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Access to Newspapers via Telecommunications

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In most democratic societies, access to a range of daily newspapers is considered to be a normal right of every citizen. However, groups such as people with visual impairment, with a combination of hearing and visual impairment (deaf-blindness), with severe motor disabilities (e.g. tetraplegia) and with dyslexia or other reading disorders, have problems with access to printed material.

Many individuals feel that an important element of their quality of life is access to the daily newspaper of their choice. Therefore a number of projects have been done in various European countries to help more people achieve this facility.

The Users

Visually disabled people comprise about 1 per cent of the population in Europe, but it is likely that only 20 per cent of them would want to read a daily newspaper in a non-print medium. A printed newspaper frequently has relatively poor print quality compared to that needed by someone with impaired vision. Therefore access to the conventional newspaper is denied to many partially sighted people.

The number of people who have the combination of visual and hearing disabilities is fortunately small (about 100 per million inhabitants), but they have very restricted access to information: they have access to neither television and radio, nor printed material.

Many people who have been blind or deaf-blind since childhood have little knowledge of the services available to the rest of the population; for instance many in this group have no concept of the content or quantity of text in a daily newspaper, and therefore do not know what they could have access to.

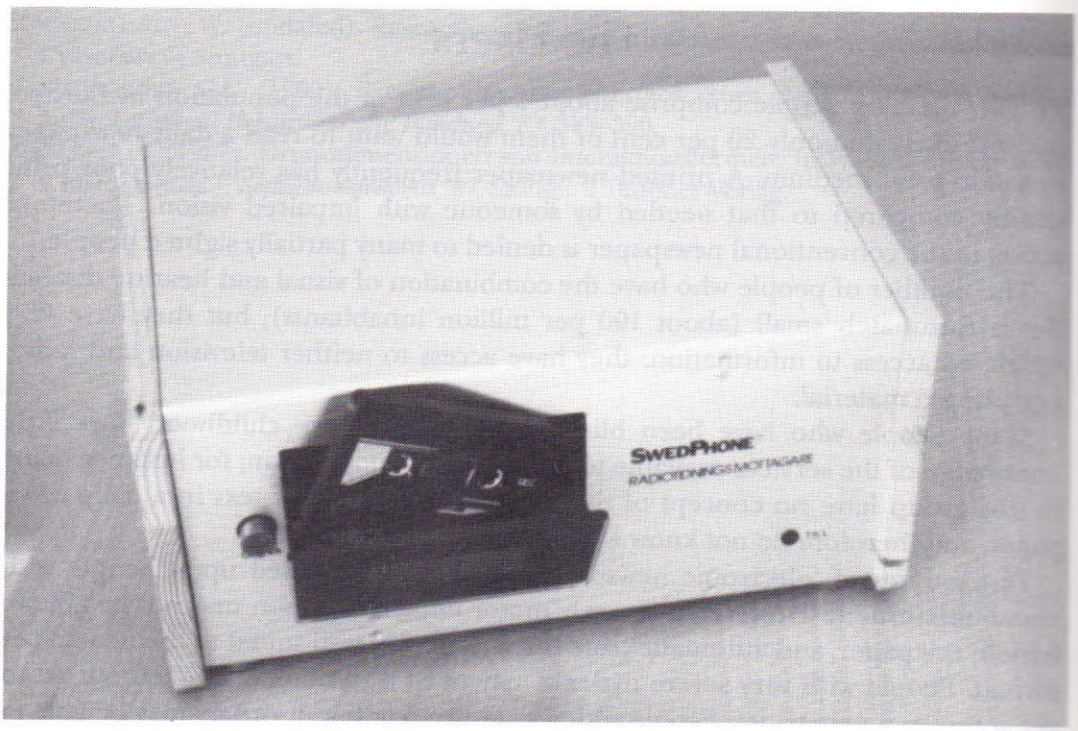
Distribution of 'electronic newspapers' has mostly focused upon people with visual impairment. However, a severely motor impaired person may not be able to handle the paper, and automatic page turners are not well suited to the newspaper format. People with very severe dyslexia may need a (synthetic) spoken output to get access to a newspaper. People with less severe reading disorders may be able to read, although slowly, the headlines, shorter articles and part of articles. For this

group, an electronic newspaper and synthetic speech output may be a supplement to ordinary reading, which gives them greater access to news and information, and thereby also more use of the standard newspaper. The size of these two target groups (people with severe motor impairment and those with reading disorders) is not well known, at least not with regard to the number of people who may want an alternative or supplement to printed versions of daily newspapers.

The Possibilities

For visually disabled people, the information can be presented in Braille, in audio or in large characters. Conventional techniques impose many practical restraints. For instance Braille embossed on paper can be produced directly from the computers used for composing the newspaper, but Braille is bulky as well as expensive to produce. A typical newspaper would need 5 volumes in Braille (each volume 5 centimetres thick). Therefore this method of production is only used for selected articles or for producing a weekly summary.

Another possibility is for readers to record the newspaper – again these are only extracts since a whole newspaper can typically take 15 hours of recording. These extracts can be distributed on cassette tapes or transmitted by radio. The cassette tape approach is used very successfully in many countries for distributing extracts of the local newspaper (there are about 400 weekly talking newspapers in the UK). With the transmission system, a radio channel is used at night with the broadcast being preceded by a coded signal which turns on a tape recorder in a blind person's home.



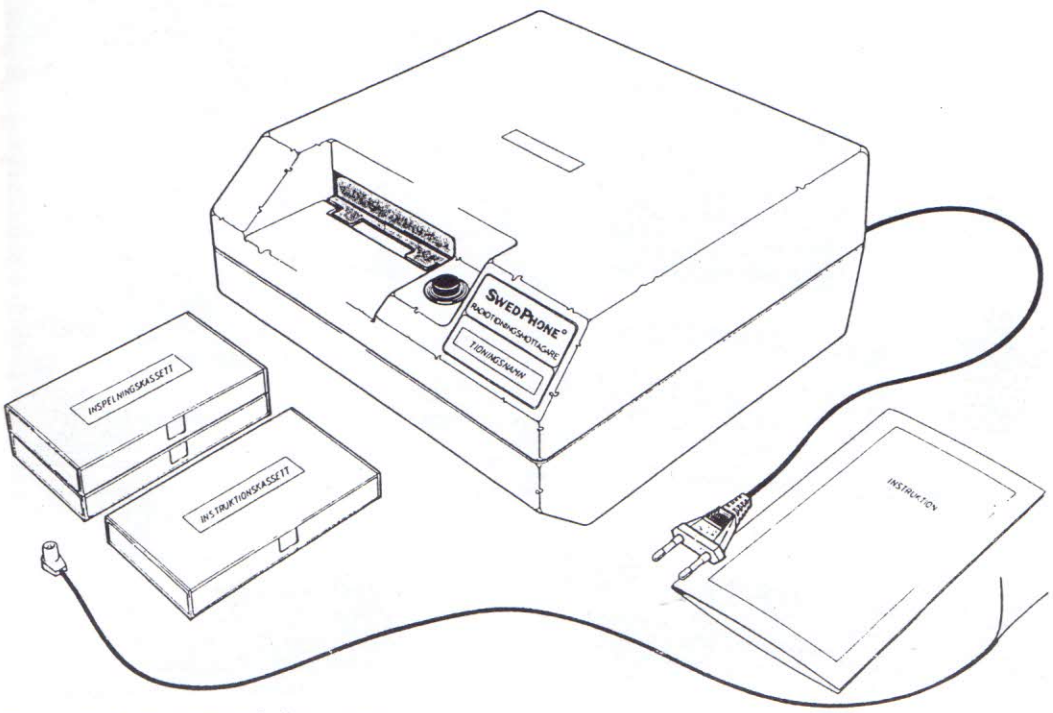
Figur 44.1 *Swedish radio/tape system.*

Listening to audio material recorded on tape does not require special skills, but it is difficult to maintain concentration over long periods of time. Also the speed of output is determined by the speed at which the material is recorded. A tape recorder can be speeded up but this normally results in a frequency shift in the output signal (i.e. the Pinky-Perky or Donald Duck effect). This frequency shift can be compensated with an electronic chip – this is often referred to as 'compressed speech'. However a number of elderly listeners would like to slow down the recording, which is referred to as 'expanded speech'.

Newspapers in large print are usually weekly summaries with the print set in a 16–18 point bold typeface; photo enlarging is not a satisfactory method since it does not achieve sufficiently good quality print. However access to a database containing the text of the articles can significantly reduce the cost and increase the speed at which a large print edition can be produced.

Access to the full text of a daily newspaper is the ideal but more difficult to achieve. It is technically possible to store the text centrally in audio form (either a human speaker or synthetic speech) and provide telephone access. This involves the user in navigating through the newspaper using the telephone keypad or speech recognition. This is relatively easy if the user knows what it is he wants to read (eg any article mentioning 'Gorbachev'), but it is very difficult to provide user-friendly methods for browsing (a facility which is readily available to a sighted person reading the print edition).

If access to the newspaper is in digital form, then the users need a device to convert the output to a form they can read – synthetic speech, a transitory Braille display, or large characters on a screen.



Figur 44.2 The transmission system.