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**Knowledge sharing also for disabled readers**

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 Knowledge sharing – also for blind, weak sighted and disabled readers  
 Lyngby-Taarbaek Public Libraries  
 Denmark.

<b>Meeting:</b>	<b>101 Libraries Serving Disadvantaged Persons</b>
<b>Simultaneous Interpretation:</b>	Yes

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**Abstract**

*The overall theme of this conference is: Libraries: Dynamic Engines for the Knowledge and Information Society, and the theme for this session is Dyslexia. I am going to focus on library services to persons with dyslexia and their accessibility to the knowledge and information society by using new technology*

*I will describe a new project in Lyngby-Taarbaek Public Libraries for disabled readers based on a new application called LiveReader. The project is a partnership with the Danish company Tagarno.*

## **Background of the project**

In Denmark there is a growing understanding of the situation of disabled readers. It is difficult to cope with the information society and to manage a job if you have difficulties reading and writing. Being able to read is the prerequisite for any education today, as well as reading is necessary to maintain competence during lifelong education.

On 1.4.2006 Denmark passed a new law obliging every municipality to have a Council for Disabled. In Lyngby-Taarbaek the municipality has already described a policy for disabled. The policy ensure that

- Disabled citizens can participate in the society on equal terms with other citizens
- Disabled should have the same library services on equal terms with other citizens
- Disabled should have accessibility to both digital and traditional information from the authorities.

Fortunately there is an increasing focus on accessibility, and not only physical accessibility to buildings, but also accessibility to knowledge.

In 2002 the Danish Library Association published a report entitled *National Strategy for Library Services to Unaccustomed Library Users*. This report concludes that the libraries, on several points, are unaware of the disabled and their needs as users of libraries.

Dyslexics is one of the groups described in the national strategy. The number of people in this group is directly linked to the demands of reading and writing competencies in education, job and spare time. In Denmark there are estimated to be 1-1½ million adults who do not have the competencies required to have an education or qualify for a job. A large part of this group does not use the library.

## **The Vision of the Library**

Lyngby-Taarbaek Municipal Libraries have a long tradition in prioritising disabled readers. The vision for the libraries is: "A Library for all" by giving access to information, knowledge and cultural experiences both in the virtual and in the physical room. Equal opportunities for disabled readers regarding the digital media are one of the goals for the library during 2005-2007.

## **Presentation of the project**

The title of the project is *Knowledge sharing – also for blind, weak sighted and disabled readers*. In the presentation of the project I will focus on dyslexic readers, as the subject for this session is library services to dyslexics – that is dyslexics in the broad sense of the word. The target groups are the young and adults.

## **Live Reader**

The project is established in cooperation and partnership with the Danish company Tagarno and their new product LiveReader. LiveReader is a new application facilitating information and knowledge sharing through synthetic speech, scanning and visual communication in one product and with direct



accessibility to the Internet. LiveReader is developed in cooperation with the reading impaired. Lyngby-Taarbaek City Library is the first library in Denmark where this application is presented to the public.

Since several years, scanners are the only way to convert a paper document to the computer. But with the development of the digital high resolution camera, a second technology is up and coming. While this technology allows the capture of a document in a moment, this is not the only advantage. Using a scanner requires you to repeat procedures every time: opening the cover, putting the document on the glass plate, starting the scanner and waiting for completion of the sampling process. Document capturing with a camera means that the user can take a picture immediately without changing the document position.

LiveReader is an improvement over existing reading machines in that the user does not have to struggle with placing the document onto the scanning platen and ensuring that it is in exactly the correct position before scanning can commence. Also, the fact that the application uses a digital camera means that the time taken to capture the image is almost instantaneous; thus the overall time before reading can start is greatly reduced.

The application was originally constructed for blind and weak sighted readers, but has also proven very useful for dyslexics.

### **Project Group**

A team of five librarians working in the library has been trained by the company and the application has been tested on a group of dyslexic patrons.

### **The Purposes of the project are to**

- Improve access to information
- Make unaccustomed users come to the library
- Comply with the National Strategy for Library Services to Unaccustomed Library Users
- Comply with the policy for disabled of the municipality of Lyngby-Taarbæk.

### **The Goals of the project are to**

- Offer the reading impaired equal accessibility to information and knowledge through new advanced technology
- Strengthen learning and information competencies of the reading impaired
- Raise the competencies of the librarians servicing the target group
- Demonstrate the new application to local library staff and library staff in other libraries
- Demonstrate the new application to staff in the local municipality who are in contact with the reading impaired
- Cooperate with institutions in the municipality, for example, high schools
- Contribute to the dissemination of the application to the reading impaired
- Spread the knowledge of all the services of the library.

## **The training approach is two-fold and includes**

### Individualized learning

- Making an appointment
- Regular opening hours once a week
- Self help during all opening hours.

### Group learning/Workshops are

- For users
- For other stakeholders
- For colleagues in the library/other libraries
- For employees in the municipality.

## **Perspective**

The Project is being undertaken from the perspective of helping the reading impaired to become confident with the new application and to extend knowledge of this to other groups such as children and ethnic minorities. It will also be targeted to users of the library, thus establishing an alternative learning environment.

## **Budget**

The budget for the project is ½ million Danish crowns equivalent to about 65.000 euro. Half of the money comes from funds. The price of the application is 6.500 euro.

## **Activities**

Since May 2006 the application has been accessible to the public at the library, and the next step is to establish a learning environment in the lending area with training and workshops. We are planning to extend the learning environment by giving licenses to, for example, one of the high schools in the municipality, and to instruct the license holders how to use the application.

## **Information strategy**

Marketing to all the organizations of the dyslexics and other stakeholders is one of the most important parts of the project. We are aware that many dyslexics do not use the library; and as non-users, they are not aware of the vast possibilities a modern library offers. Disseminating knowledge about all the new possibilities to those who have reading problems is difficult. Alternative methods are necessary because you cannot communicate with disabled readers in the traditional way. One of our missions is to tell the dyslexics that they can use the library, even if they cannot read in the usual way.

Information technology offers a new and easier way to access information, and gives us the opportunity to move focus from a few special materials such as easy-to-read books and audio books to much more information. It is not our intention to teach the dyslexics to read, but rather to make the materials of the library available in the right format. By presenting the right reading tools it soon becomes apparent that visiting the library can be a success!

The project is ongoing until June 2007, but might be extended if additional funding is received. It takes time to make contact with the users. With the project we hope, that dyslexics will be aware of the possibilities of libraries just like other library users and citizens.

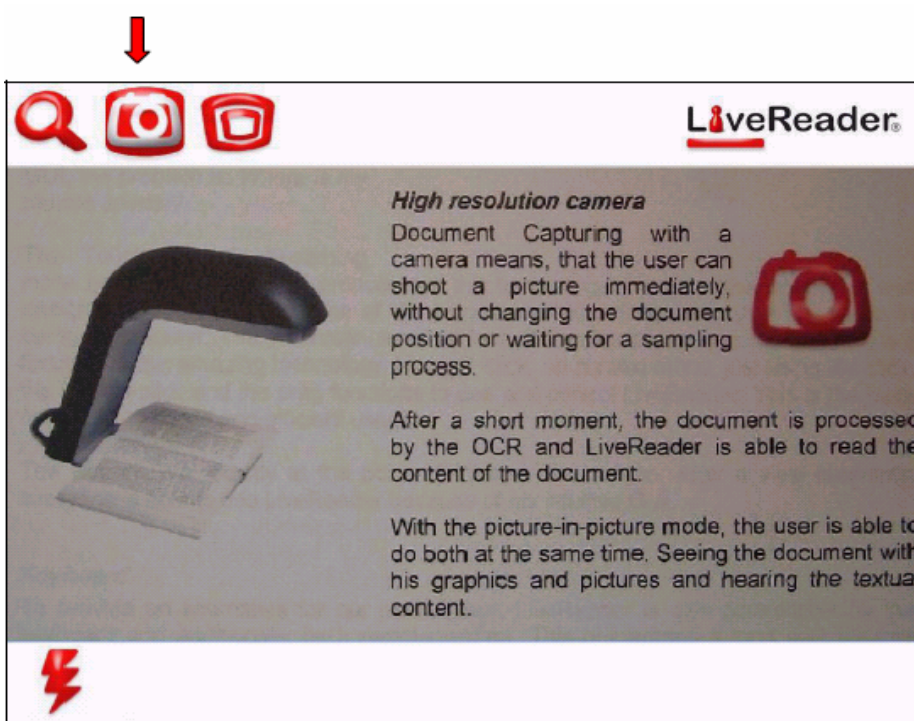
### How does LiveReader work?

- Live: Like a video recording
- Reader: Reading aloud with synthetic voice. We have installed Danish and English voices.
- Scanning and reading in one unit. Instead of scanning you use a camera.
- Touch screen. You simply touch the required icon with your finger.
- You can switch out of LiveReader mode and use the computer as normal.

There are two main settings: a: Live mode b: Reader mode. You can shift between the two settings Live and Reader. The third setting is the standard computer mode.

### The Live mode

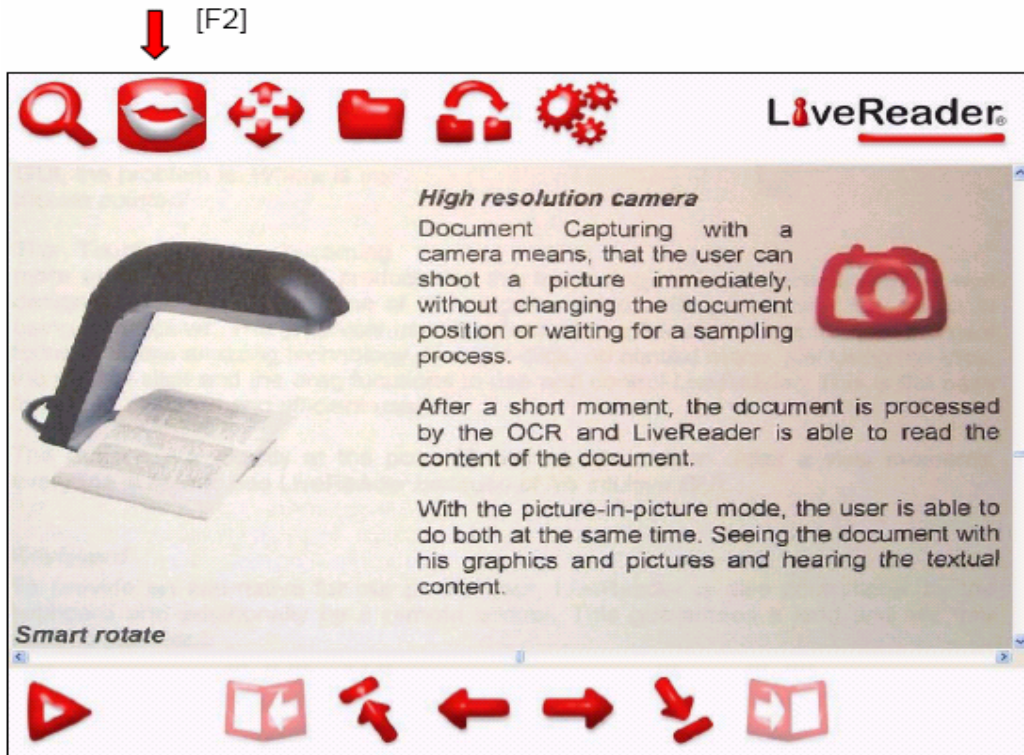
When activating the Live mode it mainly works as a normal CCTV (Closed Circuit TeleVision), but you can also take a photo of what is placed under the camera. The image is recognised and readied for the speech output. A rotate facility of the camera means that it does not matter how the document is placed under the camera.



### The Reader mode

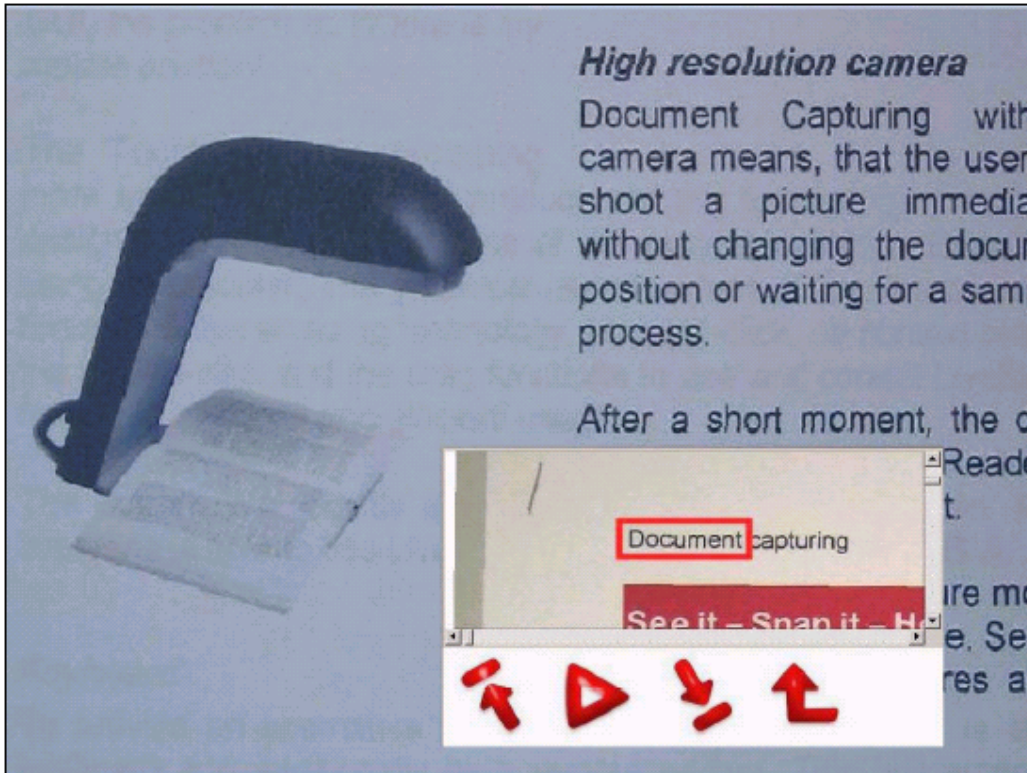
When using the Reader mode you have admission to all documents, you can archive all documents and have the text read aloud.

All printed text, newspapers and pictures are recognized, but it is our experience that magazines and books printed on glossy paper are not very well recognized.



The user can easily stop and start the speech output, as well as jump to anywhere on the page. Live Reader will follow the text on screen as it speaks.





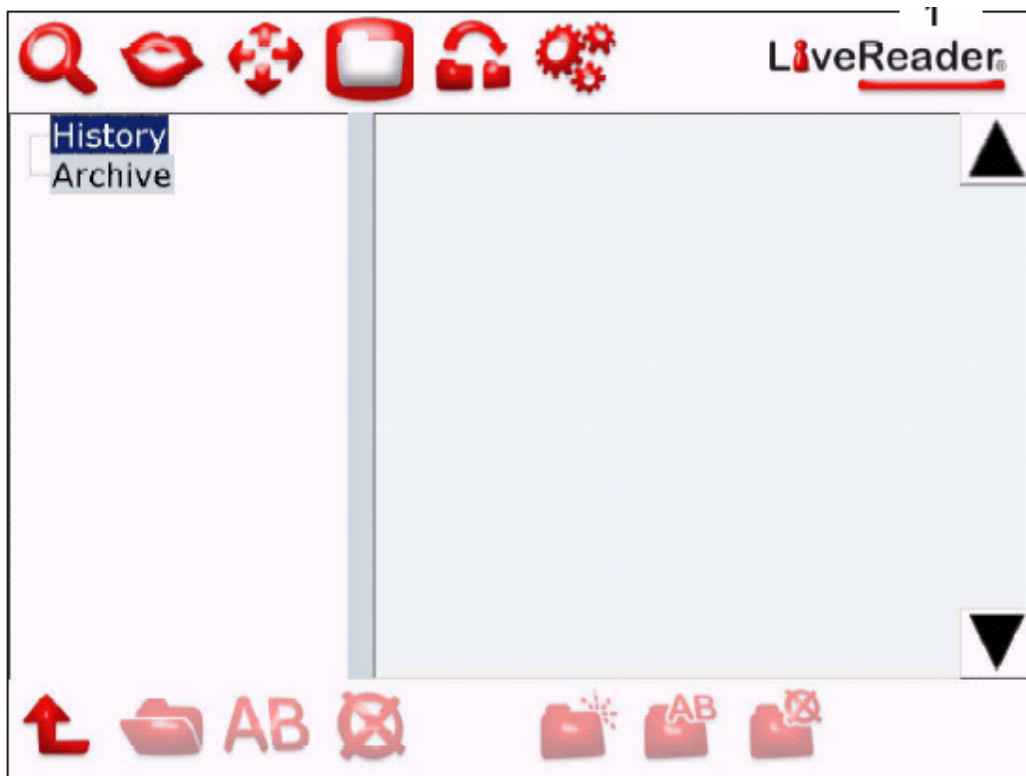
We have had very positive reactions from the dyslectic test persons on this facility. It means that you can easily have the word repeated, and it is easy to jump to another section in the text. The fact that you can follow the text on the pc-screen, while the same text is read aloud to you, is also a great help. The text can be read word by word and a red square will always show you where you are in the text.

### **Moving around**

At any stage the users can use their hand to move around the document by dragging fingers across the screen. Your fingers are the “mouse”.

### **File management system**

A file management system stores any photographed document by date. The file management system allows for retrieval of your archived documents, and the application software can still zoom, enhance and read these documents to you. This is very useful for looking at documents on the way to work on a train for example.



### **Text from the Internet**

The application has direct access to the Internet. When searching on the Internet you can take a print and press the OCR (Optical Character Recognition) software, so the image/text is recognised and readied for speech output. When the OCR command is finished, your document will be read aloud.

### **Word document**

It is possible to write a document, print and press OCR software and have the document read aloud

### **Standard computer mode**

The computer with the LiveReader software is not proprietary. The computer also works as any normal PC. All screen reading and magnification software can be used as it would on any other PC when not in LiveReader mode. If using a portable PC or laptop with the LiveReader software, you can access your saved documents anywhere at anytime, except capturing new images.

### **Email**

You can send any file and attached document from LiveReader. Unfortunately the Danish Copyright law is very restrictive, and this is another challenge we have to deal with in the project.

### **Preliminary Conclusions**

#### **Experiences from cooperation with a private firm**

So far our experiences have been very positive. Opportunity to work with the application for nearly half a year before going live was provided. In addition an agreement concerning technical support, training of librarians, and demonstration to other stakeholders, with help from the company staff,



was reached. We have also made an agreement about licenses to institutions as well as private users. We have contributed our librarian expertise and knowledge about the needs of the users of the library and the dyslectics and since we are the first public library collaborating with the company, we have learned a great deal from each other. Unfortunately, the company did not have sufficient user manuals and technical staff are not necessarily the best persons to explain usage – they just do it. This meant that we had to write an easy-to-understand manual for the users. We have also given ideas for further development.

The success of the project is of common interest for both the library and the company, and this is a good starting point for cooperation.

### **Experiences with the dyslectic users**

Although we have rather few experiences so far (written in May 2 weeks after launch), we expect, that the awareness of the problems of the dyslexics and the possibilities imbedded in the new technology will give us the opportunity to reach the dyslexic readers. It is important for us to tell them that the library is a good partner for them too.

Experiences with test persons have shown that young dyslexics have been able to use the application independantly after one or two instructions combined with the simple user manuals.

A questionnaire has been used to secure feedback on the experiences of the user so far. The questions touch upon:

- User impressions of usability
- Quality of the synthetic voice
- Confidence with PC
- Admission to PC, scanner, synthetic voice and Internet at home
- Ideas for contacting other users
- Will you use the application in the library?

So far test persons were satisfied with the usability – especially regarding the scanning and reading in one unit. Also the possibility of having the text read aloud word by word, while you follow the same text on the pc-screen, comes out with a high score.

Opinions differed on the synthetic voice. There are several synthetic voices on the Danish market, but Danish is a very difficult language to make “synthetic” due to a rather complicated pronunciation and phonetics. The application supports only one specific voice, and it might not be the user’s preferred choice.

All test persons were familiar with PC and had either a PC or similar computer at home.

Test persons have suggested that we contact education consultants and other stakeholders to get in contact with other dyslexic users.

The need for having english texts read aloud was brought up. Hence we decided to install an English synthetic voice. Some of the test persons brought books and other materials, giving us concrete examples for testing. It takes too long time to scan a whole book, and if you want to do so, the best thing is to remove the spine, so you are able to scan the book side by side. This, of course, is not a possibility with books in a public library!

Sharing this, my hope is to inspire others to start projects for dyslectics.

My best advice is to create awareness of the situation of the dyslectics to politicians and funding authorities. This session is a good starting point!