FROM VISION TO REALITY –
SUPPORTING NON-SPEAKING STUDENTS STUDYING AT VIENNESE UNIVERSITIES

P. Panek [1], M. Fuhrmann-Ehn [2] and W.L. Zagler [1]

1) fortec - Research Group on Rehabilitation Technology
2) Support Group for students with disability or chronic disease
Institute 'integrated study', Vienna University of Technology, Vienna, Austria
Email: panek@fortec.tuwien.ac.at   Web: http://www.is.tuwien.ac.at

Introduction and Aim

Persons with profound motor and speech impairments face significant barriers in higher education. An appropriate set of assistive technology (AT) devices and a well established personal assistance team can provide important help to overcome these barriers. This presentation outlines the situation of two non speaking students using Augmentative and Alternative Communication (AAC) and other assistive devices in single switch scanning mode. One of them is studying informatics at Vienna Univ. of Technology, the other Biology at Univ. of Vienna.

Methods

Usage of Assistive Devices and Setting

The student of informatics is using an existing AAC and environmental control system [1, 2] running on a Laptop in automatic scanning mode. He triggers the scanning process via a single switch which is mounted under his left foot. The AAC software was extended with an interface module compatible to the 'General Input Device Emulating Interface' (GIDEI) [3]. This enables the student to steer a standard PC work station where the software programming environment for his studies runs on. The AAC device is configured by student tutors iteratively in order to meet the needs of the disabled student. The number of symbols sometimes exceeded the amount of 3,500 structured in more than 115 levels. Additionally a text prediction system [5, 6] is being used for increasing the text generation rate.

The student of biology is using the same AAC and environmental control system but steers it mostly via a head stick in combination with a keyboard and key guard. She is using the system to control a tape player via infra red. Some of the lectures were recorded on tape and the student can thus use the tape player to learn the content of the lecture autonomously. For writing texts on the PC she uses a text prediction system. She also participates in the evaluation of a remote support system [7] which allows remote configuration of the AAC system.

Provisions of Personal Assistance

Complementary to the provision of assistive devices personal assistance was organised. Student tutors are available to accompany and support the disabled students during lectures. On regular base meetings are organised among support team, technical team, disabled student and other involved persons.

In addition to the technical aspects, which provide the basic environment that enables people with handicaps such as those already mentioned to become students at all, another important factor is the personal support provided by tutors as well as by all other persons involved in the day-to-day activities of a university.
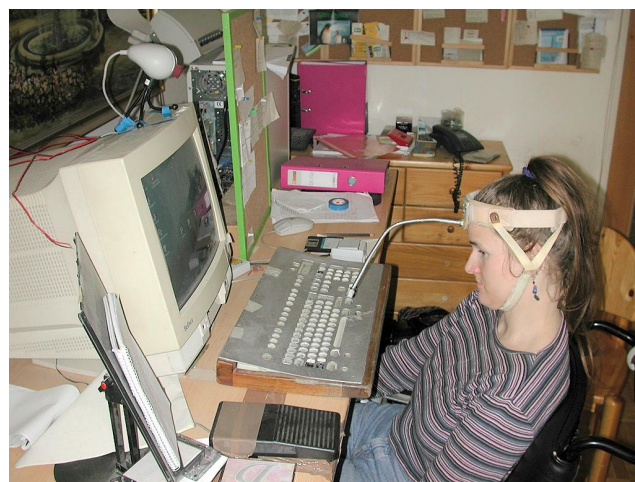

Fig.1: Student of Biology [4] at Vienna University

Apart from their technical know-how, tutors need to have a sound grasp of the subject being studied as well as an uninhibited approach to disabled people. The disabled student must be seen as an equal partner who knows that his or her handicap creates special requirements and who determines the kind and the extent of the support he or she needs.

The basic goal of student support is the integration of handicapped students into the day-to-day routine of the university environment. This means enabling them to attend lectures (just like all other students do) and to have unrestricted access to the entire infrastructure of the university. A precondition for this is barrier-free access to the buildings and the technical equipment of the university as well as to the lectures themselves. This means that lecturers must be ready to take the special requirements of disabled students into account and to

provide study material in an appropriate form, e.g. in digital or acoustic form. In the case of the disabled female student at Vienna University, this system works quite well. She is accompanied to the lectures by her assistants and takes part regularly in courses and seminars.

Fig.2: Student of Informatics [4] at Vienna Univ. of Technology

The student of Informatics at the Vienna University of Technology conducts his studies almost exclusively from his home. The principal reasons for this are the unwieldy equipment he requires and the needs of the student himself. Commuting daily to and from the university would involve an excessive amount of physical strain and a waste of energy that might better be spent on his lectures and other interests. These special circumstances require a high level of communication with his lecturers, who must be ready not only to give the student access to study material in electronic form, but also to hold exams in the student's home. The mode of examination is also frequently changed. As far as possible, the multiple choice principle is applied, as it causes the least amount of physical strain and also takes less time than other methods. At oral examinations, the questions are presented in a way that allows the student to answer yes or no by nodding his or her head.

The right to change the mode of examination for handicapped people is statutory in Austrian law (UG 2002 §59(1) 11). A prerequisite is that the change of the mode of examination does not alter the contents or the degree of difficulty of an examination.

The intensive support required by some disabled students depends not only on good collaboration between all the persons concerned but also on those persons' readiness to contribute a certain amount of additional effort. However, this additional effort will be fully justified if students are successful in taking their exams, and in the final analysis, it will just serve to establish basic conditions for handicapped people that are equivalent to those all other students enjoy.

Results

Until now both students already have completed several courses successfully [4]. The assistive devices fulfil an

important role in increasing autonomy but they are only one part of a complex system. Besides the technical support the personal support is crucial. The establishment and maintenance of well working communication channels between all persons involved in such a project are important, too.
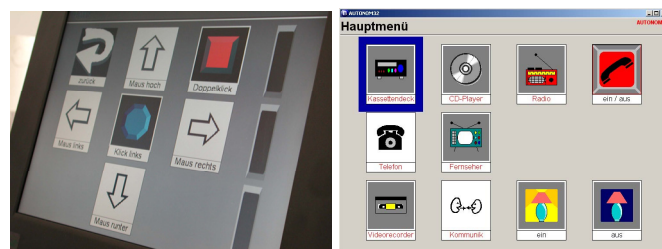
Fig.3: Screenshots of AAC devices [1,2,4]

Conclusion

AAC and complementary AT devices in combination with a technical and personal support team are able to provide important assistance enabling even profoundly motor impaired non speaking students to make remarkable progress in their studies. Despite the received support the students have to invest a lot of effort. It is still much more costly for them to complete a course than it is for many other students. But they are showing and demonstrating that what many have not thought to be feasible beforehand now is reality.

Contact and Further Information

To be found on the Web site (in German): http://www.is.tuwien.ac.at/de/support.html and via Email: studien-support@is.tuwien.ac.at

References:

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[2] Autonomy – Technical Assistance System for profoundly motor and multiple disabled persons providing communication (AAC), environmental control, safety features and access to standard PC (via serial keys protocol), http://www.fortec.tuwien.ac.at/autonomy

[3] GIDEI / SerialKeys protocol: http://www.microsoft.com/enable or: http://www.tracecenter.org/docs/mac_sk_quicksheet/sk_quick.htm

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[6] EMU – Text Prediction System for accelerated text input on Microsoft Windows PCs in several European highly inflected languages, http://www.is.tuwien.ac.at/emu

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