to be achieved by students after they completed the curriculum at the elementary level. The content of the tests was taken from a book of the same level. Each test contained 25 questions.

The pre-test, mid-term test, and post-test were conducted in the pre-, while-, and post-stages of the experimentation of the bottom-up process; for both the control group and experimental group. Three tests of listening were designed in the model of achievement tests which are used to assess students' listening skill every term.

The questionnaire was the investigator's design. Questions were designed based on the theory of listening lessons with bottom-up techniques and the demand of a listening lesson with 3 stages. It was designed for the purpose to check the accuracy of the improved listening skills of students and student interest or not with lessons that use bottom-up techniques.

The questionnaire was delivered to the experimental group at the end of the term to find out their attitudes towards the bottom-up teaching process and their expectations. Before being delivered to 35 students, the questionnaire was translated into Vietnamese so that students could understand the questions deeply.

The study was done through five steps:

Step 1: The investigator taught two classes for two weeks, gave them a listening test as a pre-test, and then the investigator helped the experimental group understand the teaching listening process they were going to study, the bottom-up process as well as its techniques.

Step 2: The investigator taught them for the whole term which lasted from February of 2012 to May of 2012. During that time, the control group was taught listening skills under normal conditions based on the order in the book, whereas bottom-up techniques were applied to the experimental one.

Step 3: Ask the two groups to do the mid-term test which is used as a means to measure the effects of using bottom-up techniques in teaching listening skills after a half of the term.

Step 4: Ask the two groups to do the post-test which is used as a means to measure the effects of using bottom-up techniques in teaching listening skills for the whole term.

Step 5: The survey questionnaire was delivered to the experimental group after they finished the post-test to get their opinion about the listening process they had learned.

Firstly, when teaching the experimental group, the teacher will not follow the exact orders suggested in the textbook. Instead of introducing grammar structures after the students have finished the listening tasks as suggested in the textbook, she will explain new vocabulary, and grammar structures at the pre-listening stage.

Secondly, in the while-listening stage, after students have finished the listening tasks, the teacher will play the tape again and pause at sentences or phrases that students may not understand, she will explain whether it is contraction, short forms, reduced form, and colloquial patterns and so on to help students pick out manageable clusters of words.

Because the listening passages in the textbooks are not very long, the teacher will help students listen again and again to familiarize them with the native speaker's accent and speech rate and help them deal with difficulties that might occur in the listening session. Listening for exact phrases or words can also be done. Students can use tape scripts if necessary.

This process was designed based on bottom-up techniques, and it was used to teach students in the experimental group.

Findings

1. Tests' result analysis

The listening test aimed to answer the question of how much bottom-up techniques help students enhance listening. The test was within 20 minutes. During the test, the teacher worked with a cassette player and as an examiner. After

that, the tests were collected and marked. The investigator then analyzed the test scores in terms of frequency distribution to find out the range of marks and the measures of central tendency to classify the progress tendency of each class.

In the same way, the results of the post-test were interpreted and compared with those of the pre-test and mid-term tests. Then the standard deviation (SD) was considered a very powerful measure of dispersion. This data helped the investigator explore the degree to which the group of test scores deviated from the mean, and then find out what effects the use of bottom-up techniques in teaching listening had on students.

1.1. The Pre-test

Table 1: Descriptive statistics for the pre-test of the control and experimental groups

Experimental group			Control group		
Score	***Number of testees***	***Percentage***	***Score***	***Number of testees***	***Percentage***
0	0	0%	0	0	0%
1	0	0%	1	0	0%
2	7	20%	2	6	17,1%
3	3	8,6%	3	6	17,1%
4	9	25,7%	4	9	25,7%
5	10	28,6%	5	8	22,9%
6	6	17,1%	6	5	14,3%
7	0	0%	7	1	2,9%
8	0	0%	8	0	0%
9	0	0%	9	0	0%
10	0	0%	10	0	0%

Table 2: Comparison of mode, mean, median, and SD for the pre-test of the experimental and control group

Experimental group		Control group	
Mode	5	Mode	4
Mean	4,142	Mean	4,085
Median	4	Median	4
SD	1,375	SD	1,401

As can be seen from Table 1, the marks ranged from 2 to 7, in which marks 3, 4, 5, and 6 were the most common. Students in the experimental group seemed to be more uniform level whereas students from the control one had more excellent individuals. This was shown in the table where the number of testees who got a mark of 7 was 2,9 % while in the experimental group, there is none of them got a mark of 7. However, the comparison of the mode revealed that the experimental group seemed to be a little better than the control one as its mode of 5 was higher than 1 of the control group which was 4.

Correlation:

	No.	**Mean**	**SD**
Experimental group	35	4,142	1,375
Control group	35	4,085	1,401

The mean of 4,142 revealed that experimental group was a little bit better than control group whose mean was 4,085. The means also showed that in general the students were only at low level of proficiency. The SD of 1,375 and 1,401 showed a very spread of scores which implied a narrow range of ability in students of both groups.

1.2. The Mid-term Test

Table 3: Descriptive statistics for the mid-term test of the experimental and control groups

Experimental group			Control group		
Score	***Number of testees***	***Percentage***	***Score***	***Number of testees***	***Percentage***
1	0	0%	0	0	0%
2	0	0%	1	0	0%
3	4	11,4%	2	1	2,9%
4	7	20%	3	5	14,3%
5	9	25,7%	4	13	37,1%
6	11	31,4%	5	12	34,2%
7	3	8,6%	6	3	8,6%
8	1	2,9%	7	1	2,9%
9	0	0%	8	0	0%
10	0	0%	9	0	0%
0	0	0%	10	0	0%

Table 4: Comparison of mode, mean, median, and SD for the mid-term test of the experimental and control group

Experimental group		Control group	
Mode	6	Mode	4
Mean	5,142	Mean	4,4
Median	5	Median	4
SD	1,263	SD	1,035

We can see from Table 3, that there was a shift in the mark range of the two groups. The number of students who got marks 2 sharply fell while the number of students getting marks 5 and 6 increased. The highest mark climbed to 8 not 7. This positive sign showed a certain improvement in the two groups in their listening skill.

As can be seen from Table 4, there was a greater improvement in listening kill of the experimental group than the control one. This argument was proved by its median which was one point higher than the one of the control group. However, the full mark (mark 10) was still untouched. It also can be seen that the experimental group was inferior to the control group in getting the average mark (mark 5), but its above-average marks were higher. In addition, there was a change in the mode of the mid-term test. The mode of the experimental group was no more than 5 but climbed to 6 whereas the control group's mode remained the same. At a glance at these figures, it could be assumed that the experimental group made greater improvements in their listening skill than the control group.

Correlation:

	No.	**Mean**	**SD**
Experimental group	35	5,142	1,263
Control group	35	4,4	1,035

In the comparison of the mean, we can see that while the control group made a little bit of progress (from 4,085 to 4,4) the experimental one took a bigger pace with a rise from 4,142 to 5,142. Therefore, the experimental group left the control group in the progress of listening skills. This also showed that after half term (8 weeks) of using the bottom-up process in teaching listening skills, the students' skills have been improved.

1.3. The Post-test

Table 5: Descriptive statistics for the post-test of the experimental and control groups

Experimental group			Control group		
Score	***Number of testees***	***Percentage***	***Score***	***Number of testees***	***Percentage***
0	0	0%	0	0	0%
1	0	0%	1	0	0%
2	0	0%	2	0	0%
3	0	0%	3	2	5,7%
4	1	2,9%	4	10	28,6%
5	10	28,6%	5	12	34,2%
6	7	20%	6	8	22,9%
7	12	34,2%	7	2	5,7%
8	3	8,6%	8	1	2,9%
9	2	5,7%	9	0	0%
10	0	0%	10	0	0%

Table 6: Comparison of mode, mean, median, and SD for the post-test of the experimental and control group

Experimental group		Control group	
Mode	7	Mode	5
Mean	6,343	Mean	5,029
Median	6	Median	5
SD	1,235	SD	1,124

Table 5 shows the percentage of the raw mark in the post-test. As can be seen from the chart, the number of students who get low marks has been decreased markedly. In the comparison with the results of the pre-test and the mid-term test, we can see an improvement in students' marks. There was a positive change in the mark range of the experimental group, in which the lowest mark was 3 and the highest mark was 9. However, they didn't get a mark of 10. The number of students getting marks 7 in the pre-test and the mid-term test was very low, only 1,4% for both groups in the pre-test and 5,7% for both ones in the mid-term test. But in the post-test, this number was 20%.

You also can see in Table 5 that the number of students getting good marks in the experimental group was more than the number in the control one; and in this post-test, the experimental group had more excellent individuals than the control one. On this basis, it may be inferred that the experimental group made more their effort in learning listening skills than the control group.

Table 7: Comparison of mean between the experimental and control groups

Group / Mean	Experimental group	Control group
Pre-test	4,142	4,085
Mid-term test	5,142	4,4
Post-test	6,343	5,457

The comparison of the mean reconfirmed that the experimental group left the control group in the progress of listening skills. We can see in the above table that the experimental group made a big pace with an increase from 4,142 to 6,343. (From the pre-test to the post-test). This pace was 2,201. There was a slow rise in the control group's average mark. We can say that the control group made a little bit of progress, from 4,085 to 5,028. This big difference in the mean scores between the pre-test and post-test of the experimental group showed very clearly that after one term of using bottom-up techniques in teaching listening skills, the student's skills have improved significantly.

2. Questionnaire's result analysis

These questions were delivered to students in the experimental group at the end of the term. The aim of this questionnaire was to collect data relating to students' attitudes toward listening lessons with bottom-up techniques, what they have been conducted, what can they get with these techniques in learning to listen, and their personal views of possible activities that they desire to do during the listening lesson. The information gathered utilizing these questions is presented and analyzed as follows.

2.1. The students' opinions about the listening tasks

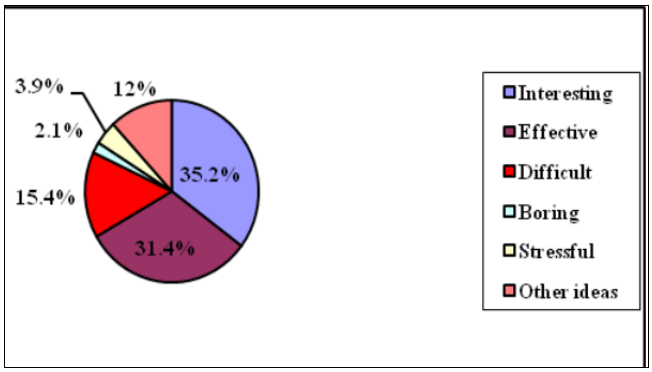

Fig 1: The students' opinion about the listening tasks

As can be seen from the chart, students had positive attitudes toward tasks the teacher ordered in the listening lessons. Especially, the biggest number of students (35,2%) admitted that the tasks were interesting. Additionally, 31,4% judged the tasks help them learn effectively. 12% of them gave other ideas; surprisingly, they said that the tasks given by the teacher were very funny. These tasks made them relaxed in listening. Nevertheless, 21,4% of all students pointed out the negative sides to tasks teachers have employed. They felt that listening tasks were difficult (15,4%), boring (2,1%) and stressful (3,9%).

From the data collected, it can be agreed that teachers try their best to give students appropriate tasks in listening lessons so that most of the students realize that they are interesting and useful to them. However, the tasks couldn't provide all the students' needs. Therefore, a small number of students felt that these tasks were difficult or boring or stressful. Consequently, tasks should be varied and suitable to the students' different learning needs and interests.

2.2. The students' opinion about teaching methods

Teacher's methods are best exposed through the ways they organize learning activities for students. Therefore, when being asked about their opinion about teaching methods, the students shared different views and thoughts over teachers' performances in class, which is clearly shown in the table below.

Table 8: The students' opinions about teaching methods

Options	Results
a. Motivating.	37,1%
b. Interesting.	50%
c. Tense/ stressful.	2,8%
d. Demotivating.	7,1%
e. Boring.	5,7%
f. Other ideas	0%

As illustrated from the table, students had positive attitudes towards the way teachers organized listening activities. Specifically, the biggest number of students (50%) admitted that the teaching styles were interesting. Additionally, 37,1% judged the teaching methods motivated them respectively. Overall, teachers have used certain teaching strategies that attracted the students' attention; and curiosity in learning as well as stimulated them in listening comprehension. Nevertheless, 15,6% of all students pointed out the negative sides of teaching techniques that teachers have employed. They felt that the listening lesson demotivated them and they soon got bored and tense.

From the data collected, it can be agreed that teachers affect the effectiveness of the first-year students in listening comprehension by their teaching methods and performances. Consequently, teaching styles should be varied and modified or adapted in order to suit the students' different learning styles and interests.

2.3. The students' opinion about learning listening with bottom-up techniques.

When asked whether they like learning to listen with bottom-up techniques or not, the students gave their answers as follows.

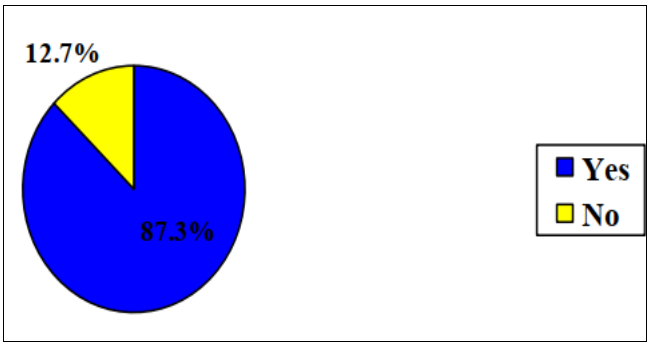

Fig 2: The student's opinion about learning listening with bottom-up techniques

The chart shows that most students liked listening lessons with bottom-up techniques (87,3%). They explained that bottom-up techniques engaged them step by step in listening. They realized that their weakness was vocabulary and grammar. Therefore, teachers used bottom-up processing involving perceiving and praising the speech stream at increasingly larger levels beginning with auditory-phonetic, phonemic, syllabic, lexical, syntactic, semantic, propositional, pragmatic, and interpretive made them confident in listening. On the other hand, 12,7% of students disliked learning to listen with bottom-up techniques. They said that sometimes given tasks were rather difficult for them. They wanted to know more information about the topic than only grammar and vocabulary. These students' ideas were very noticeable. Teachers should give students more relevant information about the topic of the spoken text alongside grammar and vocabulary; so that students could be easier and better in listening.

2.4. The students' opinion about their listening skills after term learning with bottom-up techniques.

It is essential to have a look at how well students can achieve after a term learning listening with bottom-up techniques. When being asked: "*What do you think of your listening skills after a term with bottom-up techniques?*" the students gave answers as follows:

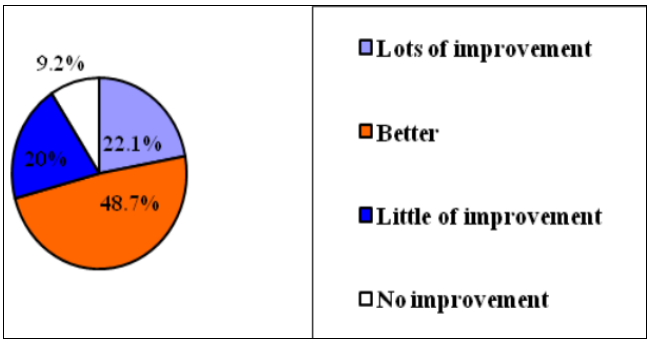

Fig 3: The students' opinion about their listening skills after a term with bottom-up techniques

As can be seen from the chart, only 9,2% of all students have shown their disappointment with bottom-up processes in learning listening. They said that their listening skills had no improvement after an experimental term. Surprisingly, 90,8% acknowledged that their listening skills have improved. 70,8% of them said that they listened better with bottom-up techniques. 20% agreed that their listening skills have improved but it was not much. From the percentage shown in the chart above, it is believed that bottom-up techniques affected the first-year students' listening skills.

In a nutshell, the better result of the experimental group can be deduced as the means to lead the conclusion that to some extent bottom-up techniques bring some efficiency to listening skills.

Discussion

From the above data analysis, we can see that statistical significance between the two means. In other words, the experimental group scored better than the control group. This accepts the null hypothesis that *"Bottom-up techniques can be used to enhance TNUT first year English students' listening comprehension",* and the hypothesis *"Bottom-up techniques cannot help to enhance TNUT first-year English students' listening comprehension"* is rejected. Below are some achievements of using these processes.

Firstly, a large number of participants in the experimental group said that they had a better result after an experimental term with bottom-up techniques. They liked the way their teacher conducted the lesson. They explained that teachers' pre-teaching new vocabulary, grammar structures, explaining the contraction, linking words, and so on helped them a lot in understanding deeply the listening text, especially for the students who studied English for the first time. Meccarty, F. (2000) [11] found that both L2 grammatical knowledge and vocabulary were significantly correlated with listening comprehension. Spoken English is far different from written one. Therefore, students could hardly make out the meaning of the utterances without the teacher's explanation. In other words, bottom-up techniques

proved to be an effective and useful way of teaching listening to first-year students at TNUT.

Secondly, apart from listening, other skills, especially speaking skills were found to be positively affected. Post-listening activities are most effective when implemented immediately after the listening experience, becoming a direct extension of it. Jack C. Richards (2002) [6] indicated that well-planned post-listening activities offer students opportunities to connect what they have heard to their ideas and experiences and encourage interpretive and critical listening and reflective thinking. Students can present themselves by speaking which helps improve students' speaking skills. We see the Students said that they felt more confident in speaking because they have learned from listening texts many useful expressions that they could apply in speaking situations. By listening to the text again and again, students step by step got more accustomed to the speaker's speech rate, and unfamiliar accents, and as a result, they made significant improvements in listening.

Last but not least, an important benefit gained from these techniques is that students become more motivated. They paid much more attention to the listening lesson and found the lesson more interesting. They were curious and eager to ask the teacher to explain to them the structures of spoken language. In every lesson, they tried to take notes, jot down keywords, and repeat what they had heard. Students are no more afraid of listening to lessons as they used to be before. Through the data analysis above, it is possible to realize that bottom-up processes bring a lot of good points to students.

Being a direct conductor through the experimental term, the investigator sees that bottom-up techniques give teachers two advantages in teaching listening.

Firstly, teachers can be easily to own their teaching because they have a form of the lesson to follow, which contains three stages: pre-teaching, while teaching and post-teaching. Teachers become more active in their teaching.

Secondly, teaching time for teachers in the class will be reduced. Why did I say that? When students are aware of the grammar and vocabulary of the lesson they are going to learn, they will be active and smooth in doing followed tasks. Teachers do not need much time to guide or explain them. So that time teachers work as guider or presentor will be reduced. Time for students' activities will be increase.

Conclusion

In short, from the findings of the results of the three tests and the survey questionnaire, it appears that:

In the process of listening to spoken English, most of the first-year students encounter difficulties of various kinds that refer to many aspects of spoken English. The most common ones are a lack of vocabulary, problems with connected speech including weak forms, contractions, elision, problems with speech rate, hesitation, redundancy, and noise in authentic listening texts. The comparison of the three tests leads to the conclusion that to some extent bottom-up techniques have positive effects on students' listening skills.

References

1. Anderson A, Lynch T. Listening. Oxford University Press, 1988.
2. Buck G. Assessing Listening. Cambridge: Cambridge University Press, 2001.
3. Buck G. Assessing Listening. Cambridge University Press, 2001.
4. Brown G, Yule G. Teaching the Spoken Language. Cambridge University Press, 1983.
5. Harmer J. How to Teach English: An Introduction to the Practice of English Teaching. Longman Press, 1998.
6. Richards JC, Renandya WA. Methodology in Language Teaching: Anthology of Current Practice. Cambridge University Press, 2002.
7. O'Malley JM, Chamot AU, Kupper L. Listening Comprehension Strategies in Second Language Acquisition. Oxford University Press, 1989.
8. Rost M. Academic Listening. Cambridge University Press, 1994.
9. Littlewood W. Communicative Language Teaching. Cambridge University Press, 1981.
10. Underwood M. Teaching Listening. Longman Press, 1989.
11. Meccarty F. Lexical and Grammatical Knowledge in Reading and Listening Comprehension by Foreign Language Learners of Spain. Appl Lang Learn,2000:11:323–348.
12. Nauman G. Teaching Students to Listen Effectively. Teacher's Edition, 2002.
13. Nunan D, Miller L. New Ways of Teaching Listening. Illinois, USA, 1994.
14. Rost M. Introducing Listening. London: Penguin, 1994.
15. Rumeliiart DE, Ortony A. The Representation of Knowledge in Memory. In: Anderson RC, Spiro RJ, Montague WE, editors. Schooling and the Acquisition of Knowledge. Hillsdale, NJ: Erlbaum, 1977, 99-136.