

# Ear Training On Line as an Educational Tool for the Teaching of IPA Transcription

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## ABSTRACT

Ear Training On Line is a flexible educational package for teaching IPA transcription via the Internet. It explicitly aims to improve students' phonetic listening skills and to optimise the acquisition of the International Phonetic Alphabet as a tool for phonetic transcription. The package consists of a separate student and teacher interface. The student interface can be downloaded to any computer. The teacher interface is accessible via the Internet and provides teachers with information about students' progress.

## 1. INTRODUCTION

Besides theoretical reflection about and a taxonomical interest in the sounds of the world's languages, aspiring linguists and phoneticians require the necessary practical skills to perceptually distinguish sound differences and to produce these themselves. These ear training and performance classes are generally labour intensive, time consuming and thus relatively expensive. During the classes, educational output is extremely high, whereas outside classes, students are left pretty much to their own devices.

In order to solve these problems Ear Training On Line was developed. It creates the possibility for students to practice the perception of a wide range of phonetic distinctions. During the training process, students get instant feedback about their progress, whereas teachers have access to meaningful reports about students' performance. As a result classroom teaching may become highly efficient in that it can concentrate on problems experienced by individuals or groups of students.

## 2. EXERCISE TYPES

Ear Training On Line provides four types of transcription exercises focusing on different subskills: phonetic labelling, symbol drill, guided transcription and free transcription. Within each component, the exercises are grouped together according to the different sound classes distinguished by the IPA: plosives, nasals, trills, fricatives, approximants, vowels, ejectives, implosives and clicks.

In the phonetic labelling component, students get a

phonetic description of a sound and they have to indicate the phonetic symbol corresponding to it. Students have the choice between five phonetic symbols. This component aims to relate the meaning of traditional phonetic taxonomic concepts to concrete IPA symbols. After students have made their selection, they get instant feedback as to the correctness of their choice and they have the option to listen to the sound in question. All the sounds in this exercise type were recorded between two open mid vowels. In the vowel exercise, the vowels occur after a bilabial oral stop.

In the symbol drill, students hear a sound recording and they have to choose the correct phonetic symbol from a series of five options. After their choice, students are corrected if necessary. The target sounds occur in simple nonsense words which have a maximum of two syllables. The sounds to be transcribed can occur word-initially, medially or word-finally and are never part of a cluster. The aim of this component is to relate sound perception to the IPA symbols.

The graphical interface of this exercise type is illustrated in figure 1:

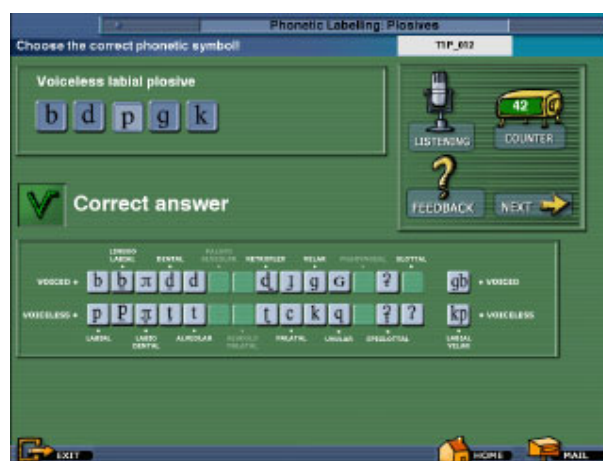


Figure 1: Graphical interface of the phonetic labelling and symbol drill component of Ear Training Online.

In the two exercise types described so far, students also have the possibility to obtain more information about the phonetic symbols which are used: after doing an exercise on e.g. plosives a feedback button lights up which gives access to a survey of all the phonetic symbols for the

plosives with their place-of-articulation labels.

The third type of exercise is guided transcription. Students hear nonsense words which have been partially transcribed and they have to choose the correct symbols for the missing sounds. For this purpose, students have access to all the symbols for a particular sound category, i.e. for exercise on plosives they have all the plosive symbols at their disposal. The number of sounds to transcribe differs from word to word, as does the phonetic context in which the missing sounds occur. In view of these parameters, it can be assumed that this type of exercise is considerably more difficult than the previous two.

In the assessment stage, students are given two opportunities to complete the transcriptions. After completing the transcription in a first trial, they click an evaluate button: the system indicates which symbols are correct and which are not. In a second trial, students can subsequently change the transcription of the incorrect symbols before asking the system for a final assessment of the transcription. Figure 2 illustrates an exercise screen for the guided transcription exercises :



**Figure 2:** Exercise screen for the guided transcription exercises. In this exercise, the first and third sound were missing.

The fourth type of exercise is free transcription and it comes closest to the real transcription of speech. Students listen to a nonsense word which is pronounced by a phonetician and they are given a visual indication of how many sounds they have to transcribe. Students complete the transcription by choosing the correct phonetic symbols from a keyboard containing all the symbols that may be necessary.

Ear Training On Line assesses the transcription in two rounds. In the first round it indicates which segments were transcribed correctly. Subsequently, students get the opportunity to revise their transcription before having it assessed for the second time.

It should be mentioned that the focus in these exercises is on the identification and transcription of main segments only. All kinds of secondary aspects of

articulation that are usually transcribed by means of diacritics have been left out.

The graphical interface of the free transcription module of Ear Training On Line is illustrated in figure 3:



**Figure 3:** Graphical interface of the free transcription module of Ear Training On Line.

### 3. PHONETIC SYMBOLS

Ear Training On Line has a total of 206 phonetic symbols, which were designed graphically as small individual buttons. This has two important advantages. In the first instance, students do not have to install any phonetic font in order to use the package: this avoids all kinds of cross-platform compatibility problems. Furthermore, students do not have to actually learn to use a phonetic font on their computer. This can be quite tedious especially in terms of the relationship between the keyboard buttons and the actual phonetic symbols.

The second advantage of a graphical representation is that the phonetic symbols (contained in graphics files) can be easily coded in terms of the phonetic dimensions relevant to the sounds in question. These codes can subsequently be used in the feedback process of the transcription training.

As far as the criteria are concerned on the basis of which it was decided to include certain phonetic symbols and exclude others, it would have been possible to work purely on the basis of frequency of occurrence of sounds in the languages of the world. Calculations in Maddieson [1] could have provided good and objective guidelines. The result of such a statistical approach would have been, however, that uncommon sound categories would not have been included, even though they represent phonetically interesting taxonomical categories. Therefore, it was decided to include as many main segments as possible in order to provide substantial phonetic variety for the learner.

### 4. SOUNDS

All the sounds and nonsense words were read by a male

phonetician and recorded on video in a professional studio. The video recording zoomed in on the lower part of the speaker's face so that the articulation of the sounds is clearly visible. The video clips for the individual sounds and nonsense words were digitised and converted to a Quicktime format which can easily be streamed over the Internet on different computer platforms.

## 5. EDUCATIONAL TOOLS

Students also have a number of educational tools at their disposal in Ear Training On Line. In the first instance, they have access to information about how well they have been transcribing in that they get an indication of the percentage of correct transcriptions for the different sound classes. This feedback screen is illustrated in figure 4:



**Figure 4:** Student feedback screen in Ear Training On Line.

Besides, Ear Training On Line has a built-in email facility by means of which students can get in touch with their teacher directly for questions, comments, feedback and help in general.

## 8. TEACHER FACILITIES

Teachers using Ear Training On Line in their phonetics classes get access to a dedicated Teacher Module on the Internet via an ordinary browser. This Teacher Module allows teachers to do teaching-related administration such as creating student groups, the administration of passwords and setting the assessment criteria for individual students or groups of students.

It is also the location of the teacher's mailbox which centralises all student messages. It was decided to keep the mail concerning Ear Training On Line separate from the teachers other mail.

In addition, there are various ways to summarise and analyse students' progress. Teacher can e.g. ask for a ranking of students or a list of the most frequently made mistakes. Furthermore, teachers can find out about which phonetic variables cause problems in the different student

groups in terms of voicing, place, manner and aspect of articulation. This type of error analysis can provide very useful information which can be used as a starting point for remedial teaching in plenary sessions.

## 7. SYSTEM REQUIREMENTS

The Student Module of Ear Training On Line is compatible on both Macintosh and PC. For Macintosh system 8 or higher is required. PC minimally requires Windows '98. In both cases 32 Mb memory is necessary and students must have an internet connection. Except for Quicktime, there is no special software to be installed. The Teacher Module is accessible on the Internet via an ordinary browser. Ear Training On Line generally requires 20 Mb of free disk space.

## 8. CONCLUSIONS AND PERSPECTIVES

Ear Training On Line is a powerful educational tool for the improvement of students' phonetic listening skills and the acquisition of IPA transcription. It allows students to practice on an individual basis outside the walls of the traditional classroom. Nevertheless, teachers can closely monitor students' progress so that the teaching process in the classroom is optimised.

Future developments of Ear Training On Line will include recordings of native speakers of a large variety of languages. This will take ear training one step further than the nonsense words that are currently being used. In addition, we would also like to include a large number of illustrations of the IPA in order to give students access to a substantial stock of real language samples.

## REFERENCES

- [1] I. Maddieson, Patterns of Sounds, Cambridge: University Press, 1984.

