INTERNATIONALISATION OF EDUCATION IN PHONETICS

The European Union Socrates Thematic Network
“Speech Communication Sciences”

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ABSTRACT

A wide range of activities that aimed to stimulate international co-operation in education in speech sciences took place in Europe over the last decade. This paper reviews actions that were initiated over the last four years under the aegis of the European Union Socrates Programme in the areas of Phonetics, Spoken Language Engineering, and Speech and Language Therapy. The major focus was on recommendations with respect to the contents of academic curricula. In addition, a great deal of attention has been given to possibilities and limitations of computer-aided learning and the Internet in education. Conditions for successful global networking for education are discussed as well as the necessity for an active role of the international organisations.

1. INTRODUCTION

Over the last decade, many co-operative actions in Europe have occurred with respect to education and training in Speech Communication Sciences. This was exemplified by the publication of the book ‘European Studies in Phonetics and Speech Communication’ [1] launched during the Phonetics Congress in 1995 in Stockholm, as well as by the plenary special session on education at the same congress.

Major activities concerned the organisation of student exchange, the organisation of annual European summer schools, and a valuable exchange of information about the many academic sites in Europe that provide education and training in Phonetics and Speech Technology. In 1995 this groundwork led to a next phase: a thorough analysis of current European education and a reflection on recommendations for future developments.

From 1996 through 1999 the European Socrates programme supported such a project under the prestigious heading of so-called Thematic Networks. Partly in recognition of our previous achievements, our proposal was chosen with only 25 others out of 400 submissions in total. The aims and major outcomes of our Thematic Network in Speech Communication Sciences will be presented here.

2. THE THEMATIC NETWORK SPEECH COMMUNICATION SCIENCES

The Thematic Network Speech Communication Sciences is concerned with Phonetics, Spoken Language Engineering, and Speech and Language Therapy. The areas of Phonetics and Spoken Language Engineering actually constitute a continuation and widening of the group of departments that initiated co-operation in the early nineties. The combination of these two directions reflected the philosophy that close co-operation between education in Phonetics and Spoken Language Engineering will be beneficial for both in the long run. For the current project the dimension of Speech and Language Therapy (SLT) was added. In some countries, notably the United Kingdom, there had been already a long tradition of co-operation between Phonetics and SLT, which would make such an extension quite natural. On the other hand the status of Speech and Language Therapy teaching in Europe is variable, from academic to higher professional education. In that respect the area is less homogeneous which may hamper international co-operation. Nevertheless we included Speech and Language Therapy in the network because it was felt that closer relations between the areas should be pursued in the future, and moreover, that we could learn from each other. The scope of the network could also have been widened to, for instance, computational linguistics and natural language processing. However, we anticipated that gradual extension of the network and gradual widening of the scope of deliverables is more profitable than seeking the widest possible participation as an aim in itself. In international co-operation even moderate aims are challenging already.

The Thematic Network Speech Communication Sciences currently consists of 102 university departments from 22 countries that are members or associated members of the European Union. In addition the network has been endorsed by the following international organisations: ESCA [European Speech Communication Association], ELSNET [European Network for Language and Speech], EURASIP [European Association for Signal Processing], IALP [International Association for Logopedics and Phoniatrics] and CPLOL [European Association for Logopedic Professionals]. Activities of the network are essentially carried out by four working groups, three related to the different strands of the area, Phonetics, Spoken Language Engineering, and Speech and Language Therapy, and one on Computer-Aided Learning and the Internet. Each working group has about eight members. The chairs of the working groups and the co-ordinator of the network constitute the steering committee.

Creating a network is not only a matter of linking departments via paperwork; a network is essentially a network of people who share a common interest, who are willing to spend unpaid time in these tasks, who can easily communicate, and who meet each other now and then. These conditions are satisfied in our network. Since 1997, two meetings of the working groups of the network have been organised every year,
and equally important, fully funded. A meeting in January was used to discuss the goals of the project year and for planning, in a meeting in May the results of the work were considered and chapters were prepared for the book that was published every year in September. Between meetings, electronic communication was indispensable to ensure progress of the work and to reach colleagues for opinions by means of (web-based) questionnaires. Whereas electronic communication existed in the academic world since the early nineties, this was not the case for Speech and Language Therapy. As a consequence, it was hard to contact the field in that area and results came in at a far slower pace. But even during the project improvements in connectivity have already been witnessed.

2.1. The aims of the network
The Thematic Network aims to establish the present status, contents and philosophy of education in Europe in the various disciplines that constitute Speech Communication Sciences. This information should serve as a basis for discussion and exchange of views, followed by recommendations on existing curricula, the cooperation between curricula, and the need for new curricula. This process is supported by addressing possibilities notably created by the Internet to promote common use of course materials, speech material and demonstrations, and to explore possibilities for the joint development of courses through the Internet. As a theme for the project we accordingly chose “The Landscape of Future Education in Speech Communication Sciences”, which became the title of the book series produced by the working groups [2][3][4]. For the main targets of the network, curricula and (interactive) educational materials, a common approach was adopted. An analysis of current status was realized in year one, proposals for recommendations were made in year two, and in the last project year comments from the field on the proposals were triggered resulting in final recommendations.

2.2. The aims of the network
The diversity of implementation of studies in phonetics and spoken language engineering in Europe is enormous. This relates to external factors such as the environment of the study [Humanities (linguistics or philology), Computer Sciences, Electrical Engineering], the staffing [typically small, but departments with up to 15 phonetics staff members exist], and staff interests and expertise. These factors have a great impact on the duration of the studies, with a reported variation between 0.2 student-year (a few courses) up to a full four-year curriculum. Depth and breadth of the studies directly depend on these factors. This variety extends to Speech and Language Therapy for which we already mentioned the differences in status of education across Europe, which also reflects in contents and duration of studies.

In the following sections, we first present an outline of the approaches taken by each of the working groups with a summary of major results. Details can be found in the network’s books.

2.3. Phonetics
A quantitative overview of phonetics education in Europe was based on three major questions: Where is phonetics taught, why is phonetics taught, and what is taught. Various profiles of studies could be distinguished, ranging from full studies that focus on phonetics as a discipline in its own right [majority in UK, Germany, France, The Netherlands], to specialisation studies in linguistic [majority in Hungary, Italy, Greece], philology and psychology departments [majority in Spain] or with focus on speech technology [distributed]. Within each of these profiles, there is considerable agreement on key elements of studies. This agreement formed the basis for a table of elements of study that were characterised for the several profiles as 'core', 'core but at an introductory level', or 'peripheral'. This table formed the kernel of recommendations on contents of phonetics studies, but equally shows the wide variety of possible implementations. As to the question of why phonetics is taught answers varied and related to the profile of the curriculum. Phonetics for its own sake prepares for modern scientific research in Phonetics in the first place and trains all skills necessary to describe the world languages. In all other profiles, the role is to support studies in other disciplines by providing basic phonetic knowledge (in a short time). Developments are expected with respect to the ways in which phonetics is taught - requiring new methods, materials and infrastructures - and the links with theoretical or technologically oriented areas, which may lead to new interdisciplinary curricula in the future.

Another interesting and useful overview concerns the tools and textbooks that are being used in Phonetics education [see http://tn-speech.essex.ac.uk/tn-speech/project/groups/tn-phon/tn-phon.html]. The latter include a wide variety of titles, mostly written in English, and mostly more than five years old. A serious gap was noticed for an appropriate level textbook on speech perception. The use of relatively old books may be especially surprising for the area of speech technology in which changes come very rapidly. It may point to a tendency that teachers prefer to make use of a collection of research papers, CD-ROMs or web-based materials, or that the appropriate level text book for speech technology within a phonetics curriculum is not (re)written regularly.

2.4. Spoken Language Engineering
In engineering education, specific courses towards speech sciences form a very limited part of a full curriculum in electrical engineering or computer science. This illustrates that educating general engineering skills dominate over education in specific domain knowledge in speech. This is conform job advertisements from industry that describe the need for employees with programming skills who can work in a team, with little specific reference to speech science knowledge. However, whereas this strategy may apply for application-oriented work it may fail to find solutions to basic problems. For Spoken Language Engineering the working group has taken the approach of describing modules that could constitute (part of) a curriculum. Each module is described by objectives, contents in keywords, prerequisites and recommended books and Internet
sites. No attempt is made to propose combinations of modules that could constitute a curriculum.

The working group also investigated the opinion of professionals in spoken language engineering about academic and professional qualifications, main area of work, expertise, skills and job requirements, professional functions etc. Computing skills scored highest with respect to professional relevance, followed by phonetics and speech analysis. This is a fine illustration of the importance given to basic phonetics in applied work. Another noteworthy finding was that the respondents felt a lack of expertise in dialogue modelling. They had to learn this as part of job training or by personal effort. This shows that university education sometimes follows too slowly the fast developments in research and industry. Personal views of respondents emphasised the need of broad education in the multidisciplinary field of speech science and they encouraged lots of practical work with speech signals and creative experiments.

2.5. Speech and Language Therapy

For the situation is different with great geographical variation in status and focus. The educational field is far less organised in some European countries than is the case for the other speech sciences. On the other hand, professional organisations such as IALP and CLPOL have made contributions towards unification (and the recognition of the education and profession across countries) by developing a professional profile and by providing guidelines for education. The Socrates working group has been especially concerned about the implementation of education in speech communication in SLT curricula. They strongly advocate the view that SLT is an autonomous science and they support the view that students should be educated both as researchers and as practitioners. Education in speech communication sciences would be the fundamental prerequisite for this. Several links with phonetics and spoken language engineering education are envisioned. The Internet is seen as the most important means for the development of the field, and the European website http://www.ldc.lu.se/logopedi/europe/ is a useful entry.

2.6. Computer-Aided Learning and the Internet

It is likely that the Internet will play a key role in future education in speech communication sciences, as it will be for all education. With regard to speech sciences we face a situation where on the one hand we have a broad multidisciplinary area while on the other hand the departments responsible for its education are typically small and cannot provide optimal support for all aspects of studies and interests of students. This implies that departments should seek co-operation at a European or even global scale. Obviously, the Internet could provide the means to share important elements of education: teaching materials, speech material (in various languages!) and tools. Of course, the position of a lecturer will not become superfluous in such a development, but the lecturers’ task may gradually change. The lecturer will have to guide students along opportunities for which teaching materials have been prepared elsewhere.

The CAL working group addressed how techniques of computer-aided instruction applied to the education of phonetics and speech communication could be made generally available through the Internet. The technology is discussed, a taxonomy of the available components has been given, a world-wide survey of internet resources has been realised and commented [see http://tn-speech.essex.ac.uk/tn-speech/], requirements of the field have been outlined, and potential authors of computer-based materials were advised how to learn from existing good practice. A very useful overview has been written on how to incorporate the Internet in courses. This involves a whole range from simple course home pages to very complex web-based tutorials with full control over the student’s performance. As the Internet is no panacea for all educational problems, the quality of Internet courses, tutorials and material should be critically assessed. Both from the view point of the teacher as well from that of the student. The working group developed a list of criteria for assessment of these new teaching options, which was tested by other working groups on a small but varied series of web-based tutorials. To disseminate progress in the development and availability of new tools, tutorials and materials, the network organised with ESCA in April 1999 a workshop MATISSE Method and Tool Innovations in Speech Science Communication (UCL London) [see http://www.phon.ucl.ac.uk/home/matisse/ first.html].

2.7. A European Masters in Language and Speech

Writing recommendations for education is one thing, implementing them is another. In 1997 another EU sponsored Socrates project started aiming at a European Masters in Language and Speech (technology). Ten universities from six countries are involved. It showed that major barriers for international co-operation are the legal differences between educational systems and university degrees among countries in which the Master degree as such does even not exist. A solution has been found in the involvement of the international organisations, the European Speech Communication Association (ESCA) and the European chapter of the Association for Computational Linguistics (EACL). These organisations appoint a Masters Board. This Board decides about the contents of the Masters and can approve implementation proposals. These proposals concern a programme of study by which a students fulfils the contents requirements. The organisation of the study usually will follow the local or national requirements. This implies that the student always gets a legal degree from the own country. In addition the student receives a certificate (quality stamp) from ESCA and EACL which says that the student fulfilled the requirements of the European Masters in Language and Speech. More information can be found at http://cstr.ed.ac.uk/EuroMasters/. Although the proposed procedure is unofficial it may point towards new mechanism for maintaining international quality standards in speech science education.

3. LOOKING BACK, LOOKING FORWARD

International co-operation in Europe in Speech Communication Sciences has gradually developed over the last decade. With a
recognize this. In this respect it is evident that quality is not linked to continents but has a general value. In the long run it would be important students, teachers and employers all over the world to have the assurance that student qualifications and skills fulfil generally accepted standards. This is important for the student to be competitive in a global labour market, for employers to have indications about qualities of prospective employees, and for teachers to defend the contents of a curriculum at the faculty board.

REFERENCES