

“Net4Voice - New technologies for Voice-converting
in barrier-free learning environments”:

development of innovative learning methodologies, experiment and results

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This contribution is meant to present the general aims and structure of the ‘Net4Voice’ European project, which involves three Universities (Università di Bologna, Italy; University of Southampton, Great Britain; Universität Ulm, Germany) and two secondary schools (Istituto Professionale di Stato per i Servizi Sociali "Iris Versari", Italy; Totton College, Great Britain). The aim of the project is to increase the quality of learning opportunities through the adoption of barrier-free learning environments and the development of innovative learning methodologies which use technologies based on speech recognition.

Speech-recognition technology can automatically convert a speech such as a school lecture or a talk into a digital text in real time. It generates an electronic transcription of the speech which can be printed or transferred to the user by means of specific devices. This technology will benefit especially students with different kinds of auditory or motor disabilities, who can thus have access to synchronized speech-recognised texts that allow them to follow the lecture in an accessible learning environment without additional intermediary support and without losing anything of what is being said. In addition to that, second language learners, and all students in general, can take advantage of these technologies which provide multimedia transcriptions and recordings that are still available after the lesson. In this way, the lecture can be read or listened to once again to make sure that the content has been fully understood. This is possible because once the lecture is over, the software saves the speech-recognition-generated transcript, audio, and PowerPoint slides as a streaming media file. This allows students to select the information from the lecture that best suit their individual needs or preferences.

In particular, Net4Voice aims at defining a clear scheme to assess the impact of speech-recognition technologies in education by experimenting it in at least three different learning contexts: university, school and adult education. Secondly, it also evaluates the impact on the key actors involved, students and teachers, by especially focusing on learning settings created for people with specific needs. Net4Voice assumes that education in traditional classrooms is still the most pervasive way to support learning, although it does not always satisfy properly certain needs related to accessibility and effectiveness of learning. The experiment is therefore aimed at evaluating: software accuracy in speech recognition in relation to the environment and the duration; student’s viewpoint; usability of side-products such as transcriptions of the speech; open issues. At the same time, describing and comparing the six different learning situations, the teachers and the lecturers involved are stimulated to develop a learning methodology such as a guideline supported by pedagogical assumptions. This Learning Methodology should offer a pedagogical support system in order to use technology at its best, exploiting all its potential, adapting it to students’ conditions and needs, and combining software with personal teaching experience and methods.

Information and Communication Technology can be an effective means to raise the quality of educational processes in terms of accessibility and effectiveness. The adoption of a universally accessible learning methodology will help to promote a better quality of education for the whole community.