e-Content in Academic Libraries for blind and visually impaired users

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Mission of an Academic Institution

- Create a vision of present and future needs of a society and publish it to public

- Offer research and skill facilities

- Organise knowledge verification system

- Provide graduates with official documents of received qualifications

Assumption made on the Academic Institution under the consideration

- **Academic Institution is founded and acts on non-discriminative base, without regard being paid to sex, race, religion, political and social options or physical limitation**

Academic system deficiencies coming from underdevelopment factors

- Weak legal regulations

- Unstable budget

- Too much tactic, too little strategy

- Solutions individual instead consortial

- Too many local standards

- Inability to design a project and apply for a grant

Poland

Poland in brief

- Inhabitants   39 mln
  - Women   50,7%
  - Students   1,4 mln
- Universities   266
  - Private   72%

- Disabled persons aged 15 and more *in thousands*

  - **1st group of disability   892**
  - **2nd group of disability 1653**
  - **3rd group of disability 1632**
  - **Other disabled   195**
- **Total persons with legal confirmation of disability 4372**

Comparison of two universities offering support for blind

- Warsaw University
- http://www.uw.edu.pl/
  - Students   52.000
  - Employees   5.300
  - Academic staff   2.600
  - Disabled   173
  - Library System   VTLS
  - Library format: USMARC

- University of Gdańsk
- http://www.univ.gda.pl
  - Students   26.000
  - Employees   2.500
  - Academic staff   1.200
  - Disabled   62
  - Library System   VTLS
  - Library format: USMARC

Local deficiencies
at the University of Gdańsk

- Departments located in 3 cities along 22 km line

- Large scale of investments reduces budget

- Lack of premises

- Lack of lifts for wheelchair in old buildings

- No pressure on authority from the side of handicapped

Local trends among blind

- Quickly diminishing interest in Braille and talking books

- Preference given to the Graphical User Interface with little interest paid to DOS and UNIX environments

- Great expectations toward supplementary training in understanding hypertext

New technological barriers

- Instability of Graphical User Interface (GUI)
- Weak GUI customisation
- Lack of Windows system backup facility
- License expiration after a few general failure system re-installations
- Too many cables at the workstation

T.V.Raman

- http://www.cs.cornell.edu/home/raman/
- Emacspeak
- ASTER

Faa de Bruno Formula

$$D_x^n w = \sum_{0 \le j \le n} \sum_{\substack{k_1+k_2+...+k_n=j \\ k_1+2k_2+...+.nk_n=n \\ k_1,k_2,...,k_n \ge 0}} D_u^j w \frac{n!(D_x^1 u)^{k_1}...(D_x^n u)^{k_n}}{k_1!(1!)^{k_1}...k_n!(n!)^{k_n}}$$

Enhanced text quality for blind

Sable markup language

http://www.cstr.ed.ac.uk/projects/sable_spec2.html

- emphasis (4 levels)
- break (4 levels)
- pitch (base, middle, range)
- speech rate (5 levels)
- volume (4 levels)
- audio URL
- TTS engine

- marker (anchor point)
- SABLE
- pronunciation (UNICODE IPA)
- sayas (date, currency)
- language (iso639)
- speaker (gender,age)

The University of Gdańsk Approach 1st stage

- Create one fully equipped central facility for blind (room, server, Braille monitor and embosser, multilingual speech synthesiser)

- Start projects aimed at creation of textual digital documents and development sophisticated UNIX terminals

- Invite a number of influential staff ready to create a Rector's Commission for Handicapped

Two directions in e-Docs Projects

- Create a Polish clone of the Gutenberg Project (Digital Library of Classic Polish Litterature) - UNESCO

  http://monika.univ.gda.pl/~literat/books.htm#books

- Create a prototype of a multilingual system based on textual digital copies of contemporary documents (copyright granted both by authors and editors) – free acces, 5 languages, 77 documents available online

  http://panda.bg.univ.gda.pl/ICRAP/

The University of Gdańsk Approach 2nd stage

- Modify University Library Web Gateway
- Introduce **http** into keywords pool
- Link digital resources to the library OPAC
- Create an archival e-Docs copy on a CD and install it on the UNIX server

  http://cogito.univ.gda.pl/biblioteka

Experiences gained from the e-Book projects

- It is possible to receive both author and editor permission for free publication of a book or a single paper in the Internet
- It is possible to convince scholars not to pass copyright to publishing houses/offices thus facilitating future publishing in the Internet
- Volunteers are indispensable

Multilinguality Issues

- Very poor speech synthesisers for many languages

- It will not be possible to run automatic language tagging of full-text Unicode documents, excepts for some context-aware applications

- Underdeveloped Web browsers for people accessing speech-synthesiser enhanced full-text documents

E-Serials

- Available national resources:
  http://bilon.miks.uj.edu.pl/czasop/pol.html
- Easy integration through proprietary VTLS client EasyPack
- Web Gateway needs additional modification
- Cataloguing issues (Bibliographic vs. Holdings)

Conclusions

- Linking digital versions of monographs to OPAC proved to be quick and effective in VTLS environment

- Blind users found the method to be friendly

- Large number of titles in several languages is already available online and ready to link

- Little libraries in Poland decided to integrate existing digital resources with OPACs

Conclusions contd.

- Literature, social sciences and arts prevail sciences among textual digital documents.
- It is highly desirable to create national versions of the systems created by T.V.Raman
- Quick development of high quality national TTS' is of utmost importance
- Pilot implementations of the Sable Markup should be initiated

Conclusions contd.

- Linking digital versions of serials to OPAC proved to be troublesome in VTLS environment. Migration to VTLS VIRTUA is desired

- Very large number of domestic serial titles is already available online and ready to link

- Negotiations with publishers are needed to facilitate links of free archives of serials

Conclusions contd.

- Inexpensive hardware solutions without a monitor are needed

- Better anti-virus control