SUPPORTING RE-LEARNING OF BASIC SKILLS OF PEOPLE WITH DISABILITIES BY WEB-BASED TRAINING

Thorsten Busse
Institute for Work and Technology, Munscheidstr. 14, 45886 Gelsenkirchen, Germany

Ileana Hamburg
Institute for Work and Technology, Munscheidstr. 14, 45886 Gelsenkirchen, Germany

Keywords: Learners with disabilities, Basic skills, Web-based Training.

Abstract: Learners with disabilities need to (re) learn basic skills at all levels to enable them to lead more independent lives, to improve their literacy or numeracy, to gain employment or enter further education. Web-based Training - WbT has the potential to offer many advantages over traditional instructor-led training. In this paper after a listing of some barriers of (re-)learning of basic skills And of some ways to make WbT courses more accessible for disabled people, two ongoing European projects are presented having as one of the objectives the use of WbT for (re)learning of basic skills at people with learning and/or physical disabilities.

1 INTRODUCTION

Due to onset of illness or accident basic skills of some people have deteriorated.

People with disabilities need to learn basic skills at all levels (Wehmeyer 2002; Hamburg et al. 2003). They should help them to lead more independent lives, to improve their literacy or numeracy, to gain employment or enter further education. Some people with disabilities will be able to access the basic skills curriculum and progress through the basic skills standards as long as they have the support they need.

Because the learning needs of people with disabilities are often more complex than by people without disabilities, the impact of usual barriers for achieving basic skills at them may be greater, particularly at adult ones (Freedom to Learn 2005; Hamburg et al. 2004). So it is important that local, national and European strategies and projects on adult basic skills take into consideration learning difficulties of people with disabilities.

More about the barriers to learning of people with disabilities will be presented in part 2.

Computer-based training in which the training material resides on Web pages accessible through the World Wide Web (Web-based Training- WbT) has the potential to offer many advantages over traditional instructor-led training for re-learning basic skills providing flexibility in terms of time, place, adaptation of the learning material, audience, individualized (customized) content (Hamburg et al. 2005).

There are also disadvantages of such training like bandwidth limitations for certain media types and assistive technologies necessary for disabled people, initial development costs which can be more expensive than development costs for print-based or instructor led training, longer development time. The learners must be self-directed learners and comfortable using the Web. In order to make WbT as effective as face-to-face instruction when training some basic skills (Hamburg et al. 2004) it is necessary to assure accessibility of the corresponding WbT courses. In the part 3 of this paper some ways to realize this are given.

In the part 4 of the paper we give examples of applications of WbT to people with mental disabilities, learning disabilities and/or physical disabilities within two European projects.

Busse T. and Hamburg I. (2006).
SUPPORTING RE-LEARNING OF BASIC SKILLS OF PEOPLE WITH DISABILITIES BY WEB-BASED TRAINING.
In *Proceedings of WEBIST 2006 - Second International Conference on Web Information Systems and Technologies - Society, e-Business and e-Government / e-Learning*, pages 371-374
DOI: 10.5220/0001240103710374

2 BARRIERS OF (RE-)LEARNING OF BASIC SKILLS

One barrier that hinders the (re-)learning of basic skills could be the poor range and quality of provision in some areas which means that many disabled adults are still not given the opportunities they need to learn basic skills. It seems that such depend on the commitment and initiative of individuals rather than on a clearly defined right of access.

A second problem is that learning deficiencies or other ones require good specialist teaching, which is not available to many learners because of the shortage of skilled and qualified teachers. A major barrier for many learners including those with severe learning difficulties is that their performance is well below the entry level for the standards and many teachers do not know how to proceed with them.

Some learners require specialist equipment, but many teachers are unfamiliar with the range of special available software. Other learners require transport to the place of learning, more accessible accommodation, timetabling which avoids fatigue, or a personal assistant who is sometimes missing.

Also the curriculum for basic skills is insufficiently flexible to enable all learners to build new skills which are required in connection with many economic and technical changes for example to learn them to use the Web, to communicate through media such as Braille, symbols, Sign Language or other communication technology.

Many learners need continuous learning opportunities and/or learning in a community; Suitable learning provision could be realised by combination of formal education including WbT and informal education methods including different evenings, activities of social and health services, etc. (Davis et al. 2001).

One of our projects concentrates to learners with learning difficulties and with mentally disabilities (Agran and Wehmeyer 1999). Many people still regard them as unable to learn and retain basic skills and there is lack of experience in many European countries in teaching people with learning difficulties. The capacity of such learners to develop skills is affected by the level of cognitive ability and many of them l have an additional disability, such as sensory or physical impairment, in addition to their cognitive or intellectual impairment. Many learners have low expectations and a lack of confidence because of their poor or bad previous experiences.

Usually accessible common standards will benefit the majority of learners but often some learners are unable to achieve competence in one or more aspects of the standards because of their cognitive, sensory or physical impairment. For these students, flexible pathways or alternative ways of demonstrating competence will enable them to continue to make progress.

It is necessary that all learners have individual learning plans, and wherever possible, involved in agreeing them. Many learners with learning difficulties need materials to be produced in a range of media such as CD-ROM, audio etc. and need assistive technology to access and use these materials.

The basic skills for people with learning disabilities include essential skills for everyday living, learning to learn, communication skills including IT skills, creative skills to promote self expression, and confidence building skills. The teaching of basic skills should be (when possible) integrated with the rest of people's lives. There is little Web-based learning material for adults that are age-appropriate and sufficiently challenging. It is important that each student is involved in deciding which skills to develop and to have an individualised learning plan build on previous learning experiences and experience with the Web.

Some people with learning difficulties and/or disabilities may have additional mental health difficulties.

Learners with mental health difficulties need flexible forms of provision which reflects the episodic nature of mental ill health. Very often medication interferes with learning and memory function and this could be a barrier to learning. Confidence and communication skills are often adversely affected by such people and they should be re-learned. It is necessary that training for all tutors include an awareness-raising element on mental health difficulties. WbT can be a help for tutors in this direction.

Learners would like opportunities to re-learn lost skills and thereby to increase their confidence and self esteem. WbT can offer the advantages to learn at peace in a welcoming environment, with desired breaks. If they have Web-skills they can get also additional information about their illness. Learners should do small steps of progress and learn particularly social skills and should get confidence with Web environments. Support must be available at any transition stage of the illness and learning.

Learning opportunities for people with mental health difficulties, including basic skills provision, is under-developed nationally so there should, there-

fore, be funded pilot projects relating to mental health and basic skills.

The other project is oriented to young students with physical disabilities to be active members of the society. If they have not other disabilities then they are able to access the general basic skills curriculum as long as their support needs are met. They have to achieve new skills like the computer and Web skills. Main barriers for them refer transport, physical access and accessible information, lack of motivation, previous negative experiences. WbT has the advantage to be accessible wherever they are but this is often underused. It is important to use real life situations to enhance teaching, to disseminate good practices in this direction and to organize events to motivate such students for using WbT.

Learners with physical disabilities could be integrated in classes with people without disabilities by learning basic skills when the flexibility of the programme and the specific access are enabled. Mobility training by using wireless technologies and training that could be carried up at home are also important.

3 BUILDING HIGH ACCESSIBLE WBT COURSES

In theory distance education particularly WbT is ideally suited for people who are not able to attend traditional environments but unfortunately the courses are not always accessible to all learners who wish to take them Hamburg et al. 2003). At their design the ability (disability) and interest of the student as well as the ability of the student's computer hardware and software have to be considered (Rafferty 2005).

Firstly the accessibility should be understood by the developers of courses and secondly by carefully applying of instructional design and Web design technique, accessible training courses can be created that benefit all students.

Initially developers of courses should take easy steps to improve accessibility having benefits for all users. More difficult and specialized techniques for a particular type of disability require compromise: for example attending the needs of this disability the content could become less accessible to people with other disabilities. In order to maximize accessibility established guidelines should be followed and an appropriate balance to strike between the needs of the users should be determined.

It is important also to understand the troubles a disabled person has with accessibility due to the software/hardware they are using for example caused by differences in browsing setups.

Referring to instructional design some considerations have to be addressed like knowing the students, managing the subject matter and reformat traditional educational text to make it more readable on the Internet, create an esthetical experience that enhances the learning environment.

In connection with the improvement of accessibility through Web site design there are many organisations which promote it like the Web Accessibility Initiative (WAI) a division of the World Wide Web Consortium (W3C). Some accessibility guidelines are (W3C 1999):

- Use clear and consistent navigation menus
- Use high contrast colours
- Test web pages using a number of different browsers and window sizes
- Provide for keyboard navigation
- Use text-only pages as a last resort

In the following we give two examples of creating and using accessible WbT for (re)learning of basic skills by people with disabilities.

4 EXAMPLES

The Basic Skills Training Model within the framework of the European project BASKI should take the principle of equal opportunities into account and lead institutionalised and hospitalised disabled people to an appropriate degree of self-determination and prepare them for active participation in society.

In a transnational cooperation, a Basic Skills Training Model is to be developed, which shall on the one hand support the target group of people with learning or multiple disabilities by stimulating a process of development so that they are able to live a self-determined life, and on the other hand serve and accompany institutions in the disability sector (sheltered workshops and assisted living) who care for the target group. The interaction between the Basic Skills Training and the accompanied Coaching of social institutions is a central aim of the project.

The Basic Skills Trainings Model includes a Curriculum for a Basic Skills Training for people with learning or multiple disabilities in small groups, methodical/didactic material developed to support communication, the learning and group processes, two Curricula for a further education addressing

professionals in psychosocial counselling (Train the Trainer and European Counsellor), test and evaluation reports received by the means of pilot groups.

The model will be available for dissemination on a Web-site and on CD-ROM including a handbook in the national languages of the participating countries and in English.

One objective of the second GRUNDTVIG project TYAEST is to facilitate social integration of young adults particularly with disabilities according to their own aspirations. During some WbT sessions basic computer skills and skills about the using of the Internet should be learned. It is intended to combine such technical sessions with informal events, discussion forums etc to acquire also soft communication and cooperation skills building a European virtual learning community of young people aged between 16 and 25 with and without disabilities. A learning and communication Web-based platform is in the development (Hamburg et al. 2004; 2005).

5 CONCLUSIONS

People with disabilities are frequently disadvantaged also when they need to (re) learn basic skills which have deteriorated due to illness or accident. Often they are unable to partake in traditional learning activities. Accessible WbT course should be created to help them to (re)integrate in social life for example by carefully applying of instructional design and Web design techniques. In order to achieve the needs of people with special disabilities like the mentally ones and to motivate them to learn we would like to test in our projects different forms and educational elements – text, sign-based language, images, videos, etc. Among disabled people there are a wide range of different educational levels and learning has to be adapted to specific circumstances if it is to be accessible and productive. Generalized WbT is insufficient to meet their unique, individual needs.

REFERENCES

Agran, M., and Wehmeyer, M., 1999. *Teaching problem solving to students with mental retardation*. In *Innovations: Research to practice series*. (Vol. 15, pp. 13-18). Washington, D.C., American Association on Mental Retardation.

Davies, D.K., Stock, S.E. and Wehmeyer, M., 2001. *Enhancing independent internet access for individuals with mental retardation through use of a specialized Web browser. A pilot study. Education and Training in Mental Retardation and Developmental Disabilities*, 36(1), pp. 107-113.

Freedom to Learn: Basic Skills for Learners with Learning Difficulties and/or Disabilities. (n.d.). Retrieved August 10, 2005, from http://www.lifelonglearning.co.uk.

Hamburg, I., Hamburg, A., Gavota, M. and Lazea, M., 2004. *Integrating wireless technology in e-learning for disabled*. In: *Proceedings of ICTTA' 04: the 1st International Conference on Information & Communication Technologies: from Theory to Applications*, 19-23 April, 2004, Omayyad Palace, Damascus, Syria. Piscataway: IEEE section France, pp. 123-125.

Hamburg, I., Hamburg, A. and Marin, M., 2005. *Examples of wireless technologies impact*. In: Uskov, V. (ed.), *Proceedings of the 4th IASTED international conference on Web-based education*: February 21-23, 2005, Grindelwald, Switzerland, p. 5.

Hamburg, I., Hersh, M., Gavota, M., Lazea, M., 2004. *Open Web-based learning environments and knowledge forums to support people with special needs*. In: *Interactive technology and smart education* 1, pp. 205-216

Hamburg, I., Lazea, M. and Marin, M., 2003. *Open Web-based learning environments and knowledge forums to support disabled people.* In: *Knowledge-based intelligent information and engineering systems: 7th International Conference, KES 2003*, Oxford UK, september 3-5, 2003; proceedings, part 2. Berlin: Springer, pp. 1208-1215

Hamburg, I., Terstriep, J. and Engert, S., 2003. *Accessibility and usability of learning environments for disabled*: *an example*. In: Stephanidis, C. (ed.): *Proceedings of HCI International 2003*. Vol. 4: Universal access in HCI: inclusive design in the information society. Mahwah, NJ: Erlbaum, pp. 1123-1127

Rafferty, M., 2005. Distance Education and Accessibility., www.uwex.edu/disted/conference/ Resource_library/proceedings/02_29.pdf.

Wehmeyer, M.L., 2002. *Self-determination and the education of students with disabilities* (No. Digest E632). Reston, VA, ERIC Clearinghouse on Disabilities and Gifted Education. (ERIC Document Reproduction Service No. ED 470036).

W3C, 1999. *Web Content Accessibility Guidelines 1.0 W3C Recommendation 5-May-1999*. Retrieved November 5, 2005, from http://www.w3.org/TR/WCAG10.