Discovery listening—improving perceptual processing

Magnus Wilson

Current approaches to teaching listening have tended to emphasize listening for gist, top-down processing, and listening strategies. These basically focus on teaching students how to cope with authentic language and real-life situations, as part of the communicative approach. Bottom-up approaches that focus on word recognition, on the other hand, have been comparatively undervalued. This article therefore describes a technique based on the notion of ‘bottom-up primacy’ that is nevertheless compatible with current learner-centred, task-based teaching. It makes a case for ‘noticing’ as a method of improving listening ability by getting students to discover and then prioritize their own listening difficulties after reconstructing a text.

Introduction

‘Discovery listening’ is a conscious reaction against the dominant approach in recent years in both EFL theory and in practice. Many published textbooks have tended to rely on practising comprehension (or simply testing it), as Field (2000) and Sheerin (1987) both pointed out, rather than teaching something that might improve students’ performance. Word recognition has generally been neglected in favour of using the context to work out meaning. Top-down processing, listening for gist and, more recently, teaching listening strategies, have tended to be emphasized in much of the EFL literature. Oxford’s survey of the research was typical in commenting that ‘L2 listening is not just a “bottom-up” skill’ (1993: 207, citing Ur). As a result, it has been difficult to avoid the implication that top-down processing is a superior strategy. But although it does teach students to cope with or manage their problems, the question remains as to whether there might be a more direct way of actually improving listening ability. This article therefore describes some classroom observations of an approach I call ‘discovery listening’ to see whether it might be possible to teach bottom-up processing effectively, in a way that retains a learner-centred, task-based format that is compatible with current teaching methodology.

Bottom-up primacy

A review of the psycholinguistic research reveals a contrast with the emphasis in many EFL publications. The best-supported model of listening comprehension (see Lindfield et al. 1999, Field 1999) points to what Marslen-Wilson (1989) refers to as ‘bottom-up primacy’, in good L1 listening conditions. The initial sound input is used to match against potential ‘candidate’ words in the mental lexicon. So, for example, when
we hear the initial sound ‘ha’, words like ‘habit’, ‘hassle’, ‘haddock’, etc. will be activated. These are narrowed down as more sound is processed, so that when we then hear ‘b’ (i.e. ‘hab’) words like ‘hassle and ‘haddock’ are eliminated. This occurs until one match is found—often before the end of the word has been heard.

Of course, in less ideal circumstances (such as with language learners) the brain will have to operate in so-called ‘crossword’ mode, relying rather more upon clues from top-down processing (Forster 1989). Contextual guesswork may therefore be able to compensate for inadequate bottom-up processing, but it is not necessarily an easy task, as we shall see later. So, although top-down processing is used by all listeners, it is not the ideal, and we should keep in mind that the learners’ ultimate aim is to rely less on contextual guesswork, and more on hearing what was actually said. Current EFL teaching has tended to overlook this point.

Perhaps one of the reasons for the comparative neglect of bottom-up processing is that there is a lack of faith in the traditional methods of teaching it. Dictation, the classic bottom-up approach, for example, was not found to be effective in improving listening comprehension in Jafarpur and Yamani’s study (1993). It seems that learning requires a deeper impact on our consciousness than dictation permits, and therefore greater attention to the meaning of a listening text is almost certainly essential.

Some more meaning-focused approaches have been suggested in recent years. Ridgway (2000) advocated extensive listening, flooding the learners with graded comprehensible input—‘The more listening the better and the sub-skills will take care of themselves as they become automatized’ (ibid.: 183). But there are concerns that this relies too heavily on the quantity of listening practice without providing efficient methods for improving comprehension (Field 2000). It is also not clear whether it allows students to pinpoint their difficulties precisely enough: without finding the reasons for miscomprehensions, teachers are simply left hoping that students will improve given enough practice. Similarly, Kelly’s argument (1991) that perceptual problems are less important than a lack of lexical knowledge almost certainly underestimates students’ difficulties in recognizing known words, especially before they reach an advanced level. In my opinion, an excessive focus on meaning, either through extra vocabulary learning or additional listening practice, will not necessarily solve the listening comprehension problems of many students.

So, we still need to find an approach to teaching listening that strikes a balance between attention to form and attention to meaning. One method that has not been suggested to my knowledge is dictogloss, the text reconstruction technique. It has the advantage over dictation that learners are generally unable to complete the task by simply passing the input straight through short-term memory without processing the meaning of the text more deeply. But because it was intended as a grammar teaching activity, and because it did not teach any of the sub-skills of listening, Wajnryb, the chief advocate of dictogloss, was
cautious, and suggested that any improvements in listening would only be ‘by-products’ of the technique (1990: 7).

Nevertheless, something like dictogloss did feature as one of Field’s (1999) recommended techniques for encouraging a hypotheses-testing approach. In this activity learners noted down the words they could catch as they listened to part of a text, and then discussed their understanding of the overall meaning with their classmates. The aim was to demonstrate the guesswork involved in listening and encourage students to adjust their strategies—those who are ‘risk-avoiders’ should make more use of contextual knowledge, and those who are ‘risk-takers’ should learn to check their hypotheses more carefully. The emphasis, though, was still on strategies applied to authentic texts, and on students comparing their approaches with other students. It did not directly involve students focusing on sound and word recognition.

Noticing

‘Discovery listening’ tries to achieve a focus on sound and word recognition by adapting the dictogloss approach, making it much more text-focused. The main goal is to guide students towards noticing the differences between their reconstructed text and the original, and then ‘discover’ the reasons for their listening difficulties.

Generally speaking, tasks to promote ‘noticing’ have been designed for grammar teaching (Batstone 1996). But just because a task was originally designed for noticing grammar does not mean it is the only thing students will notice as they perform the task. This is even more the case when the task is modified to focus on listening difficulties, which is what ‘discovery listening’ has been designed to do. Like dictogloss, it requires students to reconstruct the text they hear, but several additional features aim to make students more precisely aware of three key areas:

a. what their shortcomings are
b. what the possible causes might be
c. what their relative importance is.

(See students’ tasksheet in the Appendix.)

The task

The task consists of three main phases:

1 Listening—in this phase, students:
   a. listen, without note taking, to a short text spoken at normal speed.
   b. self-assess their comprehension level.
   c. listen two more times while taking notes.

2 Reconstructing—in this phase students:
   a. form small groups and use their notes to attempt to reconstruct the text.

3 Discovering—in this phase students:
   a. compare their text with the original, and attempt to classify the causes of mistakes.
   b. assess the relative importance of their errors.
   c. listen again without reading the text, and assess their performance.
Discovering students' problems

The purpose of the reconstruction phase is to highlight the students' problems. Some typical patterns of group discussion can be illustrated here from a recording (translated from Japanese) of three intermediate-level students (X, Y, and Z) in a second-year, compulsory general English university class that was introduced to 'discovery listening' tasks. Overall, these show what kinds of things students notice during the task, and indicate just how difficult top-down processing can be when bottom-up processing has been inadequate.

In the extracts from the students' discussions below, references to the 'discovery listening' text are in bold type. The full text that the students listened to was as follows:

Construction workers in Japan wear very colourful clothes and incredibly wide trousers. They seem to be everywhere digging up the road. I suppose all these construction projects help to reduce unemployment. But I've heard they probably also waste a lot of money and damage the environment.

Perceptual problems

At first the students tend to talk about what they heard bottom-up, by sharing or pooling knowledge, and occasionally confirming what they are doubtful about:

X I suppose all these something, something ...
Y ... something reduce the environment.
X Is it reduce?
Y Yeah.
X ... employment isn’t it?
Y Yeah.

Sometimes groups will carry on like this until the end of the text and then go back to discuss problems or gaps. At other times they discuss difficulties as they go along.

Grammatical hypotheses checking

Problematic areas or gaps are often assessed against top-down grammatical knowledge, though not necessarily correctly:

X We can’t say they seem digging.
Z Yeah.
X So, they seem to be? ... be is wrong ... it’s never correct.
Y Never, but I heard be ... not sure.

Of course, in this case it made relatively little difference to the overall meaning whether ‘seem to be’ or just ‘seem’ was correct. It is worth noting, however, that it is not easy for students to judge at the time whether a problem is important or not, and from the transcripts it is also clear that often difficulties could not be dealt with in isolation. One problem often leads on to another:

Magnus Wilson
Y ... is waste of money and it damage ... damageS (emphasis) not damage.

X Did he say it is? It matters ... it is waste of money and it damages ...
I think he said damage.

Y I heard they.

Z Did he say that? I doubt it.

For students at this intermediate level, judging between what seem to be equally plausible solutions, or attempting to fit uncertain bottom-up and top-down hypotheses together, is not always easy. In ‘real-time’ listening we can predict it will be even more problematic.

Lack of contextual inferencing

Using contextual information is relatively uncommon during the task. In this case, for instance, a large number of the students mistook ‘construction workers’ for ‘construction work’ or ‘works’: 

X Anyway, the beginning is construction work not construction works. Not plural.

Y You think so?

Z I just heard work.

Even though many of the students subsequently noted the reference to ‘colourful clothes’ in the same sentence, they failed to make the connection between ‘clothes’ and ‘workers’.

Similarly, the vast majority of students in the class misheard ‘unemployment’ as either ‘employment’, ‘an employment’, or ‘some employment’, even though it made a nonsense of the overall meaning. In fact, in the recorded group, this was briefly noticed:

X ... reduce the employment ... I’m not sure about this. I can’t understand the meaning.

But these doubts were not followed up. Although the students were at an intermediate level, and considered to be intelligent, top-down processing even with repeated listening, note-taking, and discussion, appeared to be very difficult.

Similar observations of a lack of top-down processing often lead researchers to say that students are stuck in bottom-up processing mode, and therefore should be taught to improve their top-down skills (Goh 2000). At first this seems plausible. However, Goh also mentions that many of the students she observed ‘were caught between perception and parsing with few opportunities to process the information at a higher cognitive level’ (ibid.: 71). I suspect that it is, in fact, unreasonable to expect students to make much use of their higher cognitive levels unless we help them find the causes of their lower-level problems first.

Discovering the causes of problems

This phase takes students a stage further than the original dictogloss technique as they compare their (partially) reconstructed texts with the original text, and try to classify their errors. The categories that are used
form a progression from sound perception problems, (a and b), to word recognition, (c and d), to grammatical or contextual problems (e).

**What problems did you have?**

*(circle the problem words above and write a, b, c, d, e, or f beside them)*

[a] I couldn’t hear which sound it was.

[b] I couldn’t separate the sounds into words.

[c] I heard the words but couldn’t remember their meaning quickly enough.

[d] This word was new to me.

[e] I heard and understood the words but not the meaning of that part of the sentence.

[f] Other problems. (write here)

By comparing their problems with the original text, specific knowledge can be learnt (or at least, become available for learning) according to the individual student’s difficulties. In the case described above, four categories of ‘learning points’ were raised:

1. Some students found common word combinations that they failed to recognize (e.g. ‘I heard’ v. ‘I’ve heard’/ ‘some employment’ v. ‘unemployment’/ ‘works were’ v. ‘workers wear’).

2. Some discovered how known words actually sounded in context, or in previously unfamiliar collocations. (For instance, a third of the students in this case had difficulty recognizing ‘construction projects’, even though they had successfully recognized ‘construction’ at the beginning of the text, and knew the word ‘projects’).

3. There were also grammatical points (e.g. whether ‘waste’ and ‘damage’ could be verbs as well as nouns) and pieces of vocabulary (e.g. ‘incredibly’) that some students were unfamiliar with.

4. In addition, students were able to see exactly where and how some top-down inferencing might have helped to resolve specific problems.

The final stage is to select the errors that students think gave them most difficulty in understanding the gist of the text. Not all listening problems are equally important, so this phase avoids them finishing the task with a long list of difficulties that would be too overwhelming to learn. The process of choosing them also gives students another ‘noticing opportunity’. (In this case, over half of the students chose ‘reduce unemployment’ as most important.)

If each student has a manageable number of precise areas to pay attention to, the hope is that in subsequent listening activities they will improve their awareness, and therefore their perceptual processing. Of course, until properly tested it remains just a hope. However, it is worth pointing out that during the tasks the students appeared more motivated than in ‘getting the gist’ listening exercises, though in this case, of course, there may have been a novelty factor. But in general, as long as
the level of the text is appropriate, the task seems to satisfy a basic human instinct towards problem solving (Piaget in Brown 2000: 164). If ‘noticing’ really is an important part of the learning process, then motivating students’ attention may be one of the keys to improvement.

Grading

A final point needs to be made. Students will not be motivated if the listening text is at the wrong level. Therefore the texts in ‘discovery listening’ are graded. Without some sort of grading of listening texts, students will almost always be forced to use top-down contextual guesswork. To avoid this, we need to find a middle way between the students focusing on form and focusing on meaning by grading the listening texts. This is admittedly a complex and subtle skill, but unlike Field (2000), I think it is possible.

Firstly, by not allowing note-taking at the first listening (step 1a) ‘discovery listening’ attempts to ensure that students do not simply treat it as a dictation. Secondly, students’ self-assessments (step 1b), though subjective, can also be helpful in assessing whether the text has come near the ideal level. For example, when introducing the task to students I had not met before, I found by the second week that only three students assessed their comprehension at ‘more than 60%’ after the first listening, and the majority clustered at under 40%.

So, as long as the students’ levels are relatively homogeneous in the first place, it is possible to grade the text successfully. Naturally this does require teachers to have a certain ‘feel’ for task, based on experience with the students, but it seems to me that such an ability is what makes teachers so valuable to learners. They need someone who can select or modify the language they are exposed to without creating something totally artificial. Teachers can, of course, choose to use extracts of taped conversation or even video, although in my own case I chose to write the texts myself. But the choice is open so long as it is graded for difficulty.

Conclusion

If it is accepted that there has been an excessive emphasis on top-down approaches to teaching listening, we need to respond with practical classroom activities that shift the balance towards ‘bottom-up primacy’. The technique I have called ‘discovery listening’ tries to help students in this direction by getting them to (1) focus on what their precise listening problems are, (2) think about what their causes were, and (3) assess their importance. Whatever is learnt during the task has the value of appearing to be directly relevant to the students’ needs, and rather than only relying on general advice from the teacher, specific learning points are generated by the students themselves. Finding a solution to a problem one has struggled with or puzzled over seems more likely to stick in the mind, especially if we come across other examples later. This approach may therefore be a practical, student-centred way of dealing with the numerous perceptual errors that impede the path to better listening comprehension.

Certainly, the activity requires students to concentrate on bottom-up accuracy to a degree that would be unnecessary in real life. But this forces their attention on what they might otherwise miss. Numerous small
misperceptions are not necessarily trivial, and seem to have a cumulative effect. They also appear to slow down learners’ ability to do top-down processing—just as a driver speeding through a cloud of stones and dust has difficulty seeing the road ahead. It does seem a reasonable hypothesis, therefore, to suggest that better bottom-up processing ought to lead in turn to better top-down processing, and that teaching should reflect this.

Final version received May 2002

References
Forster, K. I. 1989. ‘Basic issues in lexical processing’ in W. Marslen-Wilson (ed.).

The author
Magnus Wilson is a student at Edinburgh University, studying Chinese. Previously, he taught English in Japan for six years.
Email: magnus.wilson@ed.ac.uk

Appendix
Discovery listening
1 First listening—How much of the meaning do you think you understood?
   Almost nothing / Less than 40% / About 50% / More than 60% / Almost all
2 Second listening—make notes of key words.
3 Third listening—add more notes.

   1.
   2.
   3.
   4.

Magnus Wilson
4 In your group, try to write the sentences completely. They don’t have to be perfect, but try to make the meaning as similar to the original and as correct as possible.

1.
2.
3.
4.

5 What problems did you have?
   (Circle the problem words above, and write a, b, c, d, e, or f beside them)
   [a] I couldn’t hear which sound it was.
   [b] I couldn’t separate the sounds into words.
   [c] I heard the words but couldn’t remember their meaning quickly enough.
   [d] This word was new to me.
   [e] I heard and understood the words but not the meaning of that part of the sentence.
   [f] Other problems. (write on the back)

6 Which of these words (or phrases) caused you most difficulty in understanding the general or overall meaning?
   (write here)

7 When you read it do you have any trouble understanding it?
   No / Yes
   (If yes, write the problem on the back of the page)

8 Final listening—can you hear and understand clearly now?
   Almost nothing / Less than 40% / About 50% / More than 60% / Almost all.

Improving perceptual processing