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Blind Handicapped Vs.Technology: How do Blind People use Computers?

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Abstract— Several companies today market computer programs that allow a blind person to use a standard computer. These computer programs are called "screen readers". A screen reader is itself a standard Windows computer application, but its job is to run alongside the other programs running on a computer and "tell" the blind person what is on the screen. Because a blind person cannot see what is on the screen, a screen reader typically has a built-in speech synthesiser which, although perhaps sounding a bit like a robot, speaks information to the user through the normal sound speakers of the computer itself. People with some limited sight typically use a different kind of screen reader which magnifies and enhances the image on the screen to make it easier to see, and some people use both speech and magnification at the same time. But whether a person uses speech or magnification, typically the screen reader is just a computer application that comes on a CD and easily installs on most computers.

Index Terms— Blind- handicapped,Technology for blind handicapped,Screen Reader,Blind can use computers or not,Disabilities,Internet for Blind,Computer Application for blind.

1 INTRODUCTION

The last decade has seen the triumph of the rich graphical desktop, replete with colourful icons, controls and buttons all around the screen, controlled by the mouse pointer moving about the screen clicking and dragging. This is not, on the face of it, a usable environment for blind people, but use it they must.

The first is to use a **screen reader**. This is an application that attempts to describe to the blind user in speech what the graphical user interface is displaying. It turns the visual output of the standard user interface into a format that is accessible to a blind user. In practice this means driving a Braille output device - a row of Braille cells with mechanical pins that pop up and simulate Braille characters under the user's fingers - or, more commonly, a text-to-speech synthesizer. We will deal exclusively with these text-to-speech users in the rest of this article because they form the great majority of users, actual and potential. The screen reader acts almost as a sighted companion to the blind user, reading out what is happening on the screen - popup boxes, command buttons, menu items, and text. Ultimately screen readers have to access the raw video output from the operating system to the screen and analysing it for information that should be presented to the user. This is a complex process, as you would expect from an application that is attempting to communicate the complicated graphical user interface in a wholly non-visual way. There are many screen readers available, including JAWS from Freedom Scientific, Window Eyes from GW Micro. If you have Windows 2000 or XP, you'll find that Microsoft have included a basic screen reader in the operating system, called Narrator: try activating it, opening Notepad and typing some text or checking your email without looking at your screen.

The goal of a screen reader is to make it appear to the user as if the current application was itself a talking application designed specifically for blind users. This is difficult to accomplish. Applications often have particular user controls or methods of operation that must be supported by the screen reader. For example, a spreadsheet program operates very differently from an email client. This forces screen reader developers to adapt their programs to support specific applications, typically the market leaders like Microsoft Word. It also means that applications that utilise simple interface components like menus and text boxes will work best with screen readers. Those with non-standard interface components like 3D animations may be difficult for a screen reader to access.

2 SO HOW DOES A BLIND PERSON ACTUALLY KNOW WHAT IS ON THE SCREEN?

People who are totally blind are absolutely not able to interact with the computer without assistive technologies. In order to overcome this barrier, they mostly use **screen reader** software and Braille displays. In simple terms, a screen reader system speaks all the information in a human voice which comes on the screen as well as the text which is typed on the keyboard. A Braille display makes the same information appear on a Braille line which blind people can read with their fingers.

However, a screen reader is much more complicated in practice. It is also important that blind people are able to navigate quickly on the screen and find information as they need it. Therefore, screen reader systems are loaded with functionality which read a portion of the screen according to certain different criteria. The more simple ones would read the current character, the current word or the current line. More complex ones would read the status line of an application, the title bar, a certain window, or the current item on the menu as the user navigates. A Braille display is usually an addition to a screen reader. It is a small unit which lays by the keyboard and displays one line of information in Braille, mostly the same which the screen read announces with speech. This helps blind people understand the layout of the screen better, and read

texts which is more difficult to understand with speech, for example more complex tables, or texts which contain words in more than one language, such as dictionaries.

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The effectiveness of a screen reader greatly determines the effectiveness of blind people on the computer. Long ago, screen readers only allowed to read the screen line by line, so people had to hunt for information they needed. Today, practically any piece of information can be assigned with a hotkey. Different hotkeys would announce different information in different applications. For example, one hotkey would announce the misspelled word in a Microsoft Application, another would read the current table cell in Internet Explorer, etc.

Nowadays, there is a larger variety of screen readers available. Some of the most popular ones, which have been around can be very costly, more than $1000. There are also lower cost screen readers available, and currently free, open source ones are being developed.

Operating systems also include some kind of a screen reader, Windows for example uses Narrator, which is a very simple system, not necessarily sufficient for the complex use of a computer for blind people, but definitely very helpful for smaller tasks. Apple built a very sophisticated screen reader into its operating system. When using Linux, the Gnome Desktop by default also contains a screen reader.

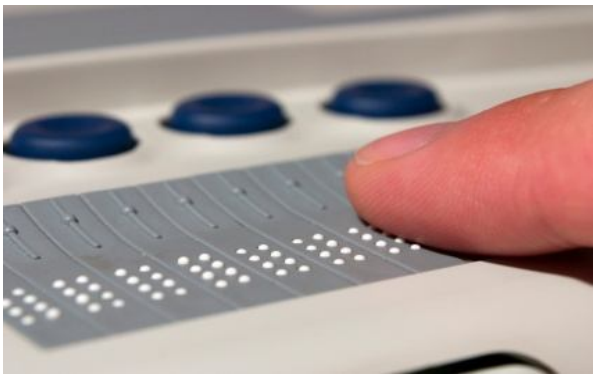
When we look at different types of disabilities, people who are blind probably need the most accommodations in technology in order to use the computer. For certain disabilities, a small software or hardware might do the job, but aside from using a screen reader, blind people also need to rely on developers to have their applications coded in an accessible way.

Certain accessibility issues can be corrected by customizing screen readers, but there are some issues which are difficult, or impossible to overcome.

One of the biggest accessibility issue blind people face today is that images are not described with regular text. Web sites, for example are very difficult to use when image links are not labeled, diagrams are not explained with text, or videos do not provide alternative information.

Probably the second largest challenge is when an application is not usable with the keyboard. Very often, navigation and accessing functionality is directly tied to the mouse and a keyboard equivalent to achieve the same task is not available. The use of the mouse, however, requires site, thus blind people are not able to interact with these applications.

Blind people use the computer keyboard just like anybody else. As a matter of fact, it is not necessary to see the keyboard when typing. The best typists do not look at the keys or their fingers. It definitely takes a learning curve to memorize the keyboard and get up to a certain speed, but it really pays off at the end.



Hear what a screen reader sounds like. Listen to the first two paragraphs of this article in a machine sounding voice, and in a more human sounding voice

The screen reader keeps track of what the computer is doing, and speaks or magnifies the necessary information that a user needs in order to use the computer. When you as a sighted person look at the computer screen, of course you see the whole screen, but instinctively you focus your attention on the bit of the screen that is immediately relevant. A screen reader does the same thing. It does not simply read the whole screen, because that would quickly become tedious. But it monitors the screen and automatically tells the blind user the most important information about what is currently happening.
A totally blind person, someone with no sight at all to read the screen, cannot use a mouse. Most functions on the computer can be operated from the keyboard, though this does vary with different programs, and a totally blind person learns how to access the needed functions by using the keyboard. But in some cases, a good screen reader can even make functions accessible
with special keyboard combinations when typically those functions might only be available with the mouse. A blind person, but they can only achieve this by focusing on some very basic tasks such as limited word processing and note taking.

3 SO DO BLIND PEOPLE NEED SPECIAL COMPUTER APPLICATION?

There are some computer applications specially marketed for use by blind people. These are designed to make using a computer as easy as possible for a blind person, but they can

only achieve this by focusing on some very basic tasks such as limited word processing and note taking.
So most blind people use everyday computer applications such as Word, Internet Explorer and Outlook, and actually can do most of the tasks sighted people can.

4 WHAT CAN BLIND AND VISION IMPAIRED PEOPLE DO USING A COMPUTER?

Blind and vision impaired people do many different things in life, so there is almost no limit to the range of tasks we can do on a computer.

Reading newspapers on the internet
Internet banking and shopping
Chat rooms and voice communication over the internet
Internet radio stations and entertainment
Looking up information on the internet
Email correspondence
Written correspondence
Personal notes and keeping track of personal information
Essays and other work to do with study
Report writing (for employment, committee work etc.)
Personal or business accounts (spreadsheet or book keeping applications)

5 WHAT DIFFERENCE DOES THIS MAKE TO A BLIND PERSON?

Nowadays surfing the internet and the use of the internet for such tasks as shopping and banking is still felt by many people to be a bit of a gimmick, the reality for blind people is quite different. For example, internet banking such as via the ASB Bank's FastNet service can be easily used by a blind person with only moderate training. So we can read our own bank statements, pay our own bills, and generally keep tabs on our own personal money without assistance from someone else. This means we can be more independent with our personal finances and avoid the vulnerability that sometimes comes from being completely dependent on someone else.
Blind people are becoming more interested in internet shopping, even for the weekly groceries. Most internet shopping sites can be easily used by blind people even without the pictures. This gives us the opportunity to browse for things in a way that sighted people take for granted.

6. WHAT CAN BLIND PEOPLE NOT DO USING A COMPUTER?

Typically, a totally blind person cannot do anything that is mainly graphical, or which involves interacting with moving images. Screen readers, particularly those that use synthetic speech, cannot deal with graphical applications such as painting and drawing. Nor can they cope with animated applications such as most games.

7 SPECIALIZED TRAINING

So yes there is a lot that we as blind people can do using a computer, but by now you have probably realized that the way we work with a computer is somewhat different from the typical way a sighted person would use one. Because of this, blind people do need, at least initially, specialized training. , because in that case the way we interact with the application is quite different than for sighted users, so it is not easy for a sighted person to explain what is happening in a way that will make sense to a blind user.

8 Conclusion

Hence, Technologies has proved that Blind people is not Alone blind people can access computers.
Earlier in the paper, we stated that the potential of the Internet could not be understood without reference to other information sources, disability and the larger frameworks of economy and culture as well as the micro-social context. The importance of understanding the perceptions about issues of potentialities, as well as barriers, is underlined by the fact that, despite the putative benefits of Internet for people with disabilities, their level of access is well below that of people without disabilities
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Within the micro-social context, the Internet can mean many things to people with a disability: a luxury, a necessity, a way to participate in the information society, a way to gain access to more information than was previously available, or only one of the many ways of accessing information. It is also seen as a technology which may potentially disadvantage them if they cannot access it. Within this individual context, the lack of fit between the needs of the person with a disability and technology is of less concern than the economic practicalities of affording the equipment in the first place. In this sense the economic framework of our society impinges more than, or perhaps before, the technical-cultural.

In the present consumer society, there appears to be a continuum of participation: those who can afford to participate and do, those who can afford to participate but feel they have no need to, those who cannot afford to participate but would like to, and those who cannot afford to participate and feel they have no need to. The consumer society aims to target those who can afford to participate and this group of people tend to be able-bodied. Technology is aimed at an able-bodied, salaried group of people. People with disabilities tend to fall at the

other end of the continuum: those who cannot afford to participate.

We are also living at a time during which information has become one of the most important commodities. New ways of presenting information which reach wider audiences and are cheaper and more efficient are being encouraged. The Internet is seen as the future of information provision because it has a world-wide audience. However, on a local scale, television, radio, newspapers, and newsletters are still recognized as legitimate forms of information and communication. For people who are blind or visually impaired, as with the rest of society, the Internet is a choice among many other media. Television and radio are very important ways in which they get information. Organizations for the blind are extremely important in disseminating information which is printed and family and friends are, as always, information sources. While a consumer society often stimulates more choice through competition, it also tends to converge on ways of disseminating information which are the cheapest. It is becoming clearer to many (particularly government departments) that it is cheaper and more convenient to provide information to the public via the Internet. If this form of information provision becomes the predominant one, those who have difficulty participating physically, economically, because they have a fear of technology, or lack training opportunities, will be disadvantaged.

In the meantime, there are many options available for getting information and the Internet is not yet a necessity. Whether people are being disadvantaged when they have difficulty in accessing a technology which is not as yet a necessity is a difficult question. It seems pointless to answer this question with a blanket statement of 'yes' or 'no', as some people clearly get all the information they need for their lives without using the Internet, and others indicate that they would clearly benefit from using the Internet. It is best to answer this question from the standpoint of each individual's need. As people's needs change according to their changes in lifestyles and life stages, their need to access the Internet likely to change. What is clear is that the choice for participation should be available to everyone.

“Always in the dark,
never able to see beyond,
but they have a faint glow of hope that will spark,
when they hear you and respond.

You can give them hope,
and you can help them strive,
when they can't get pass the challenges you are there to help them cope,
you are what makes them come alive.”

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