

TRAINING OF PHONETICS AND SPEECH COMMUNICATION IN EUROPE

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ABSTRACT

The benefits of international cooperation in training are presented for the European Erasmus programme 'Phonetics and Speech Communication' in which 29 institutes from 13 countries participate. The exchange of students and lecturers, summer schools, and information dissemination are discussed. Further developments will be directed towards distribution of teaching material, discussions on course contents and curricula, and broadening of the network.

INTRODUCTION

The day before the start of the XII International Congress of Phonetic Sciences in Aix-en-Provence in 1991, 22 people met to discuss opportunities for cooperation in training and mobility of students in Europe within the framework of the European Erasmus programme. This programme provides financial support for exchange of students and lecturers, for development of new curricula and study materials, and for intensive programmes such as summer schools. There proved to be a broad support for initiatives in this area (also exemplified by the warm support of ESCA, the European Speech Communication Association), and in the next four years the initial network of 11 sites grew to an almost full-coverage of 29 sites in 13 countries of the European Union [Sweden, Finland, Norway, Denmark, Germany, the Netherlands, the United Kingdom, Belgium, France, Spain, Portugal, Italy, Greece]. Starting with the exchange of students, the network has been successful in getting support for an annual European summer school (organized in cooperation with ELSNET, the European Network of Excellence in Language and Speech), and a programme for the exchange of lecturers. Furthermore, the network has encouraged thinking about future developments in education of students

by means of cooperation in study programs. The annual information book of the network has been praised as an excellent example of distribution of information. And we did even better. With the help of a great many colleagues from inside and outside the network, we were able to publish the handbook 'European Studies in Phonetics and Speech Communication' at this XIII International Congress of Phonetic Sciences in Stockholm. Although we are a relatively small research community, or just because we are small, active and involved, we have proven to be able to stand in the frontiers of developments in training.

The organizers of this congress decided to schedule a plenary session on training. To my knowledge, this is the first time that this happens at a Phonetics Congress. There could be no better sign of recognition of the importance of training for the future of Phonetics. Besides, a lot of things are changing these days that have influenced and will influence the study of Phonetics.

A NETWORK FOR TRAINING

Before I give a more detailed account of the achievements and possibilities of our Erasmus programme 'Phonetics and Speech Communication', I want to give some general thoughts on the benefits of cooperation in training.

Phonetics is a discipline that is small in size but complex in contents. In a single department, Phonetics is mostly taught by a few people that color the curriculum according to their own specialization in research. Sometimes, local links to education in Linguistics, Speech Therapy, Psycholinguistics, Hearing Science, Computer Science, and Speech Technology are used to enrich the contents of a study in Phonetics. Yet, most departments will face practical limits to their possibilities in education. On the other hand, we have a great resource of expert lecturers in all fields

of specialization in Phonetics in Europe as a whole. It would be great if there were opportunities to share this resource.

A network can be an excellent instrument to share knowledge and expertise in training. A network can also be a fine way to get to know each other and to learn from each other by discussions. There is a lot of freedom too. Every partner is free to decide whether to use the opportunities or not.

On the basis of these types of observations, we made two important decisions in the early days of our Erasmus network. The first was that we aimed at a single network for the whole of the European Union, and the second was that, in order to maximize opportunities, we did not want to be too restrictive in the definition of Phonetics and Speech Communication. To put it simply, we did not want to make a distinction between the major areas Phonetics, Speech Technology, and Speech Therapy, as far as the latter involved research and no professional treatment of patients.

These choices have worked out excellently. In other areas of study various partial networks exist, each with a limited number of partners. In case of exchange, this reduces the possibilities for students to find the host university of their choice. Our network now comprises 29 departments in 13 different countries, including both curricula in Phonetics and in Speech Technology, and specializations in Speech Therapy.

Students in Phonetics can choose out of several Speech Technology departments to learn more about algorithms, speech processing and speech systems, while reversely, speech technology students can go to Phonetics departments to follow courses in basic and advanced knowledge of Phonetics. And, of course, Phonetics students can also go to other Phonetics departments that specializes in the area of the students' interest. The same holds for Speech Therapy and Speech Technology students.

THE ERASMUS PROGRAMME Organization

An Erasmus programme may come into existence if a number of departments express the wish to cooperate in training. The signature of the rector of a university on a letter of endorsement is sufficient for participation, and commits the university to support the actions of the network. Since internationalization is high on the agenda of universities nowadays, we did not experience any difficulties in getting this signature for our programme. Most universities have an international office that takes care of the registration of visitors, their accommodation, and the payments of grants to students. To my knowledge, these international offices are very capable and helpful, and they provide the basis for the success of the programme. They are a vital infrastructure that takes away a lot of work from the staff members in departments.

Because we have an Erasmus network with many partners, the coordination is in the hands of a steering committee of three people, Joaquim Llisterri, Valerie Hazan and myself. We are responsible for the continuity of the network and the gradual widening of its activities. Every year there is a general meeting of all local coordinators to discuss the ongoing exchanges, and to decide on new activities and the budget. These general meetings have a special flavor that will be remembered by the participants, are very important for personal contacts between coordinators.

The Erasmus programme has four chapters: (1) the exchange of students, (2) the exchange of lecturers, (3) the organization of intensive programmes, and (4) the development of new curricula. We have been active in the first three chapters.

Exchange of students

The number of student exchanges have to be estimated by a local coordinator more than one year in advance. This causes difficulties because students tend to change their minds rather easily. Once our programme has been approved for continuation, further arrangements between home and host universities can be made with respect to

the study programme, and practical matters like accommodation.

The student will get (very) moderate funding in addition to a basic bursary, but the student does not have to pay the fee for the host university, and the accommodation is arranged (although not for free). So, once a student has arrived, he/she will get a room, some extra money, and has access to all student facilities of the host university. The study programme may take between three months and a full year. The study may involve taught courses and/or thesis work and is open for students up to the PhD degree. Most students are going abroad during a later stage of their studies in which there is a freedom to choose optional courses. This avoids problems with the acknowledgement of study credits for obligatory courses. Although most teaching material is in English and English is spoken by most members of departments, students are encouraged to follow language courses to improve (social) contacts inside and outside the department. Language courses are funded by the Erasmus programme.

We are a small community and figures for exchange students are not impressive, about 25-30 students a year, which equals to about one exchange per institute per year. Still, this is not bad if we consider that the number of students that graduate each year in Phonetics rarely exceeds five students per institute. Most of the exchange students report very positively about their stay abroad. They learned a lot, made useful contacts, and also found the experience of being in a new social environment for a long time both difficult in the beginning but very rewarding in the end. Many wanted to stay longer!

Exchange of teaching staff

Traveling students or traveling lecturers? Both are possibilities to distribute knowledge, but the old, historical practice of traveling scholars does not fit well into present day teaching practice. Now and then, someone will get the opportunity to go abroad for a long period as a visiting scholar, do research and perhaps some teaching, but a regular exchange of teachers for a longer period faces many

practical obstacles. There are financial and organizational barriers that make it difficult to visit another institute during more than a few weeks. Consequently, lectures do not fit in the normal teaching schedules, unless they are part of existing courses, or given as intensive courses that do not clash with other courses or exams. Since the third year of our network we have asked and got support for the exchange of lecturers. The financial support is modest, however, and covers travel costs only. Still, between five and ten exchanges of lecturers are supported each year, several of which are bilateral. The general meeting of the programme decides on what exchanges can be supported.

Summer schools

In summer schools and intensive courses, lecturers and students can be brought together around a certain topic during a few weeks in a stimulating atmosphere. Since three years, our Erasmus programme has organized the European Summer School on Language and Speech Communication, in cooperation with ELSNET. The summer schools are topic-oriented with 'Prosody' in London 1993, 'Corpus-Based Methods' in Utrecht 1994, and 'Multi-Linguality' this year in Edinburgh. Between 60 and 90 participants (students, staff, industry employees) attend the summer school. There is a technological orientation and an ELSNET flavor because of the attempt to bring Speech and Language (technology) students together. The high quality of the courses, the many practicals, and the social programme are highly appreciated by the participants. The difficulties in the annual organization are related to the financial uncertainties and the availability of a host department.

Information dissemination

Although spread of information is no separate chapter in an Erasmus programme, it is a prerequisite for an effective network. Students and staff have to know which courses are offered at what site in order to decide on the host university and the study programme for an exchange. We have published an annual information book that presents

(1) general information on the programme, (2) descriptions of the participating departments, and (3) a description of all courses presented within the network. The latter involves the impressive number of more than five hundred courses. The information book has been mentioned in several places as an excellent example for other Erasmus networks.

The success of the information book has been the basis for the project to transform the book into a handbook on studies of Phonetics and Speech Communication in Europe. The aim of the handbook is to raise interest for our field with prospective students, to widen the horizon for advanced students, and to stimulate exchange and further cooperation. We have asked experts from all over the world to give their views on past, present and future of their field of interest. With 25 contributions, this chapter gives a unique, most interesting and stimulating entry to Phonetics and Speech Communication. Because we did not want to limit our book to the Europe of the European Union, we have asked colleagues from all countries between the Atlantic and the Ural for help. This resulted in a board of 25 country-editors who made a general text for each country, including interesting stories on historical developments, explanation of university systems and other general information. They also organized the collection of descriptive texts for the different departments in each country. Finally, we made an attempt to give an overview of the contents of elements of studies in Phonetics and Speech Communication. I will come to that later.

With the publication of the handbook 'European Studies in Phonetics and Speech Communication', we have laid a solid foundation for further thoughts on education. The handbook excellently fits into the philosophy of the next phase of European cooperation in training, the Socrates programme, in which the Erasmus programme will be continued. For the next four years, we may expect consolidation of existing exchange programmes without much extra funding for new initiatives, and certainly not for annual meetings of coordinators. What is new is the possibility to organize think-

tank conferences on the future of education. It is my hope that we will get the support to continue along that line too.

DEVELOPMENTS

After having given an overview of what has been done within our Erasmus programme during the last four years, I would like to look into the years to come. Although we have been very active in many areas of training and mobility, there are still several aspects that need our attention. These aspects concern questions on (1) *how* to teach, (2) *what* to teach, and (3) *how* to extend cooperation.

Teaching Phonetics

It is of great importance that we share experiences in training of our students. In the following contributions of Mary Beckman, Jacqueline Vaissiere, and Peter Ladefoged, you will experience fine examples of teaching styles that may inspire all of us for our own courses. You will also note that they all use example materials and demonstrations that we would like to use ourselves. We should work on ways to establish a wide-spread distribution of sound demonstrations, audio-visuals, and software. This software may vary between simple direct demonstrations and very complex programs for computer-aided instruction. At this congress, you may have seen an example of computer-aided instruction for main chapters in Phonetics, developed with contributions from many experts. All this can be used in addition to the many excellent books that we have to teach the basics of Phonetics. And besides all the materials and computer-based demonstrations, it would also be very stimulating if lecturers were recorded on video during presentation of courses to bring our students into contact with the personalities of the great instructors in our field.

The curriculum in Phonetics

Apart from learning from each other *how* to teach, there is the big question of *what* to teach. With this question we immediately stumble on a definition of Phonetics and on the qualifications we think that graduate students in Phonetics should have. To be clear, there is no one

who can prescribe how departments have to set up the curriculum. This is the responsibility of the departments themselves, the board of examiners and the head of the department. This is the domain of the academic freedom. But still, it is my opinion that it would be wise to approach the contents of a curriculum in Phonetics with an open mind, because there is a lot to gain if we could agree on aspects of education. These advantages concern practical matters like easier exchange of students and easier acknowledgement of study credits, but we can also envisage help to maintain the quality of education in order to keep in pace with the rapid developments in research and applications.

I think it will be very difficult to get a full agreement on a curriculum in Phonetics in all its aspects, but I also believe that this is not necessary. We should respect and cherish the existing different angles towards Phonetics, and have an open eye for local limitations. But exchange programmes for students and staff can widen the possibilities. Above that, electronic networks allow for *virtual* exchange: there have been demonstrations of courses presented over internet, while the first electronic class rooms now come into existence. In these cases, there is no need for the lecturer and the student to be in the same room, they may have remote locations.

Within the Erasmus network, we have not yet discussed the structure of curricula. We have chosen for a stepwise process, starting with a description of the elementary contents of a study, whether this concerns Phonetics, Speech Technology or Speech Therapy. Of course, such a description as a whole by far surpasses the contents of a single curriculum. We hope, however, that the collection of elements can be complete in such a way that for all existing curricula it can be shown what choices have been made for its contents. The results of our first attempt can be seen in the last chapter of our book 'European Studies in Phonetics and Speech Communication'. Even in this first phase, there is still a lot of work to do. The completeness of the set can be criticized, textual explanations of the contents of elements can be elaborated,

an element can be enriched with more information on key books and key papers, links between elements can be established better, and so on. Ideally, the elements should also point to related courses throughout Europe. In all, this approach asks for an information system with hypercard-like properties, to be built on World Wide Web, which can be browsed by students to pick the courses that fit their interests and needs.

It may be that by discussing and working on the elements of study, more agreement will emerge on obligatory basics and optional advanced topics than we now anticipate. The step towards a challenging cooperation in terms of a European Degree in Phonetics, which is an option under the Socrates programme, may then prove not too difficult. Such a European Degree would imply agreement on the end-qualifications of students. It should be formalized what set of courses constitute the degree, with the flexibility that (some of the) courses may be presented at various universities in different countries. Exchangeability of courses and/or course contents should be accepted by the responsible boards at all departments involved. It is difficult to say how far away in time this vision of European cooperation is, because there are practical barriers as well. We have made an overview of all degrees in Phonetics and Speech Communication that can be obtained in the various countries in Europe. This shows that, in order to arrive at a European Degree we also have to overcome the differences in university systems and the place of the education of Phonetics in these systems. These formal difficulties in comparability of studies are beyond our scope and worked on at governmental levels.

Interactions between curricula

Our Erasmus network presents opportunities to share. For that reason we are open to departments that have the main orientation in Phonetics, in Speech Technology, or in Speech Therapy. These are not three independent main streams in the field. Several links exist between them. I would like to discuss two interactions: between Phonetics and Speech Technology, and between Language and Speech.

Phonetics and Speech Technology

Speech Technology has always been important to Phonetics in that it provides the tools that support phonetic experimentation. But since a few decades, Speech Technology has become a discipline on its own with the development of speech communication systems that have a considerable economic potential. Funding of research and consequently, jobs for students are now largely to be found in Speech Technology, whether we like it or not. In parallel, new curricula and specializations in Speech Technology have been developed. At Technical Universities or Computer Science departments, Speech Technology curricula tend to have little input from Phonetics. It would provide an interesting discussion whether this is optimal.

On the other hand, developments in Speech Technology have had an impact on studies of Phonetics. Most curricula in Phonetics have at least a few courses on speech synthesis, automatic speech recognition, and speech processing. In some of the larger departments of Phonetics, Speech Technology is a graduate specialization, or presented as a separate MSc course. These options are certainly in the interest of the careers of Phonetics students who also have an interest in technology.

In both cases, the opportunities provided by exchange within the Erasmus programme can enrich the study programme for students. For example, several students in the Utrecht Phonetics department specializing in Speech Technology, have had valuable exchange periods to technology-oriented departments in Sheffield, Aalborg, and Stockholm.

Language and Speech

Phonetics is often a part of a Department of Linguistics and students generally have easy access to courses in linguistics. It depends on the character of the individual institute whether these courses are incorporated as obligatory or optional components in the Phonetics curriculum. Far more complicated are the relations to the technological counterparts in linguistics: Computational Linguistics and Natural

Language Processing. Driven by technological developments like in spoken dialogue systems and speech-to-speech translation systems, these areas now interact with Speech Technology, and we may think about their place in the education of speech students. Although this type of integration is the major priority of the European Network of Excellence in Language and Speech (ELSNET), it is not immediately obvious in what studies, at what level, and to what extent this integration should be realized in education and formalized in curricula. As could be expected, the first initiatives and experiments towards integration were taken at departments where specializations in both Speech Technology and Computational Linguistics already existed. In some of these cases, it is possible for a student to get an MA or to follow a one-year MSc course in Language and Speech Processing. I mention these developments to illustrate the continuous and important activities in areas that may be considered remote to Phonetics.

Cooperation on a global scale

I have discussed cooperation in training within the reference of the European Union. This by no means implies a limitation of our interests in cooperation to the borders of the European Union, but these processes need time and proper funding. The European Tempus programme offers support for mobility from and to Central and Eastern Europe, much like the Erasmus programme, but we do not yet have a joint programme for Phonetics and Speech Communication. I gladly refer to the support we have had from our colleagues from Central and Eastern Europe for the 'European Studies' book. There is a strong wish to cooperate at all levels, but the financial obstacles are enormous. More initiatives from our side are needed here in the near future.

Cooperation with countries outside Europe, with a special interest of students for the US and Japan, largely exists on an individual basis with support from bilateral cultural treaties or other sources. A regular contact on training issues is wholeheartedly welcomed and easily realized now that

world-wide communication facilities are at the desk of most colleagues.

However, enlarging the scale of cooperation evokes the dangers that the organization becomes too complex, that the active involvement of partners decreases, and that general agreement is difficult to reach. Up to now, the Erasmus programme did well, and I am most grateful to my helpful friends in the steering committee, Valerie Hazan and Joaquim Llisterra, and all other partners who gave an exemplary demonstration of the possibilities of distribution of labour during the preparation of our 'European Studies' book. This gives great expectations for the future. Nevertheless, I believe that training matters with a global dimension should be anchored in the international organizations in Phonetics and Speech Communication. This would best ensure the broad basis needed for continuous developments in training in order to bring our knowledge to the next generation.