



## A SURVEY OF PHONETICS EDUCATION IN EUROPE

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### ABSTRACT

A survey has been carried out to obtain an overview of phonetics education in Europe. A mainly web-based questionnaire was used to collect both quantitative and qualitative information. Responses were obtained from 78 institutes in 25 European countries. This paper summarises some of the findings of the survey.

### 1. INTRODUCTION

At the end of 1996, the Socrates Thematic Network in Speech Communication Sciences was set up, giving the speech community a unique opportunity to reflect on phonetics education in Europe.

The field of phonetics is concerned with studies of the production, transmission, and perception of speech. Although the teaching of phonetic skills was included in related curricula such as foreign language teaching from the early part of this century, the teaching of general phonetics per se did not begin until the 1940s [1]. Historically, phonetics has typically been taught within the context of humanities institutes. However, with the rapid expansion of research in speech technology and in speech and hearing pathology, the situation has changed drastically. Phonetics is now taught in a wide range of contexts: as part of speech pathology degrees within Schools of Speech and Language Therapy, as part of Engineering degrees in institutes concerned with speech technology specialisations, as well as in more traditional Linguistics and Philology departments. These different contexts bring new requirements and expectations from the field of phonetics education. The aim of the Working Group in Phonetics within the Thematic Network was to get a better picture of the diversity which may be linked to factors such as type, size and location of institute, but also look at common threads across different curricula.

### 2. QUESTIONNAIRE

The main means of gathering information was via a web- and email-based questionnaire. Some 210 institutes throughout Europe were contacted individually by email or by letter and asked to complete the questionnaire, using the printed version if necessary. This initiative was

also advertised widely on bulletin boards and in various newsletters. The review presented below is based on data gathered so far from 78 institutes based in 25 European countries (including Central and Eastern Europe). Although the data collected for certain countries or types of institutes may be limited, certain trends are clearly emerging from the data.

The information gathered via the questionnaire was both quantitative and qualitative. Quantitative information was acquired regarding numbers of students and staff, numbers of hours taught for various topics, the specific knowledge or 'elements of study' taught within each topic, etc. Qualitative information was gathered regarding the aims of phonetics education, the skills that phonetics education is expected to equip students with, and about the teaching methods typically used. The full questionnaire can be accessed at the following site: <http://www.kgw.tu-berlin.de/TN-PHO>

A review of the data collected is presented below, organised in three different strands. The questions that we hoped to answer are the following:

WHERE is phonetics taught?

What is the general picture throughout Europe in terms of the number and types of institutes in which phonetics is taught? What special situations are found in different European countries?

WHAT is taught?

What are typical contents of phonetics curricula in the different types of institutes in which phonetics are taught? What elements of study are considered important? What teaching methods are typically used?

WHY is phonetics taught?

What skills are institutes aiming to equip their students with? How has education in phonetics changed in the past few years?

In this paper, we will address some of these questions. A full review of the survey is available in Bloothoof et al [2] and also at the following web site:

<http://tn-speech.essex.ac.uk/tn-speech/project/groups/tn-phon/tn-phon.html>

## 2.1 WHERE is phonetics taught

Responses were received from 78 institutes in 25 different countries. Countries which contributed the greatest proportion of overall responses are the United Kingdom (16% of total responses), Germany (14%) and Spain (12%). All EU countries are represented in the survey, and responses are also included from 9 countries in Central and Eastern Europe. Although there is not sufficient representation to comment extensively on the characteristics of phonetics education in individual European countries, it is possible to look for common threads and differences between institutes of similar size and affiliation across Europe.

It is important to characterise the types of institutes from which information was collected. Institutes were asked to name one or more categories which best described their general focus or affiliation. A majority of the respondents named Phonetics, Linguistics or Speech Communication as the main focus of their teaching. About 20% described themselves as Departments of Language or Philology. A majority of those institutes were in Southern Europe (Spain, Portugal, Italy and Greece) where there is no tradition of dedicated Phonetics and Linguistics institutes and where phonetics is most typically taught in the context of a philology or language department.

Numbers of undergraduates taking phonetics courses varied widely across institutes from less than 10 (18% of institutes) to more than 100 (34% of institutes). The number of postgraduates taught in individual sites was typically small: over 70% of institutes had less than 10 postgraduates and the rest less than 50.

The number of staff teaching phonetics/speech sciences within an institute was also typically small; the largest reported was 15 members of staff. However, in over half of the institutes surveyed, there were 3 members of staff or less teaching the phonetics curriculum and in nearly 20% of institutes, only a single member of staff responsible for phonetics education. This has important implications in terms of resources available, especially if small-group teaching is involved, and in terms of the expertise available for teaching the more specialised areas of phonetics curricula.

## 2.2 WHAT is taught?

In his review of phonetics education, Ladefoged [1] reported that the core courses within a phonetics curriculum had changed little since the 1950s and included 'articulatory and acoustic phonetics, speech perception, experimental phonetic techniques, phonetic performance skills, and the classification and symbolisation of speech sounds'. One of the aims of this review was to ascertain whether this was indeed the case within European education in phonetics, given the wide range of settings and purposes for which phonetics is

taught. Information was collected about which of 54 'elements of study' were taught to students. These elements of study were grouped under the following main headings:

- Acoustic phonetics
- Speech production
- Speech perception
- Ear training and transcription
- Phonology
- Language acquisition
- Speech technology
- Methods and tools
- Sociophonetics/dialectology

The choice of elements to be included in the questionnaire was based on an initial description of phonetics curricula carried out within the Erasmus programme in Phonetics and Speech Communication [3].

'Core' elements are defined as those which are taught in over 80% of the institutes included in this survey. These included:

- three elements within the area of 'transcription and ear training': phonetic representation, phonetic symbols for vowels and phonetic symbols for consonants.
- two elements within the area of 'acoustic phonetics': basic principles of acoustic phonetics and the acoustic properties of speech sounds.
- two elements within the area of 'speech production': the anatomy and physiology of the vocal tract and the articulation of speech sounds.

These data therefore generally support Ladefoged's list of 'core elements' of phonetics education, although, surprisingly, speech perception appears to be given much less emphasis than expected as no element of study within this area was taught by more than half of the institutes surveyed. Other widely taught elements of study (at least 70% of institutes surveyed) included: supra-segmentals (acoustic phonetics), production of prosody, respiration (production) and distinctive features (phonology).

Topics such as Language Acquisition, Speech Perception, Sociophonetics, and Speech Technology were a compulsory part of the curriculum in less than half of the institutes surveyed. The inclusion of Speech Technology in this category is rather surprising given that many institutes reported an increasing emphasis of Speech Technology within the curriculum (see section 2.4).

## 2.3 WHY is phonetics taught?

Fundamental to this question is an understanding of 'what it means to be a phonetician'. There has been much

debate about this issue, most notably at the most recent International Congresses of Phonetic Sciences [4,5,6,7]. Key points for discussion are the often conflicting demands of fundamental and applied research in phonetics, as well as the relation between phonetics and other disciplines such as linguistics or spoken language engineering. The relation between phonetics and phonology has also been the object of lengthy debates. One of the aims of this review was to see to what extent these key issues are reflected in phonetics education.

Institutes were asked to describe their goals and philosophy behind phonetics education. There appear to be different strands in the responses to this question which can be related in part to the general profile of the individual institute (affiliation, size, location). Some institutes saw as their primary goal to give a strong foundation in the understanding of the process of speech communication including its theoretical underpinnings. These tended to be institutes which teach phonetics for its own sake, usually as the single subject of focus. Other institutes commented on the low probability that their graduates would eventually work directly in the field and saw their role as providing 'an education into research' with equal weight given to phonetics knowledge and to the development of analytic thinking. Finally some institutes saw as their aim to provide students with information about phonetics which was necessary for the study of speech pathology, speech technology, languages, etc. These institutes typically were those in which phonetics formed a very small part of the curriculum and where the number of phonetics staff was limited.

The next set of questions addressed the emphasis given within the curriculum to the different skills that institutes are aiming to equip their students with.

### *2.3.1 Transcription/ear-training skills*

Nearly two thirds of the respondents saw these skills as an important part of the curriculum, especially at basic level (i.e. first two years of university study). Around a quarter reported that these skills were taught but not seen as a crucial part of the course. Only three institutes reported that no training was given in these skills.

### *2.3.2 Articulatory skills*

Training in the production of sounds of the world languages was offered as a compulsory part of the curriculum in 40% of the institutes. A further third of respondents did not put great importance on these skills within their curricula. About a quarter of respondents offered no training in these skills.

### *2.3.3. General transferable skills*

Many institutes reported that general skills such as report writing and the development of analytic skills were integrated within the curriculum offered, although not explicitly targeted. Many institutes also aimed to provide students with computer skills and some statistical analysis skills.

### *2.3.4. Experimental skills*

40% of institutes reported that a lot of emphasis was given within their curriculum to experimental work. Less than 10% stated that no experimental skills were provided and this was often due to lack of resources. In a small number of institutes, experimental skills were taught to more advanced students but not as part of introductory courses. This could also be due to the limited availability of equipment and other resources.

### *2.3.5. Profession-oriented skills*

There appeared to be a clear distinction between institutes which aim to prepare their graduates for a specific profession (language teaching, speech and language therapy, speech technology) and those which offer a more general degree in phonetics and do not provide any profession-related skills. This separation did not appear to be based on geographical location.

## **2.4 HOW is the field likely to change in the next ten years?**

### *2.4.1. Structure of curricula*

Many institutes forecast a trend towards phonetics becoming less independent and more closely integrated with fields such as computational linguistics, speech technology, cognitive science, speech and language therapy. This appears to reflect a more general move in many countries towards more 'applied' higher education, but was seen by some respondents as a dangerous move. Many felt that phonetics should remain as a field in its own right and should also continue dealing with fundamental research issues as well as more applied ones. This conflict between fundamental and more applied curricula therefore reflects the more general debate about the standing and future of phonetics as a field of research discussed by Ladefoged, Lindblom, Kohler, Nolan and others [op. cit.].

### *2.4.2 Contents of curricula*

There is a growing emphasis on the inclusion of experimental courses within the curriculum (e.g. Acoustic Phonetics) which often include practical laboratory work. The availability of courses on speech technology is also becoming more widespread. These courses are also the ones which are revised most often

because of the rapid advances in this field. Other institutes report increasing emphasis within curricula on specialised courses such as language acquisition and second language learning.

#### 2.4.3. Teaching methods

Great changes have been brought about in the last ten years as a result of rapid advances in computer technology. Affordable hardware and the availability of low-cost signal processing and other software have meant that many students get greater access to such facilities and undertake more experimental work. This often means that these facilities are now available even to students at basic undergraduate level. Many institutes foresee a greater use of internet/web-based educational software and distance-learning resources in the next ten years.

### 3. CONCLUSION

This survey is the first to have attempted a quantitative overview of phonetics education in Europe. Its aim was not to be judgmental about the quality of education in different countries or types of institutes but to provide a solid foundation onto which further work on the further development of cooperation in European education in phonetics could be based.

A picture emerges of a rich, diverse and vibrant field that has adapted to new technologies much faster than many other fields of study. There is certainly evidence for the existence of Phonetics as a well-defined science in its own right as a core of elements of study exists which are taught in virtually all institutes offering courses in phonetics. However, there is also evidence for different profiles of departments which offer phonetics education tailored to the needs of their particular specialisation. The experimental aspects of phonetics education are becoming more prominent, in some instances to the expense of more traditional phonetic skills such as articulation training. This has important implications in terms of hardware and software resources and may create a greater difference in education between the well- and less-well resourced institutes. In order to avoid this, it is increasingly important to work, within Europe, towards a greater sharing of teaching materials, resources, and examples of 'good teaching practice'. It is towards this aim that the Working Group in Phonetics will be working in the second phase of the Thematic Network in Speech Communication Sciences.

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