A laboratory course for undergraduate students of phonetics.

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ABSTRACT

A laboratory course for undergraduate students of phonetics has been developed and tested at the Department of Phonetics at Umeå university.

The course consists of exercises designed to acquaint the students with basic acoustic analysis methods, along with a small section on speech perception. All instructions are in the form of web pages. In addition it is possible to administer questionnaires, assignments and student tracking using internet based tools. This part of the course was developed with the help of the WebCT course development tool. All acoustic analyses are made using the ESPS/Waves+ analysis package; data collection and analysis in the perception experiments are made in the UNIX environment and the results of the perception experiments were sent back to the students in the form of Java applets readable in web browsers. The course was delivered in a student laboratory equipped with nine Sun Ultra 1 workstations.

True internet based phonetics or speech communication teaching is limited by two factors: 1) limited bandwidth may make the transfer of speech data to slow to be practical 2) sound handling is still too primitive to be useful for things other than simple demonstrations. The present limitations in bandwidth and sound handling capabilities are recognised in the development of the laboratory course described here as they must be in the development of similar courses. All acoustic analyses and the processing of perception data were made outside the internet environment.

A further limitation in internet based phonetics teaching is the choice of programming languages available. For acoustic analysis to be possible in an internet environment, the analyses tools would most likely have to be written in the Java programming language. This is possible. Bits and pieces of such tools have been tried at the department of phonetics in Umeå and the old Klatt formant synthesiser program has been re-written in Java and works well. This limitation is thus not a principled one. However, it will require many man years of work to develop anything like a satisfactory analyses and synthesis package which can be used over the internet. At present a combination of internet based instruction and locally run programs seems to be the only realistic solution.