

The roles of Assistive Technologies in the inclusion of students with visual impairments into the university life

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Introduction

Belonging to a group means sharing its values, social norms, knowledge, being connected with its members in a continuous process. Being a student at the University, means belonging to a study and social community as well. Communication is an important incentive for the development of knowledge and social inclusion within a group, and it can be achieved either directly on a one-to-one basis, or by technological means. Computer and the Internet are some of the most used tools for enhancing individual performances and communication between people with and without disabilities. And the Internet is a tool that after some adjustments is equally available to persons with visual impairments, even children. (Ravenscroft, 2002) Recent studies

have shown that Assistive Technologies (AT) devices facilitate social inclusion, and enhance quality of life by helping persons with disabilities to become more capable, more independent and live a more satisfactory life. (Scherer, 1998)

This paper analyses the benefits of using AT devices, as mentioned by eleven university students with visual impairments; it also aims at identifying barriers in using these devices and ways to overcome them in order to facilitate a better inclusion of students with visual impairments.

Framework

Computers and AT are frequently cited as the means to overcome the lack of access to information and other environmental barriers for persons with visual impairments. (Gerber, 2003)

The potential benefits of AT are reflected in the quality of lives of persons with disabilities that uses or not AT devices. Scherer (1998) considers AT use or nonuse as one aspect of a person's quality of life and optimal functioning. The author depicts the AT use or nonuse in four circles. At their center one may find the first circle, that is the AT use/non-use. The primary influences on AT use/non-use are depicted in the second circle that surrounds the center one. These influences consist of the characteristics of the milieu or environments in which the assistive device will be used, characteristics of the person or user, and characteristics of the device itself. The author mentions four attitudes, from the optimal one, to partial or reluctant, avoidance and abandonment, each of them being described in terms of the three categories of characteristics mentioned above. For instance, an optimal attitude corresponds to an environment characterised by support from family, peers and employer, realistic expectations of family and employer, the setting and environment fully supports and rewards use. In this case, the user is proud to use the device, is motivated, cooperative, has the skills to use the device, and perceives the discrepancies between desired and current situation. The AT device is compatible with and enhances the use of other technologies and there are no better options currently available. The three components of the second circle are influenced by expectations and definitions of rehabilitation success, the person's view of present and future quality of life, and the person's current situation or experiences as a person with a disability. These three sources of influences are depicted on the third circle and influenced by the meaning the person and others have put on the disability.

Furthermore, AT devices facilitate the access to new jobs and careers. (Rothstein and Everson, 1995) Concluding her study, De Azevedo (2002) emphasizes that the success of inclusion of persons with visual impairments is linked with computer accessibility, and having access to computers opens "new horizons...in the educational area and professional capacity".

But, as Covington says “ Any individual disability becomes a handicap only when a barrier is encountered” (1998, p. 86). Some of the persons with disabilities continue using some AT devices even if they are not fully satisfied, because they cannot abandon them without more severe consequences (for instance, not being able to learn at a faster rate or communicate over the Internet).

Method

In order to evaluate the opinions towards the use and benefits of AT, the participants were interviewed individually. This study has used a qualitative approach because we wanted to understand the breadth of the issue and not the frequency of such opinions.

At the basis of the questionnaire used in our research, we took into consideration some of the aspects mentioned in Scherer’s model. The questionnaire (Annex 1) helps to collect information in a structured way about the participants access to computer, e-mail and Internet, their knowledge about available AT for the users with blindness, the use of these technologies, the benefits in terms of accomplishing scientific responsibilities and facilitating students’ social life. The last questions aimed at identifying the barriers to AT use and finding ways to overtake them.

Sample

There were 11 participants, representing a diverse group made of students with blindness. Nine participants have light perception. All the participants are students in the first to the fourth study year, age between 19-25. The participants attend courses in Babeş Bolyai University Cluj Napoca, Faculty of European Studies (1), Faculty of History and Philosophy (2), Faculty of Geography (1), Faculty of Letters (1), Faculty of Psychology and Sciences of Education (5), and “Ghe. Dima” Music Academy Cluj Napoca (1).

The participants were recruited by direct contact (students from the Faculty of Psychology and Sciences of Education and by the Center for Access Technologies for Persons with Visual Impairments).

Results

All the participants have access to computer. They access the e-mail and the Internet at home (9 participants) or faculty computer room (2 participants). Some of them use both possibilities, home and faculty.

They have knowledge about the AT available for persons with blindness, mentioning Jaws, Wintalker, Windows Narrator, the Braille printer, the scanner, the Braille display,

Hall magnifier. All of the participants use Jaws, and/or Windows Narrator (6 participants), two participants use the Braille printer and two participants the scanner. There are two students who have residual vision, so that they use the screen magnifier Hall as well.

The *aims for using AT* may be classified in the following categories:

- School duties/responsibilities (reading books, articles and/or syllabi, documentation, access to libraries)
- Communication (access to Internet, e-mail)
- Using the computer
- Storing knowledge

Many of the participants name different aims, and Carmen's comments illustrate this:

Carmen: AT makes my daily life easier, helps me attending courses, spending my free time in the same pace as the rest of the world, communicating easily with people from all over the world, it offers me access to libraries so.

The following question emphasizes the *benefits of using AT* in the University life, in terms of accomplishing scientific responsibilities and facilitating students' social life.

AT supports students in their scientific work by:

- Facilitating access to information
- Ensuring equal access to information
- Reducing the amount of time and the effort
- Increasing the level of school achievement
- Promoting independence

The ideas mentioned above are exemplified by the words of the participants:

Oana: *I am given the possibility to study at the same level as my colleagues without visual impairments, to have access to the same materials, enrich my knowledge and increase my school performance without relying on other persons.*

Cristian: *It helps me to be up to date with the newest information in the field.*

Adrian: *It made my work easier (I can read more in a shorter period of time and with less effort).*

Dan: *I managed to read more books side by side with my colleagues having the same results as a regular student.*

Ioan: *I have better school performances.*

Elena: *AT helps to pass my exams, to be at the same level as my colleagues without disabilities.*

Carmen: *I don't have to ask another person to help me reading the materials, to write a paper or to read my schedule, because I have access to it directly on the Internet; the access to information is much more broaden and it makes me feel very independent.*

One participant has mentioned that AT is giving him the opportunity to read books even faster than his colleagues.

It is known that AT contributes to *communication and development of social relationships*. The participants have mentioned:

- Communication
- Establishing social contacts at distance
- Involvement in leisure activities

For instance, Elena mentions that AT “Helps me to communicate easier with my colleagues, and to make new relationships.”

Carmen states that she is “...already much more independent, almost fully independent since I have started using the computer, people do not see me anymore as a person incapable of doing something, they entrust tasks to me...”.

One participant mentioned that he can “...communicate efficiently with teachers.”

Communication over Internet may elicit different reactions from different users; Dan narrate a story about “Many curious who were astonished about it. They have admired me from time to time because I did not give up”.

Some of the *barriers* to AT use identified by the participants refer to:

- Lack of an adequate intonation of the screen reader creates difficulties in understanding the text
- The Romanian version of the screen reader has a slower reading speed than the English version

- Lack of AT efficiency (especially on the Internet, there are unreadable graphics)
- Lack of a Braille printer and high costs for buying it
- Lack of knowledge about the importance of AT in the life of a student with blindness

In support of the last idea, one participant mentions that she finds difficult to persuade teachers to allow her to have a written examination on the computers' room.

These *barriers may be overtaken* by:

- Developing a better screen reader for Romanian language and make it more compatible with other applications (such as Adobe Reader)
- Publishing user guides'
- Disseminating information about the importance and value of AT
- Lowering the production costs

One participants was enthusiastic about the latest developments in the AT: "The software are better and better, who knows, maybe one day someone will have a brilliant idea and invent something more intelligent".

Conclusions and limits of current research

The information gathered stresses the importance of AT devices to the university students life, for building their knowledge, achieving higher levels of performance, communication, establishing and maintaining social relationships, in other words a better quality of life.

There are barriers to be overtaken; the suggestions made by the participants are to be put into practice. Their practical ideas may be taken into consideration by the producers of AT devices.

Our findings cannot be generalised and we have interpreted the data cautiously due to the characteristics of the sample (small number, all the participants are students), and the validity of the instrument. These data may be a start for developing a more comprehensive instrument, for collecting opinions of users and non-users with visual impairments (low vision and blindness), belonging at different age, social and professional groups.

REFERENCES

Covington, G.A. (1998). Cultural and environmental barriers to assistive technology. Why assistive devices don't always assist, in D.B. Gray, L.A. Quatrano, M.L. Lieberman (Eds.) *Designing and using assistive technology. The human perspective*, Baltimore: Paul H. Brookes Publishing Co., 77-88.

De Azevedo, M.M.V. (2002). Parameters of effectiveness for special software to enable full access for people with visual impairment, paper presented at 11th ICEVI World Conference, "New visions: Moving toward an Inclusive Community", 27 July-2 August 2002, Noordwijkenhout, Holland.

Flippo, K.F., Inge, K.J., Barcus, J.M. (Eds.) (1995). *Assistive technology. A resource for school, work and community*, Baltimore: Paul H. Brookes Publishing Co.

Gray, D.B., Quatrano, L.A., Lieberman, M.L. (Eds.) (1998). *Designing and using assistive technology. The human perspective*, Baltimore: Paul H. Brookes Publishing Co.

Gerber, E. (2003). The benefits of and barriers to computer use for individuals who are visually impaired, in *Journal of Visual Impairment & Blindness*, 97 (9), 536-550.

Ravenscroft, J. (2002). What do visually impaired children want from a website, paper presented at 11th ICEVI World Conference, "New visions: Moving toward an Inclusive Community", 27 July-2 August 2002, Noordwijkenhout, Holland.

Rothstein, R., Everson, J.M. (1995). Assistive technology for individuals with sensory impairments, in K.F. Flippo, K.J. Inge, J.M. Barcus (Eds.) *Assistive technology. A resource for school, work and community*, Baltimore: Paul H. Brookes Publishing Co, 105-132.

Scerer, M.J. (1998). The impact of assistive technology on the lives of people with disabilities, in D.B. Gray, L.A. Quatrano, M.L. Lieberman (Eds.) *Designing and using assistive technology. The human perspective*, Baltimore: Paul H. Brookes Publishing Co., 99-115.

Questionnaire

1. Name and surname
2. University, faculty, study year
3. Age
4. Do you have access to computer?
5. Do you have access to e-mail and Internet? Where?
6. What Access Technologies for the use of persons with blindness do you know?
7. Do you use these Access Technologies? If yes, please name them.
8. Which are the aims for using them?
9. Which are the benefits for your student life:
 - In terms of your scientific work
 - In terms of your social life
10. Which are the barriers you meet when using Access Technologies?
11. How could you overcome them?