An analysis of file formats used in digital libraries

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Abstract

A digital library (DL) is a collection of information that is stored and accessed electronically. The purpose of a digital library is to provide a central location for accessing information on a specific topic. An essential decision that has to be made in the process of designing of a digital library is the choice for file formats to store the information in. The paper provides an overview on the main concepts surrounding file formats in a digital library environment, and the importance of choosing a file format that can suit the needs of such a system. It also outlines some of the more important issues regarding file format use and compiles a set of criteria for judging the appropriateness of file formats in various contexts. A few of the most widespread formats are enumerated, alongside a brief description of them. Finally, a few of the issues concerning migration are discussed.

1. Digital libraries

The DELOS Digital Library Reference Model ([1]) defines a digital library as "an organization, which might be virtual, that comprehensively collects, manages and preserves for the long term rich digital content, and offers to its user communities specialized functionality on that content, of measurable quality and according to codified policies".

The aforementioned digital content must be fed into the digital library in the shape of information streams.

A conceptualisation of the information life cycle can be found in [2]. In addition to this model, Marcos A. G. et al. [3] added the dimension of quality for each major phase in the process of manipulation of information.

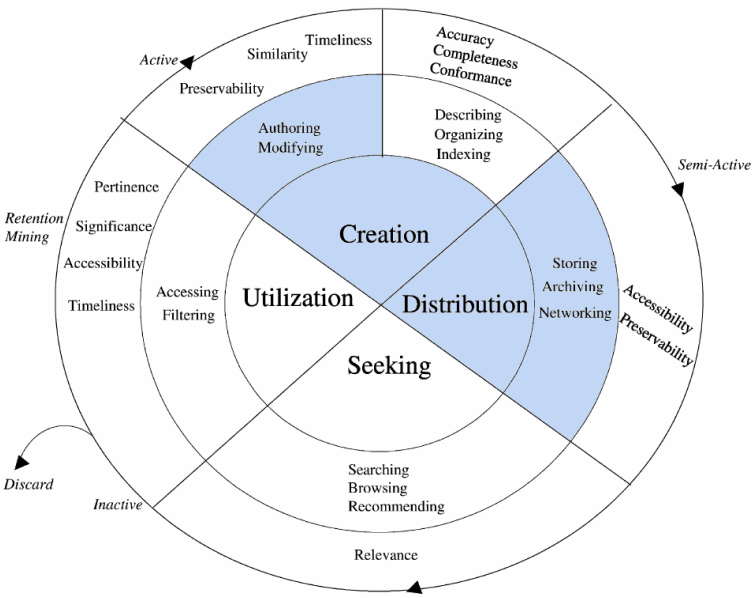

Figure 1. A breakdown of the major phases in the life cycle of information

Figure 1 showcase the major life cycles of information from the point of view of a digital library, structured on three layers: the inner one shows the four major phases, the middle one detail the activities and services connected to each of these, and finally, on the outer layer quality criteria which need to be enforced are encompassed.

Since multiple file formats can be used for the same classes of information, one must choose at some point the way in which this information will be represented. This is usually done bearing in mind the way data objects will be created, modified, stored and distributed. A number of criteria can help this decision, as for instance, compression type, size, portability, maintainability and usability.

As for the scope of this paper, we have emphasised a number of areas that we considered relevant to the discussion on file formats. In figure 1 these areas are highlighted. To be more exact, it is in these highlighted activities that a choice for a specific file format must be made. This choice does not even have to apply across all processes and activities, but can be specific to each phase. For example in the case of digital photographic content, the acquisition can be performed using raw file formats, later modification can be done via the TIFF or any other lossless file format, while storage and distribution could use a lossy compression scheme.

2. An overview on the most commonplace file formats

In the context of digital libraries, the file format is a set of specifications on how to represent information on a physical drive. File formats are targeted towards specific types of information, as for instance JPEG and TIFF for raster images, PDF for document exchange or TXT for plain text.

2.1 Image file formats

Due to the particularities of image files, a number of criteria are specifically relevant to them ([4]).

Bit depth

Bit depth specifies how many bits of tonal or colour data are associated with each pixel or channel. For example, a bit depth of one bit per pixel would only allow two colours, typically black and white. Conversely, on 8 bits one can represent 256 greyscale tones or colours. It is commonplace to store colour images on three primary channels (RGB), using 8 bits for each. These sums up to a total of 24 bits, capable of representing 16,777,266 colours.

Compression

Since uncompressed colour bitmap images require a large amount of storage, most image file formats incorporate compression techniques to reduce this burden on the disks. Compression techniques take advantage of patterns within the image data, in the attempt to find an equivalent representation that occupies less space.

The compression can be lossless (when the decompression algorithm yields an exact copy of original), or lossy (when the decompressed image resembles the original, but with some quality loss). The advantage of lossy methods over the lossless ones is that in most cases a lossy method can produce a much smaller compressed file than any lossless equivalent, while still meeting the requirements of the application. Lossy methods are similarly used for sound and video files.

The feasibility of the principle comes from the fact that these types of data are intended for human interpretation, which is often oblivious to minor inconsistencies.

A few compression techniques used in image formats are listed below:

- Run Length Encoding (RLE). Consecutive pixels with the same value are encoded using a run length and value pair.
- Lempel-Ziv-Welch algorithm (LZW). The compressor maintains a dictionary containing pixel value sequences that have already been encountered. The compressed stream contains codes that represent entries in the dictionary.
- Huffman Coding (H). Variable length codes are used to represent component values, more frequently used values are assigned shorter codes.
- Discrete Cosine Transform (DCT). Blocks of pixels are represented using cosine functions of different frequencies. The high frequencies (which account for better granularity), are discarded.

RAW
Some digital capture devices, e.g. digital cameras, have their own native capture format or RAW format. This format holds all data, in uncompressed state, at the original capture stage before any colour interpolation. The main advantage of RAW file format is the similarity to the original. There are also disadvantages to RAW formats. For example, because there is no standard RAW format we must convert them to a standard file format on the distribution phase. Adobe has introduced the Digital Negative Specification (DNG) in an attempt to overcome the problem of standardisation of camera file formats. Their DNG format is intended for use with all cameras and makes support by software vendors much simpler. DNG also reduces the risk of not being able to access a file in the future.

BMP
Windows BMP is the native image format in the Microsoft Windows operating systems. It supports images with 1, 4, 8, 16, 24, and 32 bits per pixel, although BMP files using 16 and 32 bits per pixel are rare. BMP also supports simple run-length compression for 4 and 8 bits per pixel. However, BMP compression is of use only with large blocks with identical colors, making it of very limited value. It is rare for Windows BMP to be in a compressed format.

TIF
This format supports colour images with 24 and 48 bits per pixel, greyscale images with 8 or 16 bits per pixel, indexed colour images with 1 to 8 bits per pixel and bi-level images (1 bit per pixel). For TIF files, most programs allow either no compression or LZW compression (lossless, but less effective for 24 bit colour images). Some editing programs like Adobe Photoshop provide DCT and ZIP compression too, but which greatly reduces third party compatibility of TIF files.

GIF
This format supports images using indexed color with 1 to 8 bits per colour. GIF uses lossless LZW compression and supports multiple images per file. Because of its better compression and greater color depth, JPEG has generally replaced GIF for photographic images. However, choosing this format for graphic images is a posibility. Graphic images are normally not continuous tone (gradients are possible in graphics, but are not seen very often). Graphics are drawings, not photos, and they use relatively few colors.

PNG
This format supports colour images with 24 and 48 bits per pixel, greyscale images with 8 or 16 bits per pixel, indexed colour images with 1 to 8 bits per pixel and bi-level images (1 bit per pixel). PNG uses ZIP compression which is lossless, and slightly more effective than LZW (slightly smaller files). PNG is a newer format, designed to be both versatile and royalty free.

JPG
The format is a commonly used method for photographic images. The format is used for lossy compression, but can also operate in lossless mode. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG uses DCT transforms and typically achieves 10:1 compression rates with little perceivable loss in image quality.
An extended comparison between all the file formats enumerated above can be found in [5] and in [6].

2.2 Sound file formats

In this section we will describe and compare only the most common audio file formats. Finding the right format for sound information is important because of the high demand on storage space. Using lossless formats is preferable for all sound content; however, for specific applications, some of the data can be stored using lossy compression. Storing raw sound files is usually not considered a viable choice.

WAV
WAVE or WAV, short for Waveform Audio File Format, is a Microsoft and IBM audio file format standard for storing an audio bitstream. It is an implementation of the RIFF bitstream format method for storing data in "chunks", and thus is also similar to the AIFF format used on Macintosh computers. It is the main format used on Windows systems for raw and typically uncompressed audio. The usual bitstream encoding is the Linear Pulse Code Modulation (LPCM) format. Wav files can be encoded using a variety of codecs to reduce the file size (for example the MP3 codec). In [10] a list of different applicable wav codecs can be found, together with a comparison between them.

FLAC
Free Lossless Audio Codec (FLAC) is a file format for lossless audio data compression and it is the most used codec for lossless compression of audio streams. FLAC reduces bandwidth and storage requirements without sacrificing the integrity of the audio source. A digital audio recording (such as a CD track) encoded to FLAC can be decompressed into an identical copy of the audio data. Audio sources encoded to FLAC are typically reduced to 50–60% of their original size ([6]) During compression, FLAC does not lose quality from the audio stream, a notable gain over lossy compression formats such as MP3, AAC, and Vorbis. FLAC's compression is within 3% of even the most complex codecs ([6]). The compression ratios of all lossless codecs fall in a quite narrow range; the difference between the very best and very worst is merely around 7%.

AAC
Advanced Audio Coding (AAC), also known as MPEG-4, is a very broad multimedia standard, found on a wide variety of devices, from Flash players to video game consoles. It offers a good compromise between audio quality and file size, with better quality than MP3.

MP3
MP3 is a patented audio-specific format that was designed by the Moving Picture Experts Group as part of its MPEG-1 standard. It provides lower sound-quality than MPEG-4, at a slightly smaller file size. The MPEG family of formats achieves smaller file size by cutting out all sound frequencies outside the normal range of human hearing.

WMA
Windows Media Audio (WMA) is an audio data compression technology developed by Microsoft. The name can be used to refer to its audio file format or its audio codecs. It is a proprietary technology that forms part of the Windows Media framework. WMA consists of four distinct codecs. The original WMA codec, known simply as WMA, was conceived as a competitor to the popular MP3. The other supported codecs are not widely spread (WMA Pro, WMA Lossless and WMA Voice).

2.3 Video file formats

ASF
The Advanced Systems Format (ASF), a proprietary video and audio container format was developed by Microsoft primarily for streaming media. It contains audio and video data and optionally metadata. ASF files specify the structure of the audio or video stream, but not the encoding method. They often contain Windows Media Audio (.WMA) or Windows Media Video (.WMV) data and they can be compressed using a variety of video codecs.

WMV
Windows Media Video (WMV) is a video file format based on the Microsoft Advanced Systems Format (ASF) container format and compressed with Windows Media compression (basically an .ASF file that is encoded using the WMV codec).

MPG
MPEG-1 is a standard for lossy compression of video and audio. It is designed to compress VHS-quality raw digital video and CD audio down to 1.5 Mbit/s (26:1 and 6:1 compression ratios respectively) without excessive quality loss, making video CDs, digital cable/satellite TV and digital audio broadcasting (DAB) possible. Today, MPEG-1 has become the most widely compatible lossy audio/video format in the world, and is used in a large number of products and technologies. Perhaps the best-known part of the MPEG-1 standard is the MP3 audio format it introduced.

AVI
Audio Video Interleave (AVI), known by its acronym AVI, is a multimedia container format introduced by Microsoft in November 1992 as part of its Video for Windows technology. AVI files can contain both audio and video data in a file container that allows synchronous audio-with-video playback. AVI files support multiple streaming audio and video tracks, although this feature is seldom used. The audio and video streams can be compressed using a variety of audio and video codecs.

MOV
The QuickTime (MOV) file format functions as a multimedia container file that contains one or more tracks, each of which stores a particular type of data: audio, video, effects, or text (e.g. for subtitles). Each track either contains a digitally-encoded media stream (using a specific codec) or a data reference to the media stream located in another file. Tracks are maintained in a hierarchical data structure consisting of objects called atoms. An atom can be a parent to other atoms or it can contain media or edit data, but it cannot do both. The ability to contain abstract data references for the media data, and the separation of the media data from the media offsets and the track edit lists means that QuickTime is particularly suited for editing, as it is capable of importing and editing in place (without data copying).

SWF - FLV
The file format SWF, has variably stood for "Small Web Format" or "Shockwave Flash". It is a partially open repository for multimedia and vector graphics, originating with FutureWave Software and then coming under the control of Adobe. Intended to be small enough for publication on the web, SWF files can contain animations or applets of varying degrees of interactivity and function. SWF currently functions as the dominant format for displaying "animated" vector graphics on the Web.
Flash Video (FLV) is a container file format used to deliver video over the Internet using Adobe Flash Player. Flash Video content may also be embedded within SWF files. There are two different video file formats defined by Adobe Systems and supported in Adobe Flash Player: FLV and F4V. The format has quickly established itself as the format of choice for embedded video on the web.
An extended comparison between all the video and sound file formats enumerated above can be found in [7].

2.4 Text file formats

TXT
Text files are used to represent plain text. Each character is encoded using the 7-bit American Standard Code for Information Interchange (ASCII). Apart from very basic features, such as line breaks and tabulators (which can also be encoded in ASCII), it is not possible to determine the layout of the document. Another limitation of ASCII is its 7-bit nature. A new 16-bit code for representing characters, called Unicode, is becoming more and more common. It is possible in this format to encode all characters used by all significant modern languages. The main advantages of text files are their simplicity and portability. Almost every piece of software involved in document processing is able to access text files. In fact, almost every operating system used today comprises an editor capable of creating, editing and reading text files. File size is minimal, with one byte per character (two bytes when Unicode is used).

RTF
Rich Text Format has been developed by Microsoft Corporation to enable the transport of formatted electronic documents (and not just the text, as can be done with text files) between different operating systems, document processing software applications, hardware devices etc. Files stored in this format are text files that contain not only the text of a document but also tags to control its formatting (fonts, styles, margins etc). They also contain a header that defines various document features. A wide range of software applications can handle Rich Text Format and therefore, its portability is high. It is possible to define all common layout features of a document in Rich Text Format, so the format can be regarded as very functional, too. The size of Rich Text Format files is much larger than that of text files.

HTML
Hypertext Markup Language (HTML) files contains the text of a document in ASCII format and includes a range of tags to control format and style of the document. The main difference between HTML and RTF is that in RTF these tags describe directly how the document is supposed to look, whereas in HTML, these tags merely describe which logical part of a document a certain piece of text represents (for example, a header, a cell in a table, an address etc). HTML was developed to view documents on the world wide web. Since the world wide web links computers with different operating systems and software applications together, portability was an important consideration for its designers and HTML documents are indeed independent of operating systems and software applications.
However, many layout features cannot be defined in HTML, at least not in a simple way, and therefore, this aspect of functionality can be regarded as inferior to most other document

formats. On the other hand, HTML has been designed for handling electronic documents and it therefore contains interactive functionality (such as hypertext links or forms that can be filled in by the document reader) that is not available in formats that have been mainly developed for the creation of paper-based documents.
The size of HTML file documents depends on the length of the document text as well as added document description and interactive functionality and therefore, it is difficult to make a general statement about the file size. However, it is certainly possible to store reasonably well formatted documents in HTML format at file sizes only slightly larger than the corresponding text files.

DOC
Microsoft Word documents are created by the widely used processor Microsoft Word. They are stored as binary documents, even though the textual information itself is stored in ASCII format. They do not only contain information about the document and its layout itself but also additional information, such as the date of creation, who created it etc. Word Documents allow complex layouts, a large choice of fonts, footnotes, annotations, etc. The software allows the creation of documents with a professional outlook and also supports the author during the creation of a document in various ways, for example by handling footnotes, preserving a consistent layout or providing spellchecking. Ease of use depends on the functionality required. It is not difficult to create a simple document, but using the application to its full potential requires extensive training. Word is ultimately designed for creating documents on paper and not many provisions are made for the specific handling of electronic documents. Furthermore, portability is low.

PDF
Portable Document Format (PDF) is based on PostScript. It is widely used for the electronic publication of documents with sophisticated layout. PDF files contain PostScript commands but the generation of PDF files contains a compressing step, so that PDF files are usually much shorter than PostScript files, in fact shorter than most other document formats. PDF documents can contain navigational components, such as bookmarks, hypertext links, thumbnails, annotations etc. PDF files can only be viewed by Adobe Acrobat software but this software is freely available, widely used and can be installed on different operating systems. PDF is widely used as publishing format for documents on the world wide web. PDF documents are easily created from any electronic document, much easier than HTML documents, and the author retains full control over its style and layout.
PDF has gained wide acceptance as a de facto-standard during the last few years. In consequence, large bodies of information are maintained in PDF, and it is therefore increasingly used as a preservation format. However, PDF itself is not suitable as an archival format, since a number of its characteristics do not adjust to preservation requirements. It is owned by Adobe Inc., and, while the company has a long record of making the specification publicly available, it has no obligation to do so for future versions. PDF documents can include features that are incompatible with preservation, mainly encryption and embedded files. Also, PDF documents are not necessarily self-contained, but partly rely on system fonts and other external components. Finally, since there are multiple PDF tools on the market, there is some inconsistency with the format.

3. Migration to newer formats

Migration is the transferring of data to newer system environments ([8], [9]). This may include conversion of resources from one file format to another (e.g., conversion of Microsoft Word to PDF or OpenDocument), or from one operating system to another (e.g., Windows to Linux), so the resource remains fully accessible and functional.

Migration can be necessary as formats become obsolete, or as files need to be transferred on another system.

Resources that are migrated run the risk of losing some of their functionality, since newer formats might be incapable of rendering all of it from the original format, or, more so, the converter itself may be unable to interpret the original format in its entirety. Conversion is often a concern with proprietary data formats. Therefore, migration is an undesirable process, and a good choice of file formats can reduce the risk of ending up in the need of migrating data.

Generalised use of a specific format can be an argument in favour of migrating data to that format, or against migrating data away from it. For example, even though Jpeg2000 is deemed superior to Jpeg, few migrate towards it, due to the wide adoption of the latter.

4. Conclusion

Summing it all up, we can see that an essential choice for digital library design is the one for suitable file formats. A number of factors have to be taken into account before venturing on with one format or another. A few formats have gained a more considerable share of use due to certain advantages, also with this widespread use being an advantage in itself. However, all formats must be taken into account, also bearing in mind that acquisition and storage can be done in a different format than the distribution.

A series of criteria must be studied and correlated with the individual needs of the client. It is also important to keep future requirements and prospects of expansion in mind, so as to avoid the need for migration.

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Digital Library for Online Teaching and Learning

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Abstract

The paper's aim is to show the importance of the digital library in our lives, especially for online teaching and learning. First as a student, I have experimented the learning process, and then as a teacher, the teaching and also the learning process in two steps: using only the public and personal library and, afterwards, the computer and the internet. Living in a new age dominated by a much higher technology than centuries ago, teaching and, most of all, learning online is becoming a habit with its advantages and disadvantages.

The paper begins by clarifying the meaning of the phrase „digital library". The explanations are done for the two words both separately and together.

The second part of the paper discusses the way in which a library is and can be used.

The third part comprises the purpose of using the digital library.

The overall content of the paper makes references to the advantages and disadvantages of using the digital library for online teaching and learning.

In order to understand what a digital library is, we must first clarify the meaning of these two words.

Firstly, "a library" is a collection of sources, resources, and services, and the structure in which it is housed; it is organized for use and maintained by a public body, an institution, or a private individual. In the more traditional sense, a library is a *collection of books*. It can mean the collection, the building or room that houses such a collection, or both. The term "library" has itself acquired a secondary meaning: "a collection of useful material for common use", and in this sense is used in fields such as computer science, mathematics, statistics, electronics and biology.

Public and institutional collections and services may be intended for use by people who choose not to - or cannot afford to - purchase an extensive collection themselves, who need material no individual can reasonably be expected to have, or who require professional assistance with their research. In addition to providing materials, libraries also provide the services of *librarians* who are experts at finding and organizing information and at interpreting information needs.

However, with the sets and collection of media and of media other than books for storing information, many libraries are now also repositories and access points for maps, prints, or other documents and various storage media such as microform (microfilm/microfiche), audio tapes, CDs, cassettes, videotapes, DVDs, and video games. Libraries may also provide public facilities to access subscription databases and the internet.

Thus, modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources. They are understood as extending beyond the physical walls of a building, by including material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing tremendous amounts of knowledge with a variety of digital tools.

Types of libraries

Libraries can be divided into categories by several methods:

■ by the entity (institution, municipality, or corporate body) that supports or perpetuates them:

- academic libraries
- corporate libraries
- government libraries, such as national libraries
- historical society libraries
- private libraries
- public libraries
- school libraries
- special libraries

■ by the type of documents or materials they hold:

- data libraries
- digital libraries
- picture (photograph) libraries
- slide libraries
- tool libraries

■ by the subject matter of documents they hold:

- architecture libraries
- fine arts libraries
- law libraries
- medical libraries
- theological libraries

■ by the users they serve:

- military communities
- users who are blind or visually/physically handicapped

Secondly, the adjective “digital” is related to general computer terminology, and describes electronic technology that generates, stores, and processes data in terms of two states: positive and non-positive. Positive is expressed or represented by the number 1 and non-positive by the number 0. Thus, data transmitted or stored with digital technology is expressed as a string of 0’s and 1’s. Each of these state digits is referred to as a bit (and a string of bits that a computer can address individually as a group is a byte).

Prior to digital technology, electronic transmission was limited to analog technology, which conveys data as electronic signals of varying frequency or amplitude that are added to carrier waves of a given frequency. Broadcast and phone transmission has conventionally used analog technology.

Digital technology is primarily used with new physical communications media, such as satellite and fiber optic transmission. A modem is used to convert the digital information in your computer to analog signals for your phone line and to convert analog phone signals to digital information for your computer.

Thirdly, the expression “digital library” is part of the internet terminology. A digital library is a collection of documents in organized electronic form, available on the internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos. On the internet, the use of a digital library is enhanced by a broadband connection such as cable modem or DSL. Dial-up connections can be used to access plain-text documents and some documents containing images, but for complex files and those with animated video content, a downstream data speed of at least several hundred kilobits per second (Kbps) can make the user's experience less tedious, as well as more informative. Internet-based digital libraries can be updated on a daily basis. This is one of the greatest assets of this emerging technology.

On CD-ROM, the amount of data is limited to several hundred megabytes (MB) per disk, but access is generally much faster than on an internet connection. Several CD-ROMs can be combined in a set, and because the disks are small, a large library can be accommodated in a reasonable physical space. The main limitation of CD-ROM is the fact that updating cannot be done as frequently as on the Internet. In addition, producing and distributing CD-ROMs involves overhead costs that are largely nonexistent in internet-based libraries.

Electronic distribution of intellectual and artistic property has authors, agents, and publishers concerned about the possibility of copyright infringement. It is much easier to copy a CD-ROM, or to download an electronic book and make unauthorized copies of it, than it is to reproduce bound volumes and distribute them illegitimately. Fundamental changes in copyright law - and/or changes in the way in which the laws are enforced - are likely to occur as digital libraries expand and their use becomes more widespread.

Library use

The Vietnam Center and Archive, which contains the largest collection of Vietnam War-related holdings outside the U.S. federal government, catalogs much of its material on the Internet.

Patrons may not know how to fully use the library’s resources. This can be due to some individuals’ unease in approaching a staff member. Ways in which a library’s content is displayed or accessed may have the most impact on use. An antiquated or clumsy search system, or staff unwilling or untrained to engage their patrons, will limit a library’s usefulness. In United States public libraries, beginning in the 19th century, these problems drove the emergence of the *library instruction* movement, which advocated library user education. One of the early leaders was John Cotton Dana. The basic form of library instruction is generally known as *information literacy.*

Libraries inform their users of what materials are available in their collections and how to access that information. Before the computer age, this was accomplished by the card *catalog* - a cabinet containing many drawers filled with *index cards* that identified books and other materials. In a large library, the card catalog often filled a large room. The emergence of the internet, however, has led to the adoption of electronic catalog databases (often referred to as “webcats” or as *online public access catalogs*, OPACs), which allow users to search the library’s holdings from any location with internet access. This style of catalog maintenance is compatible with new types of libraries, such as digital libraries and distributed libraries, as well as older libraries that have been retrofitted. Electronic catalog databases are criticized by some who believe that the old card catalog system was both easier to navigate and allowed retention of information, by writing directly on the cards, that is lost in the electronic systems. This argument is analogous to the debate over paper books and *e-books*. While libraries have been accused of precipitously throwing out valuable information in card catalogs, most modern ones have nonetheless made the move to electronic catalog databases. Large libraries may be scattered within multiple buildings across a town, each having multiple floors, with multiple rooms housing the resources across a series of shelves. Once a user has located

a resource within the catalog, they must then use navigational guidance to retrieve the resource physically; a process that may be assisted through signage, maps, GPS systems or RFID tagging.

Finland has the highest number of registered book borrowers per capita in the world. Over half of Finland's population are registered borrowers. In the U.S., public library users have borrowed roughly 15 books per user per year from 1856 to 1978. From 1978 to 2004, book circulation per user declined approximately 50%. The growth of audiovisuals circulation, estimated at 25% of total circulation in 2004, accounts for about half of this decline.

Shift to digital libraries

In the past couple of years, more and more people are using the internet to gather and retrieve data. The shift to digital libraries has greatly impacted the average person's use of physical libraries. Between 2002 and 2004, the average American academic library saw its overall number of transactions decline approximately 2.2%. Libraries are trying to keep up with the digital world and the new generation of students that are used to having information just one click away. For example, The University of California Library System saw a 54% decline in circulation between 1991 to 2001 of 8,377,000 books to 3,832,00.

One claim to why there is a decrease in the usage of libraries stems from the observation of the research habits of undergraduate students enrolled in colleges and universities. There have been claims that college undergraduates have become more used to retrieving information from the internet than a traditional library. As each generation becomes more in tune with the internet, their desire to retrieve information as quickly and easily as possible has increased. There is no doubt that finding information by simply searching the internet is much easier and faster than reading an entire book. In a survey conducted by Net Library, 93% of undergraduate students claimed that finding information online makes more sense to them then going to the library. Also, 75% of students surveyed claimed that they did not have enough time to go to the library and that they liked the convenience of the internet. While the retrieving information from the internet may be efficient and time saving than visiting a traditional library, research has shown that undergraduates are most likely searching only .03% of the entire web. The information that they are finding might be easy to retrieve and more readily available, but may not be as in depth as information from other resources such as the books available at a physical library.

The purpose of using digital libraries

Digital libraries can be used to teach and learn different people of different ages and different cultures. The bigger a digital library is, the more useful and interesting it becomes. The people to be taught through this kind of system, children, pupils and students, and adults, can have, at their disposal, local, regional, and international digital libraries, reuniting not only the users from all over the world but, first of all, all those people who have contributed to their building throughout the years.

I have recently discovered the international digital library for children (ICDL), whose purpose is, as it has been mentioned, "to support the world's children in becoming effective members of the global community - who exhibit tolerance and respect for diverse cultures, languages and ideas - by making the best in children's literature available online free of charge. The Foundation pursues its vision by building a digital library of outstanding children's books from around the world and supporting communities of children and adults in exploring and using this literature through innovative technology designed in close partnership with children for children."

"Language barriers have never been more pronounced. Whether in an urban area of a modern country (e.g. the Chicago Public School system has 73 different languages represented in its student population) or the rural areas of a less developed country (e.g. Mongolia, where the ICDL has its

first “branch” and where rural schools do not yet support a culture of reading for pleasure), differences in language are making it harder and harder for educational initiatives to bring about success.

As families move from Kenya to Finland or Brazil to Mexico or Vietnam to California, books published in their native country or in their first language often must be left behind. In their new homelands, it may be difficult, if not impossible, to find children’s books from their cultures and in their mother tongue. Parents have little access to the books and stories from their youth to pass on to the next generation. Many children must grow up without knowledge of their family’s heritage and first language. A fundamental principle of the Foundation is that children and their families deserve to have access to the books of their culture, as well as the majority culture, regardless of where they live. According to a paper published in 2005 by the United Nations Educational Scientific and Cultural Organization (UNESCO) in preparation for the second meeting on the World Summit on the Information Society, “Denial to access to information in one’s mother tongue is equivalent to a denial of a human right.” The report also concludes, “In terms of pedagogy, how do children learn best?In their mother tongue.”

The ICDL Foundation’s goal is to build a collection of books that represents outstanding historical and contemporary books from throughout the world. Ultimately, the Foundation aspires to have every culture and language represented, so that every child can know and appreciate the riches of children’s literature from the world community.”

These digital libraries bring together not only children, as it has been said previously, but also translators from many countries who work as volunteers.

In conclusion, there are both advantages and disadvantages of using the digital libraries for online teaching and learning.

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Evaluating and Organizing Information Resources in the University Libraries

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Abstract

In the contemporary universities, together with the growth of the information in the scientific field, there had been a multiple plan development of the activities, departments and structures of documentary information. Built at the interference of some realities and contradictory tendencies - overflow of information, on one hand, and insufficient information, because of the access barriers –linguistic, financial, organizational, etc.- on the other hand - scientific and technical availability, versus incapacity of relation and interrogation, - the structures of documentary information (libraries, documentary centers, etc.) bear the stamp of a less supervised development and the sign of a promising inter - disciplinarity.

Keywords : information, resource, library.

Introduction

The exponential growth of the number of inner and outer documents that assault the top management of the universities, the necessity of studying more and more sources of scientific information, both on a classical support - paper and other types - and also the extension of the documents distribution systems, through the electronic mail systems (e-mail) worsened the problems in the field of the documents retrieval and of the control over the security of the documents access.

This is the present situation and it explains why the traditional management approaches of the documents and records failed disastrously in any types of organizations, whether companies or universities. The exchange of information represents an essential category in the life of a society and especially in the university workability. Storing and retrieving the information are the two facets of processing the information: in order to find some information, that information must have been stored in one way or another. The way in which the information appears, text or image, makes difficult or even impossible obtaining clear and accurate answers to some questions that the user might ask. Searching in a collection of documents may be easy or complicate, according to the way in which the collection is organized.

We shall focus on models and technologies that can be used in storing and saving information as documents that have a text, too: the text may include tabs, chemical formula, maps and images. Although we shall dwell up especially on the use of computers, the concepts and principles brought up are compatible to all ways of storing and retrieving the information, beginning with the wholly manual system, and ending with the completely automated one.

Any information system has in its center a collection of data concerning the reality. Because this collection is always incomplete, new data are incorporated and the data that already exist are continuously redefined, in order to find correspondences closer to reality. Any informational system uses this data collection and not the reality itself.

In any informational system, "the real world" is represented by a collection of data selected from observations of the real world and made accessible for the system (this is the first principle of abstraction).

An individual uses an informational system in two different ways:
- to store the information anticipating a future need;
- to find information as an answer to a present need.

In both cases, the user has an informational need that leads to using the informational system. If the user stores the information, then the way of storing the information will mirror the anticipated need. In other words, the user will try to store the information in a way which will facilitate its future use. The form under which the information can be stored is influenced, to a great extent, by the informational system. For instance, the information must be digitized in order to be used in a computerized system. If the user tries to retrieve the information, then this need must be shaped as an interrogation that is interpreted by the system. Once more, the system influences the shape that the informational interrogation might have.

The need of a user to generate, store or retrieve the information is drawn in a manner that depends on the informational system that is to be used (this is the second principle of abstraction).

These two abstraction principles represent the fundamental problem for those that develop the informational systems. The user has a need for information that should be satisfied by information from the real world. Still, the informational system cannot work but to an abstract level, by connecting the data to the question (fig.1)

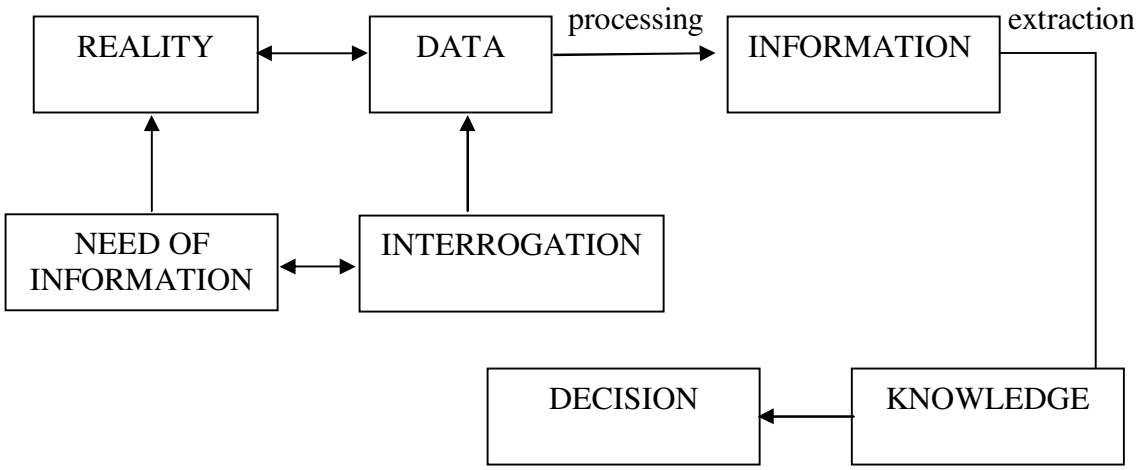


Fig.1 Abstraction and architecture of an information system

Organizing the Information

Words as "data" or "information" had been quite often used in a non-scientific manner; it is time to make a difference between them. The description made here cannot be universally accepted, but it is used like this. Data are received, stored and retrieved by an informational inner system. Data are impersonal; they are equally available to any user of the system. Contrarily, the information is a set of data that had been adjusted to some needs for information. That is, the concept of information has both personal components and components depending on the time and that are presented in the data concept. For instance, even if a system can give the user the ingredients in a certain cereal breakfast, these data are not pieces of information if the user already knows them or if they are not relevant for the user's need. In fact, these data become a noise in the system, disturbing the user's conscience and concentration. Besides, they potentially dilute the system answer to the need of information.

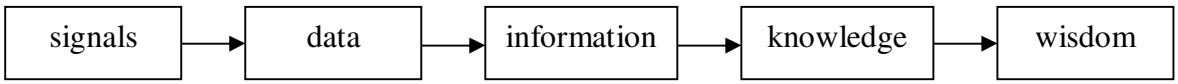
Another way of differentiating between data and information is the organization. Although data can independently be organized by individual users, organizing the information is something more personal, the user being obliged to actively intervene. Data may have a certain organization, may be the one imposed by the data collecting and storing process. On the other hand, the information has a high level of organization imposed by its relations with a certain need of information. In the system of a data base where the same types of needs and questions emerge repeatedly, a big amount of the organization necessary for these needs can be built in a storage system. But even there, the designers and users have multiple views over the data. Still, in most informational systems of data retrieving it might be impossible to anticipate the most suitable organization, without expressing different needs.

Besides the data and the information [Buc01], there are still three terms that should be classified in this hierarchy, because of their high complexity: the signal, the knowledge and the wisdom.

To another end, less complex than the data, there is the signal that has to be transmitted from one place to another during the information processing. This signal might be a flow/stream of bits, a form of electromagnetic wave or another form. This is exactly what the transmission engineer does, his task is to make the signal emit from one location to another. We must remark the fact that this task has nothing to do with the content of the signal. In order to use the most adequate terms, this domain of study should be called "the theory of transmitting the information", but Claude Shannon initially called it in 1948, "the theory of communication" [Sha62] and now it is called "the theory of information". The researchers in the domain are centering round the static properties of the signal in order to reach a valid transmission. The use of these properties permits the development of some transmission evaluation that can detect and correct errors occurred during the transmission. The word "noise" is used to identify errors in the transmission that damage the original signal. The received signal consists in data having a minimal quantity of noise. Certain data are selected and organized by the user in order to build up information that should answer to some necessity. The importance of processing the signal when storing the information and their retrieving lies in the fact that that some used algorithms and measures are based on fundamental concepts about the information theory.

Beyond the signal, the data and the information, there is the knowledge. The knowledge is built on the information, integrating any new information among the already known one, in order to shape a large, coherent vision of a part of the reality. Thus, while the information is located as an answer to a certain question, the knowledge has a wider aim. The people working with the Artificial Intelligence are talking about knowledge bases. A knowledge base is built on the attempt of incorporating in the stored data and algorithms, different facts, concepts and rules that are representatives for one or more experts selected in a certain field. The system built on this knowledge base in called expert system.

Finally, the wisdom completes this knowledge with a wider vision that contains all the known reality and that governs the use of the obtained information as well as the knowledge developed. It refers to the capacity of making balanced judgements in the light of some valuable criteria. As far as we know, there has been made no attempt to incorporate wisdom into the inner-system of any informational system.



A user generates and stores representatives data for the information that he (she) aims to retain. Another user finds these data; the user's aspiration is for finding information, that is data that fit his special need. The information that the second user searches is not necessarily the one that the first user tried to represent in data. The knowledge and the wisdom imply the individual user so much that they are beyond the aim of an information retrieving system. They imply the integration of the

information from many sources, the large majority being beyond the reach of an informational system. Still, the development of knowledge and wisdom depends on the access to the high quality information; this development depends on efficient and effective systems of storage and retrieving the information.

Indexing in Text Analysis

An index is built on the basis of an indexing language or a vocabulary, made of a set of index terms. These terms can be isolate words, longer phrases, or both. In order to maintain a certain continuity in the data base, certain decisions concerning the indexing language characteristics must be taken, before assigning any index terms.

The indexing has three main purposes in retrieving the information:
- to allow an easy location of the documents according to their subject;
- to define subject areas and consequently to make connections between the documents;
- to predict the significance of a given document for a needed specific information.

The indexing rules imposed by the editors and the others determine a certain degree of controlling the indexing language, even when the specific terms are being left opened and flexible. Many manual indexings are pre-coordinated. That is, term sub-sets are identified, every one being represented in the indexing language by a single term. For instance, an indexing language that is not very specific, might request that the terms “coal”, “gas”, “crude oil” should be represented by the term “fuel”.

The most frequent cross-reference types are:
- The “see” type reference, that refers to the article of the standard vocabulary (controlled)
- The “see also” and the “related terms” type, that refer to the related articles.
- The “larger term” type that refers to more general terms.
- The “restricted term” that refers to more specific terms.

The guiding principles in the automated indexing are:
- The set of words can be divided into two sub-sets – words that appear mostly because of relational and grammatical reasons, and content carrier words.
- Among the content carrier words, more frequently a word appears in a document, more probably that word is important for the document.
- A word can be used to distinguish a document, whenever its publication in that document, significantly differ from the accidental publication in the collection of documents.

The Discriminating Value of the Term

A common manner to define the resemblance between the documents is to compare the key terms that the two documents have. Two documents are very much alike if they share the same key terms (these documents must not be identical). Two documents essentially differ if they do not share any key word. For the time being it is enough to know that a measure for the resemblance between the documents, σ, can be defined and that such measurements can rely either on the presence or theabsence of terms in every document, or on their frequence of appearance.

Whatever the case, the resembling measure can be normalized, so that $\sigma(D_1,D_2) = 1$, if D_1 and D_2 are very much alike and $\sigma(D_1,D_2) = 0$ if D_1 and D_2 differ essentially.

Phrases and proximity

The frequence of the phrase can be calculated the same way as the frequence of the word, and the share of the phrase can be applied the same way. Still, because the usual frequency of the phrase is usually rather small, such a balancing schedule should be used. Let's suppose for instance that the word „information" appears 172 times in a document, and the word „retrieval" 57 times. Consequently, the phrase „information retrieval" can appear at most 57 times, but probably less frequently. Thus, if the same balancing schedule is applied both to phrases and words, the smaller natural frequency of the phrase influences its balance, regarding the balance of the individual words.

Phrases are often taken from a text. For instance, if the user is interested by the phrase „information retrieval", he is probably interested by the phrase „information storage". Still, these are different phrases, and it is very possible that the second phrase should not be so frequent, so that it might loose it's importance. It is still reasonable to suggest that the phrase „retrieval and storage of information" should be included in the calculation of the phrase „information retrieval". A good method could be measuring the distance between words. Thus, by calculating the combination *information* and *retrieval*, these two words can anytime appear in the same sentence with at most two separating words, the calculation thus including: *information retrieval,information retrieval and storage, and information storage.*

Pragmatic factors

Finally and having a major complexity, pragmatic factors concerning the user can be introduced, too. Is the user a high school student or a candidate for a doctor's degree? Is the user well prepaired in the questions area or he is just trying to get into a new study area? Has the user direct access to the document and if so, had he read it? These factors and others depend on the individual user and must be used dynamically. Only when the users are forming a small and homogenous group, such factors in a system could be constant. Together with the development of technology and of the retrieval interractive systems which become the main activity, a more profound research is addressing to the adequate representation of the user as being apart of the information retrieving system. An important group of researchers are studying the retrieval systems, especially the on-line ones, with the aim of offering better models of users who could improve the retrieving systems performance.

Conclusions

In many situations, both in the real world and in the science world, we deal with plenty of documents more or less diverse. In order to subsequently retrieve them, to enlarge the period of their availability, we are interested in grouping these documents in smaller groups, by using different criteria. When the grouping is made according to well known criteria, this type of grouping is named classification. Because there is not always possible to achieve a useful classification, because there is a risk not to be able to group some very complex data, we must find ways to group scientific articles that resemble somewhat.

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Statistical methods for performance' evaluation of WEB documents classification

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Abstract

The principal aim of this paper is to make a review of main statistical methods for classifying documents that could be easily adapted in the context of Web document retrieval. After presenting the most popular methods of classification we will also define the most accurate indicators for assessment of classifiers performance. Thus we will refer to the *recall*, *precision*, *fscore*, *sensitivity* and *specificity*. We will also describe how these indicators can be calculated in the context of Web documents.

1 Introduction

Access to information is an increasingly frequent topic discussed both at national and international level. Today we can not talk about some traditional information skills, where each country can have access to virtual planetary database.

The main reason why people require information on an other than traditional medium concerns among others, and that, for example, in science field, the actualization period of information is very low, some specialized information, cutting-edge, can be found only on this media, because the time of appearance a book in a traditional format already condemned the book to be obsolete.

Development of online services must be the main concern in librarian world. In "WWW Library Directory" magazine [www10a] are identified over 30 types of services involving using of internet and reference services, databases and indexes sites, search guides, information services for trade and industry, banks of images, and so.

In December, 1999 the European Commission launched an initiative entitled "eEurope: An Information Society for All", [www10b] initiative which proposed ambitious targets, namely to provide the benefits of information society to all Europeans. The initiative focuses on ten areas of priority, from education to transportation, from health to disability. The idea behind this initiative was to build a strategy to modernize of the European economy, in the hope that it will become "the most competitive and dynamic knowledge-based economy in the world" [Han01c].

Recently there was a new generation of Web technologies designed under the concept of Semantic Web project launched by Tim Berners-Lee [Ber01]. The semantic Web seeks to access the data with heterogeneous semantics and obtain some useful knowledge from data through various services offered in the Web space. Semantic Web claims to improve communication between peoples using different technologies, extending the interoperability of databases and providing new mechanisms for agent-based data computation in which the people and the machines will work online and make possible a new level of interaction between scientific communities [Hen03].

2 Analyzing Text Data and Information Retrieval

Information retrieval (IR) is a field developed in parallel with database systems. Information retrieval is concerned with the organization and retrieval of information from a large number of text-based documents. A typical information retrieval problem is to locate relevant documents based on user input, such as keywords or example documents. Usually information retrieval systems include on-line library catalog systems and on-line document management systems. Since information retrieval and database systems each handle different kinds of data, there are some database system problems that are usually not present in information retrieval systems such as concurrency control, recovery, transaction and management. There are also some common information retrieval problems that are usually not encountered in traditional database systems, such as unstructured documents, approximate search based on keywords and the notion of relevance.

2.1 Basic Measure for Text Retrieval

There are some indicators for measure efficiency of information retrieval algorithms. May [Relevant] be the set of documents relevant to a query and [Retrieved] be the set of documents retrieved. The set of documents that are both relevant and retrieved is denoted by $[\text{Relevant}] \cap [\text{Retrieved}]$. There are tow basic measures for assessing the quality of text retrieval:

- *Precision*: is the percentage of retrieved documents that are in fact relevant to a query. It is defined as follows:

$$precision = \frac{|\{\text{Relevant}\} \cap \{\text{Retrieved}\}|}{|\{\text{Retrieved}\}|}$$

- *Recall*: is the percentage of documents that are relevant to the query and were in fact retrieved:

$$recall = \frac{|\{\text{Relevant}\} \cap \{\text{Retrieved}\}|}{|\{\text{Relevant}\}|}$$

Precision ranges from 1 (all retrieved documents are relevant) to 0 (none of relevant document is retrieved). *Recall* range from 1 (all relevant documents are retrieved) to 0 (none of retrieved document is relevant). In fact *precision* represents a quantitative measure of the information retrieval system while *recall* represents a qualitative measure of this system.

2.2 Keyword-Based and Similarity-Based Retrieval

Most information retrieval systems support *keyword-based* and *similarity-based* retrieval. In keyword-based information retrieval, a document is represented by a string, which can be identified by a set of keywords. A user provides a keyword or an expression formed out of a set of keywords, such as “car and repair shop”. A good information retrieval system needs to consider synonyms when answering such query. This is a simple model that can encounter two difficulties: (1) the *synonyms* problem, keywords may not appear in the document, even though the document is closely related to the keywords; (2) the *polysemy* problem: the same keyword may mean different things in different contexts.

The information retrieval system based on similarity finds similar documents based on a set of common keywords. The output for this system is based on the degree of relevance measured by using keywords closeness and the relative frequency of the keywords. In some cases it is difficult to give a precise measure of the relevance between keyword sets. In modern information retrieval systems, keywords for document representation are automatically extracted from the document. This system often associates a stoplist with the set of documents. A stoplist is a set of words that are deemed “irrelevant” and can vary when the document set varies. Another problem that appears is *stemming*. A group of different words may share the same word stem. A text retrieval system needs to identify groups of words where the words in a group are small syntactic variants of one another, and collect only the common word stem per group.

Let's consider a set of *d* documents and a set of *t* terms for modeling information retrieval. We can model each of the documents as a vector *v* in the *t* dimensional space $\mathbb{R}^t$. The i^{th} coordinate of *v*() is a number that measures the association of the i^{th} term with respect to the given document: it is generally defined as 0 if the document does not contain the term, and nonzero otherwise. The element from a *v()* vector, v_i can indicate the frequency of the term in the document and there are a lot of methods to define frequency of the terms. Similar documents are expected to have similar relative term frequency, and we can measure the similarity among a set of documents or between a document and a query. There are many metrics for measuring the document similarity. The used one is the Euclidean distance but the most used is cosine similarity defined as:

$$sim(v_1, v_2) = \frac{v_1 \cdot v_2}{\|v_1\| \|v_2\|}$$

where $v_1 \cdot v_2$ the standard dot products defined as $\sum_{i=1}^{t} v_{1i} v_{2i}$ and $\|v_1\|$ is defined as $\|v_1\| = \sqrt{v_1 \cdot v_1}$

The similarity ranges from 1 (perfectly similar) by 0 (orthogonal) to -1 (dissimilar). Great values of similarity represent a small angle between vectors and therefore the vectors (the documents) are similar.

3 Statistical methods for classification

It is known (without scientific proof but with statistical proof) that the classification performance depends on the area of the data that need to be classified. This empirical observation justifies the need to introduce new algorithms for classification and to see their performance in different contexts.

In generally, the complex applications of digitized there are used the following documents classification techniques: the technique of naive Bayesian classifier, TF-IDF technique, Latent Semantics Indexing technique, Support Vector Machine (SVM) technique, the technique of Artificial Neural Network (ANN), the technique of nearest value k (k-nearest neighbor KNN), Concept Mining technique. The algebraic algorithms have been less used, or not used at all, perhaps because of the lack of effective implementation.

The algebraic methods for documents classification support the design and implementation of the adaptive applications and the systems advice and recommendation by completing:

- Analysis of data on the Web;
- Analysis user logins;
- Link analysis scoring string in web browsing (click-stream sites);
- Create models of users with specific interests.

In the Web Mining area and related areas the algebraic tools and especially heterogeneous hierarchies of algebraic structures are suitable to create a framework of operator space for web document classification. The worktable framework in the web classification stage is provided by modeling using HAS hierarchy. This model provides cooperation and collaborative work of the classifiers in applications of Web space [Pop07].

You can create a framework for working effectively in the task of classification for Web Mining. Thus, the running of several classifiers in a collaborative framework provides final results which become federal tools, adaptive and recommendation for Web applications. Modeling the hierarchy of heterogeneous algebraic structures ensure the creation of this working framework by providing accessibility to a system of classifiers that can be the basis for designing and implementing any adaptive Web system (Adaptive Web System - AWS). The classification accuracy in this new created working framework ensures the possibility to create new classification based on the existing hybrids.

3.1 Evaluation metrics in classification

Most evaluation metrics in the classification process is designed to achieve uniformity of classes induced by a certain characteristic from a set of samples. Other metrics are designed to realize the differencing power in the context of feature selection as a method to combat the problem of interaction characteristics [Hua07].

Definition 1 (*Metric based on purity* [Gol00]). An evaluation metric based on purity M quantifies a quality of partitions induced by a feature X_k on a lot of training samples T.

Metrics based on purity define M by measuring the amount of class uniformity obtained by decomposition of T into subsets of samples {Tm} induced by X_k. Be $\vec{P}$ the vector of class probabilities estimated from the full set T, be $\vec{P}_m$ the vector of class probabilities estimated from T_m and be I a measure of impurity of a class probabilities vector. M is defined as:

$$M(X_k) = I(\vec{P}_m) - \frac{|T_m|}{|T|}\sum_m I(\vec{P}_m)$$

Different varieties of M can be obtained by altering the function of impurity I. For example, to gain information (Information Gain [Wit99]), impurity is defined in terms of entropy as:

$$I_{entropy}(\vec{P}) = -\sum_i p_i \log_2 p_i$$

Another example is the Gini index (Gini Index [Vil01])

$$I_{gini}(\vec{P}) = -\sum_i p_i^2$$

Previous equations cover most traditional metrics, but there are two major limitations:

- First is the tendency of features with more permitted values. Induction of several subsets of samples result in increased likelihood of finding common subsets of classes, but the cost of processing. To solve this problem several solutions have been proposed [Wit99];
- Second is the inability to detect the relevance of a characteristic when its contribution is hidden target concept by combination with other features. This problem is known as feature interaction [Kon95].

Another category of metrics are based on the discrimination power of each feature, i.e. on the ability of a characteristic to separate the samples into different classes.

Definition 2 (*Metric based on discrimination* [Vil01]) Let $\vec{X}_i$ and $\vec{X}_j$ two samples very close in relation to measure of the distance D. To the characteristic (feature) X_k is assigned a certain power of discrimination if it has different values when the class values $\vec{X}_i$ and class $\vec{X}_j$ are different.

An example of discrimination is when $x_k^i = x_k^j$ where $C(\vec{X}_i) \neq C(\vec{X}_j)$. Most often this condition is true for pairs of similar samples, high quality feature of X_k.

Two examples of discrimination based metrics are most used in the algorithms Contextual Merit and RELIEF [Hon97]. The distance between samples is defined as follows:

$$D(\vec{X}_i, \vec{X}_j) = \sum_{k=1}^{n} d(x_k^i, x_k^j)$$

For nominal features $d(x_k^i, x_k^j)$ is defined at:

$$d(x_k^i, x_k^j) = \begin{cases} 1 & if\ x_k^i \neq x_k^j \\ 0 & f\ x_k^i = x_k^j \end{cases}$$

For numerical features $d(x_k^i, x_k^j)$ is defined as:

$$d(x_k^i, x_k^j) = \frac{\left|x_k^i - x_k^j\right|}{TH(x_k^i, x_k^j)}$$

where, TH is defined as the normalization factor, for example, $MAX(X_k) - MIN(X_k)$ (the difference between maxim and minim value observed for feature X_k from T).

Other metrics are obtained by varying the update function. The Relief algorithm, for example, gives the result for the q_k metric as:

$$q_k = \begin{cases} q_k + d(x_k^i, x_k^j) & if\ C(\vec{X}_i) \neq C(\vec{X}_j) \\ q_k - d(x_k^i, x_k^j) & f\ C(\vec{X}_i) = C(\vec{X}_j) \end{cases}$$

The Relief algorithm updates q_k when values of two characteristics of neighboring sample differ; the result increases if their classes' values differ and decreases if they are the same. The Contextual Merit Algorithm updates q_k when both the values of characteristics differ and the values of classes differ, it is used the following update function:

$$q_k = q_k + \frac{d(x_k^i, x_k^j)}{D(\vec{X}_i, \vec{X}_j)} \quad if\ C(\vec{X}_i) \neq C(\vec{X}_j)$$

3.2 Statistical classification

Statistical classification is a statistical procedure whereby individual elements are placed in groups based on quantity criteria or based on some features (properties) using a training set with previously classified items.

The problem can be formalized as: Given the set of training:

$$\{(x_1, y_1),...,(x_n, y_n)\}$$

to produce a classifier

$$h : \chi \to \gamma$$

that maps an object $x \in \chi$ on his label classification $y \in \gamma$.

For example if the problem is to filtrate the spam e-mails then x_i means an e-mail and y is either "Spam" or "Non-Spam".

3.3 The probabilistic model of Naïve Bayes classifier

A **Naïve Bayes** classifier is a simple probabilistic classifier that applies the Bayes theorem with strong conditions of independence.

The probabilistic model of any classifier is actually a conditional model:

$$p(C|F_1,...,F_n)$$

for a dependent class variable *C*, with a small number of results, respectively *class*, subject of characteristic variables F_1 ,.., F_n.

If the number *n* of features is large or when a characteristic has a large area (may take a large number of values), the model can not be built practically. Therefore, using Bayes's theorem, the model can be reformulate as follows:

$$p(C|F_1,...,F_n) = \frac{p(C)\,p(F_1,...,F_n|C)}{p(F_1,...,F_n)}$$

It is noted that the denominator is independent of *C* and it is know the values for the features F_i, so what really interests us is the numerator of the fraction which is a composed probability model (joint):

$$p(C, F_1,...,F_n)$$

Or, expressed otherwise:

$$\begin{aligned}
&p(C, F_1,...,F_n)\\
&= p(C)\,p(F_1,...,F_n|C)\\
&= p(C)\,p(F_1|C)\,p(F_2,...,F_n|C,F_1)\\
&= p(C)\,p(F_1|C)\;\,p(F_2|C,F_1)\,p(F_3,...,F_n|C,F_1,F_2)\\
&= p(C)\,p(F_1|C)\;\,p(F_2|C,F_1)\,p(F_3|C,F_1,F_2)\,p(F_4,...,F_n|C,F_1,F_2,F_3)
\end{aligned}$$

etc.

It is assumed that each feature F_i is **conditionally independent** of every other feature F_j for all i ≠ j, so:

$$p(F_i|C,F_j) = p(F_i|C)$$

and the composed probabilistic model becomes:

$$\begin{aligned}
p(C, F_1,...,F_n) &= p(C)\,p(F_1|C)\,p(F_2|C)\,p(F_3|C)...\\
&= p(C)\prod_{i=1}^{n} p(F_i|C)
\end{aligned}$$

with independence condition, conditional distribution over the class variable *C* is:

$$p(C|F_1,...,F_n) = \frac{1}{Z}\,p(C)\prod_{i=1}^{n} p(F_i|C)$$

where Z is a scaling factor depending only by F_1, ..., F_n, which are constant if the values of characteristic variables are known.

Such models have a *class prior p(C)* and independent probability distributions $p(F_i|C)$. If there are *k* classes and a model for $p(F_i)$ can be expressed in terms of *r* parameters, then the Naive Bayesian model has (k - 1) + $n \cdot r \cdot k$ parameters. In practice, the most common models have $k = 2$ (binary classification) and $r = 1$ (characteristics are Bernoulli variables) the total number of parameters of the naive Bayesian model is $2n + 1$, where *n* is the number of binary features used for prediction.

All parameters of model, priory classes and probability distributions for characteristics can be approximated with relative frequencies from the training data set (maximum likelihood estimators for the probability). If features are not discrete, they must be discretized, unsupervised or supervised, using the training set.

The Naive Bayesian classifier combines Bayesian probability model with a rule of decision. The most commonly used rule is that which is to take the case most likely - the rule of maximum an apriory or MAP decision. Classifier will be given by the following function:

$$\text{classify}\,(f_1,...,f_n) = \text{argmax}_c\, P(C = c)\prod_{i=1}^{n} p(F_i = f_i|C = c)$$

With the MAP rule it will reach a correct classification if the correct class is more likely than all others.

Although independence restrictions are hard to follow, the naive Bayesian classifier has certain properties that are very useful in practice (eg, separation by class conditional distributions of characteristics). In addition, the classifier does not require training large data sets to estimate parameters (mean and variation of variables) as independent variables assumption is only necessary the change of variables for each class (not the entire covariance matrix).

3.4 Bayesian Networks

Bayesian network or **belief network** is a **probabilistic graphic model** that represents a set of variables and probabilistic dependences between them.

For example, a Bayesian network can be used to calculate the probability that a patient is suffering from a disease, once the presence or absence of symptoms, assuming known probability of dependency relations between symptoms and disease.

From formal point of view the networks are **directed acyclic graphs**, which have variable nodes (parameter measured latent variable, hypothesis, etc.) and arcs represent conditional dependencies between variables. Nodes are not restricted to representing random variables. Bayesian networks that model sequences of variables are called dynamic Bayesian networks.

If there is an arc from node *A* to another node *B, A* is called a *parent's B* and *B* is a *child* of a node *A*. The set of parents for a node is denoted by X_i. The joint distribution of node values can be written as the product of local distributions of each node and its parents:

$$P(X_1,...,X_n) = \prod_{i=1}^{n} P(X_i | \text{parents}(X_i))$$

If the node X_i has no parents, it is said that the local distribution of probability is *unconditional*, otherwise been *conditional*. If a value of a node is an observed value it is said that the node is an *evidence node*.

Conditional independence is represented by the property of d-separation graph: nodes *X* and *Y* are d-separated in the graph, given some evidence nodes, if and only if the variables *X* and *Y* are independent given the evidence variables. Set of other nodes which may depend directly the node *X* is given by Markov's characteristics of *X*.

Because the Bayesian networks are complete models for variables and their relations can be used to answer to probabilistic queries about theme. For example, you can update the knowledge dataset base relative to the status of a subset of variables when other variables are observed (evidence variables), through an inference process.

4 Evaluating the classification performance for Web documents

The classifier performance can be measured or estimated in various ways. The used method depends on the type of classifier and data classification. Quality of classification can be evaluated using a confusion matrix. For example, matrix with numerical elements of samples identified as correct or incorrect for each class. Table 1 is a confusion matrix for binary classification [Sok07].

		Prediction class	
		Class=Yes	Class=No
Observed class	Class=Yes	***tp***	***fn***
	Class=No	***fp***	***tn***

Table 1. Confusion matrix for binary classification

Confusion matrix of Table 1 contains the following items: ***tp*** = true positive (number of true positive cases), ***fn*** = false negative (number of false negative cases), ***fp*** = false positive (number of false positive cases) and ***tn*** = true negative (number of true negative cases).

Retrieving the relevant documents, or a positive class, is the most important task in web classification process, so the focus is on classification ***tp***. The importance of retrieval of positive examples is reflected by the choice of performance metrics for text classification: *accuracy* - precision, *revocation*, *Fscore* and *BreakEvenPoint*:

$$Precision = \frac{tp}{tp + fp}$$

$$Recall = \frac{tp}{tp + tn}$$

$$Fscore = \frac{(\beta^2 + 1)tp}{(\beta^2 + 1)tp + \beta^2 fn + fp}$$

$$BreakEvenPoint = \frac{tp}{tp + fp} = \frac{tp}{tp + fn}$$

The first three metrics evaluate the performance of classifiers by calculating the ratio of positive samples correctly classified and samples labeled as positive (Precision), positive samples of data (Recall), or total positive samples labeled with the data (Fscore). The BreakEvenPoint metric estimates essentially when the disagreement between data and algorithm for labeling samples as positive ($fp = fn$) is balanced. All these measures fail to consider number of true negative cases ***tn*** in their formulas, so do not take into account the correct classification of negative samples.

The problems of retrieving a positive class, the discrimination between classes, balancing between classes are possible retrieval tasks whose importance depends on the problem arising in the classification of documents. So far, there is not a consensus choice of measures used for performance evaluation of classifiers for Web documents.

In the classification process from Web space some measures to performances evaluation are used, such as the following 3 formulas:

$$Accuracy = \frac{tp + tn}{tp + fn + fp + tn},$$

this is used for example in [Pop07] and other works, or *Recall*, *Fscore*, with the following correspondence:

$$Sensitivity = \frac{tp}{tp + fn} = Recall$$

and

$$Specificity = \frac{tn}{fp + tn}$$

presented in [Sok06]. With the use of different measures, it is important to know how the performance, produced by these measures, is changing.

5 Conclusions

The present review of the most important indicators for assessment of classifiers performance emphasis the relevance of few classical indicators in the context of WEB documents retrieval. The recall, precision, sensitivity and specificity defined in classical text document retrieval works well also in the WEB context. For future research our intention is to develop a methodology for retrieval of non-text documents, for example searching and retrieval of images based on search words.

Acknowledgements

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Writing Modular Documentation Using Topics. DITA Perspective

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Abstract

DITA (Darwin Information Typing Architecture) is an XML based information architecture for authoring, producing, and delivering technical information. DITA was originally developed at IBM by Don R. Day, Michael Priestley and others but now is an OASIS standard. DITA basic element is a topic. A topic is a piece of information that is specific to a single subject, can stand alone and it makes sense in any context. From topic basic element are derived three specialized topics: task, concept and reference. This paper explains the main benefits of using topic based authoring and DITA and presents a DITA solution for computer guide.

1. Topic Based Authoring

Topic based authoring has been used by the technical documentation writers since help systems were created for the first time. Help systems developers learned that conversion from a written book to an on line help system could not be made by simply transforming a book heading level into a topic.

Information that was initially presented in a linear form (written book) could not be used by the readers who were unable to find the content needed. Topic based authoring requires the using of some information units called topics. These topics exist independently and can answer to questions like: “How do I ?”, “What is ?”, “What went wrong?”

Every topic has a title that describes the purpose and contains enough data necessary to begin and finish a task, to look for some data about the subject or to understand a concept.

Some of the benefits of topic based writing are:

- Suitable for seeking technical information;
- Supports multiwriter collaboration;
- Single sourcing (information can be reused).

There are three types of topics that had been used for years: concept, task, reference. Creators of DITA used these concepts, formalized information typing practices and created an extensible typing architecture through specialization of base topics.

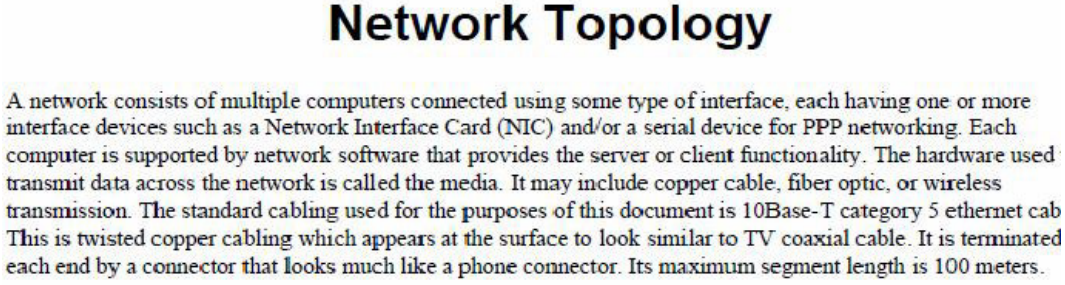


Fig. 1. Concept topic example

Fig. 2. Reference topic example

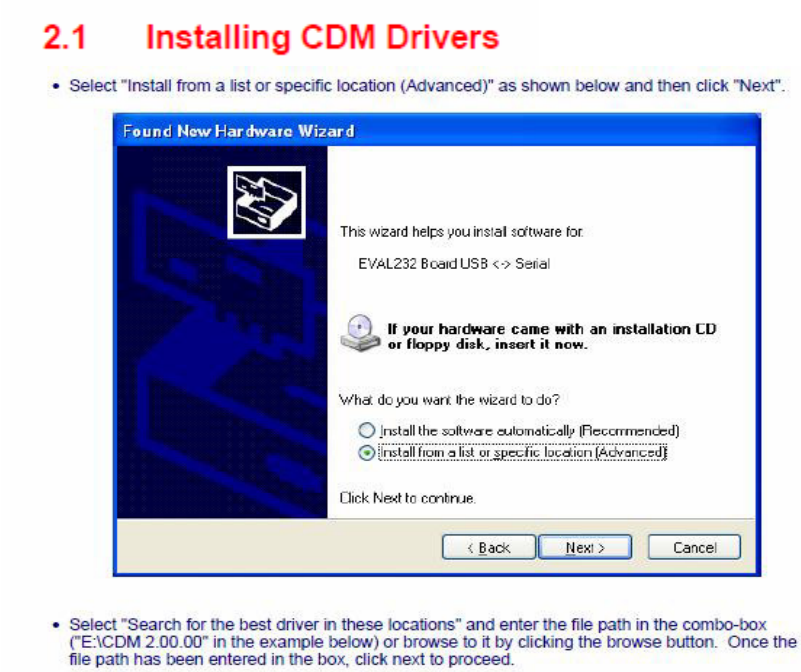


Fig. 3. Task topic example

According to [5] there are four characteristics of well formed topics:

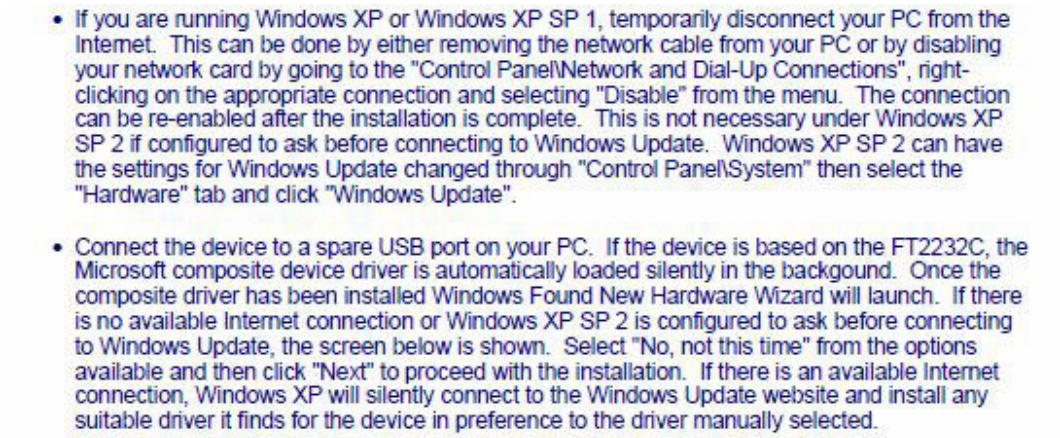
1. Use heading syntax to communicate info type.

Example of correct heading syntax [5]:
Concept headings: 1st word noun or about or question word
Examples:
XYZ
About XYZ
What is XYZ
Task headings: 1st gerund, infinitive, imperative, *How To,* question word
Setting Up the XYZ
To Set Up the XYZ
Set Up the XYZ
How To Set Up the XYZ
How Do I Set Up the XYZ?

2. Avoid significant mixing of info types.

A well-formed topic avoids significant mixing of info types [5] (beyond a few sentences).

- Concept with procedure embedded
- Task with lengthy background embedded
- Reference table with concepts embedded



- If you are running Windows XP or Windows XP SP 1, temporarily disconnect your PC from the Internet. This can be done by either removing the network cable from your PC or by disabling your network card by going to the "Control Panel\Network and Dial-Up Connections", right-clicking on the appropriate connection and selecting "Disable" from the menu. The connection can be re-enabled after the installation is complete. This is not necessary under Windows XP SP 2 if configured to ask before connecting to Windows Update. Windows XP SP 2 can have the settings for Windows Update changed through "Control Panel\System" then select the "Hardware" tab and click "Windows Update".
- Connect the device to a spare USB port on your PC. If the device is based on the FT2232C, the Microsoft composite device driver is automatically loaded silently in the backgound. Once the composite driver has been installed Windows Found New Hardware Wizard will launch. If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the screen below is shown. Select "No, not this time" from the options available and then click "Next" to proceed with the installation. If there is an available Internet connection, Windows XP will silently connect to the Windows Update website and install any suitable driver it finds for the device in preference to the driver manually selected.

Fig. 4. Example of task with lengthy background embedded

3. They serve as a hub, pointing to related topics (if appropriate).

4. They focus on one user question.

2. Information modeling in topic based format

If the information that is used is a technical one there is a great chance to find a diversity of structures. The first steps to be taken are to identify the structure types used in the document. There will be a lot of task topic types that contain step by step instructions which have in the background certain concept type elements, there will be tables, lists, diagrams that can be classified as reference topic type, but the most frequent are the mix of structures.

Tasks begin with long discussions or supplemental explanations or concepts include step by step instructions or tables end with concepts which make reference to bibliographic notes in the footer of the page or contain task step by step instructions in the cells.

Information separation in the three basic topic types will add flexibility and dynamism to the presentation.

3. Dita (Darwin Information Typing Architecture)

The Darwin Information Typing Architecture (DITA) [2] is an XML-based architecture for authoring, producing, and delivering technical information. Any DITA document uses topics. As we mentioned before, a topic is a piece of information that has the following characteristics:

- answers one question(How do I…? What is...? etc.);
- it has a heading;
- it can stand alone;
- it makes sense in any context.

DITA includes topics like: Task, Concept, Reference.

- A Task topic describes how to accomplish a task. It displays a list of steps that the users must follow to produce a specified result.
- A Concept describes something. It contains definitions, rules and guidelines.
- A Reference topic offers details. It describes command syntax, programming instructions, reference material.

3.1. Topic structure

In DITA all topics have the same structure:

- title;
- description;
- prolog;
- body.

Topic structures may have the following parts:

- Topic element
  - Requires an *id* attribute;
  - Contains all other elements
- Title
  - The subject of the topic
- Alternate titles
  - Titles specifically for use in navigation or search.
- Short description
  - A short description of the topic.
- Prolog
  - Contains various kinds of topic information, such as audience, product, and so on.
- Body
  - The actual topic content: paragraphs, lists, sections.
- Related links
  - Links to other topics
- Nested topics
  - Topics can be defined inside other topics

3.2. Concept structure

The concept structure [1] contains as the first element the <concept> element. The concept element has a standard structure as the one described above. It has <title>, <conbody>-the body of the concept topic, <titlealts>, <shortdesc>, <prolog>, <related links>.

<conbody> allows paragraphs, lists, elements, sections or examples.

Here is an example of a simple concept topic.

```
<concept id="concept">
 <title>Computer</title>
  <conbody>
   <p>A computer is an electronic device that processes data</p>
    <example>
    <p>A computer is able to:</p>
    <ul>
     <li>Make calculations</li>
     <li>Connect to a network</li>
     <li>Process images</li>
```

```
     <li>Process texts</li>
    </ul>
   </example>
  </conbody>
</concept>
```

3.3. Task structure

The task structure [1] contains as the first element the <task> element. The task element has a standard structure as the one described in the concept element. It has <title>, <conbody>-the body of the concept topic, <titlealts>, <shortdesc>, <prolog>, <related links>. The <taskbody> element (the body element of the task topic) has the following elements:

- <prereq> - information needed before the task starts
- <context> - information needed for task completing
- <steps> - the necessary actions for a task to be accomplished
- <result> - the expected outcome of the task
- <example> - examples that illustrates the task
- <postreq> - the necessary actions that a user must initiate after the task completion

Here‘s an example of a task topic.

```
<task id="copy file">
 <title> File copying </title>
  <taskbody>
   <context>Each day you need to copy files for backup</context>
    <steps>
     <step><cmd> Select the file by clicking it</cmd></step>
     <step><cmd> Right click, select Copy</cmd></step>
     <step><cmd> Select destination folder</cmd></step>
     <step><cmd> Right click, select Paste </cmd></step>
    </steps>
    <result>You now have your file copy!</result>
  </taskbody>
</task>
```

3.4. Reference structure

The <reference> [1] element additional pieces of information for the concept and task topics. Reference topics have the same structure as concept or task. In addition, reference topics have elements that describe the body of the reference.

The body of the reference is called <refbody> and contains the following elements:

- <section> - The <section> element divides the reference topic into smaller divisions. A section may have an optional title.
- <refsyn> - Contains syntax or signature content (for example, a command-line utility’s calling syntax, or an API’s signature)
- <example> - examples that illustrates the reference
- <table> - Organizes information according into a tables
- <properties> - Lists properties and their types, values, and descriptions.

3.5. Domains

A DITA domain defines a set of vocabulary elements that can be used regardless of topic type. The elements in a domain are defined in a domain module which can be integrated with a topic type to make the domain elements available within the topic type structure. Currently the following domains are provided [1]:

Typographic	For highlighting when the appropriate semantic element doesn't exist yet
Programming	For describing programming and programming languages
Software	For describing software
User interfaces	For describing user interfaces
Utilities	For providing imagemaps and other useful structures

3.6. Specialization

Specialization is a DITA feature that allows authors to create new information types with structure and semantics specific to a particular audience. Considering draft specifications issued by OASIS, a learning specialization is available to create topics for educational purposes.

DITA specialization for elearning

OASIS DITA project for elearning infrastructure development has the following objectives[4]:

1. Provides a top-level design for learning content using DITA structure
2. Promotes best practices for applying DITA principles:
   a. separation of presentation and content;
   b. separation of content and context;
   c. single sourcing, reuse, repurposing.
3. Provides support for delivering contents in multiple formats for training and learning for different audience

DITA specialization elements for elearning uses as defined by OASIS [4]:

LearningPlan topic – The LearningPlan topic contains goals and learning necessary information.

LearningPlanBody – The LearningPlanBody is the main element of the LearningPlan topic.

LearningOverview topic- This topic enumerates the learning objectives and includes important information for learners concerning duration, audience, prerequisite.

LearningContent topic - This topic describes the content of the learning activity and provides a container for DITA concept, task, and reference topics.

LearningSummary topic type - The learningSummary topic type offers a short decription of the learning content and provides some guidelines to memorize the main ideas of the lessons. It also provides some questions for verification of the learning content.

Learning Assessment topic type - A Learning Assessment provides a list of questions or interactive activities that measure the level of knowledge aquisition and stimulate reinforcement of the learning content.

LearningBase topic type - The learningBase topic type offers a structure and a set of elements that can be used in other learning content types: learningOverview, learningContent, learningSummary, learningAssessment, and learningPlan. It is not used to author or deliver any actual learning content.

DITA is becoming a very important standard in designing education systems. Creating lesson plans and scenarios, flexible document production, developing DITA extensions to help elearners with writing structured texts are only a few of the DITA uses in education.

4. Microsoft Word Guide using DITA

This paragraph presents a DITA solution for a user guide. We'll have a guide for two categories of users: beginners, intermediate in pdf format. Also, we'll need a html version for the web. Some samples of topics that the guide containes are presented in the table below:

Beginers	Intermediate
Creating a document	Creating a document
Entering text	Entering text
Saving a document	Saving a document with some extrainformation about protecting word documents
Closing a document	Closing a document
Opening a document	Opening a document
Editing documents	Editing documents with extrainformation about: ▪ Insert symbols and foreign characters ▪ Inserting date and time ▪ Using smart tags in word
…	

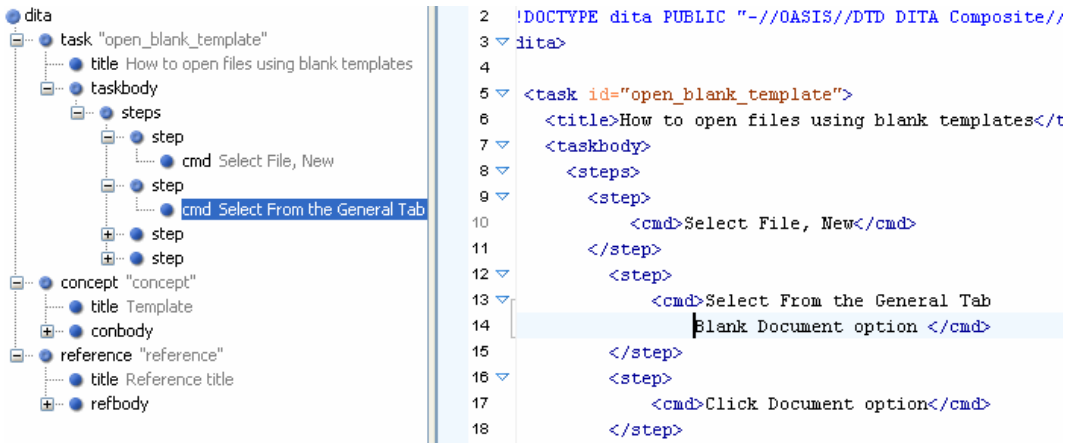


Fig. 5 Using Oxigen XML editor for DITA authoring

Steps to create a DITA document

First of all we need to identify the basic three structures in the documentation. We'll build concepts for the basic theoretical definitions, tasks for the step by step instructions and reference for the extrainformation that is needed.

Example of concepts:

Template, Wizard, File, Document, Table, Record, Clipboard,…

Examples of tasks:

How to copy a fragment of text, How to open a file, How to close a file, How to change character dimension, How to change character font, ….

Examples of reference:

Glossary, Short description of file commands,…

Then we have to build the ditamap file which will link together the concepts, tasks and references defined. Ditamap is a map file that puts together all the files into a single document. The map file describes the sequence and hierarchy of the topics and sometimes the relationship between them. An important step in creating DITA documents is conditional processing or filtering logic.

Creating different versions for the guide is a very simple operation. All you need is to modify the steps and add the "intermediate" attribute.

```
 <step>
  <cmd audience="intermediate">Select From the Letters & Faxes Contemporary Fax
option </cmd>
 </step>
```

To exclude topics that have certain attributes from the output we have created a ditaval file using prop elements with attributes *att, val, action*.

For example:

`<prop action="exclude" att="audience" val="intermediate">` will exclude all topics that are related with intermediate level.

The final step is creating output. The Dita Open Toolkit [3] can build output in HTML format or PDF format. The output can be customized using CSS styles or by modifying XSL templates. Oxigen has the Dita Open Toolkit integrated and can perform these transformations.

5. Conclusion

XML is fast becoming "the language" for information interchange and describing relationships. There is XML for biology, XML for chemistry, XML for rights management, XML for finance, XML for business rules, XML for publishing, etc. In this paper we present some modern concepts regarding modular writing, topic based authoring and the DITA standard. Finally we present a DITA solution for a user manual and explain the main benefits of using this solution.

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The role of information literacy in the educational process

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Abstract

The information literacy is indispensable to the educational process due to its presence and manifestation, both in the process of gathering information, and in its transformation into knowledge. The information literacy provides the basis for the implementation of the continuous training principle (lifelong education), offering the support for orientation in the information flow.

Introduction

The information literacy is a significant component in the education of the future professional and citizen, its importance being enhanced due to the development of the information society. The library user's behavior has changed a lot lately, because he has become from a common user a partner-user. We are dealing mostly with a new user, who masters both the scientific competency and the modern technologies. The mission of any library is to be a reliable partner for the educational process and to prepare the beneficiary in order to find his way and to use effectively the opportunities of the informational world, not only during his studies, but during the whole lifespan.

In this respect, the problem of the information literacy has become a priority. The information society highlights several strategic objectives for the educational process, including:

- the duty and the obligation to form active and well informed citizens, who will be able to transform information into knowledge;
- the development of self-instruction skills throughout the whole lifespan;
- the organic combination of the educational and the scientific processes;
- the promotion of the European dimension in the educational field;
- the promotion of the attractiveness related to the European space of education, by developing a national framework of qualifications related to the European one.

The definition of information literacy and the role of the library in promoting it

The *information literacy* is defined as "a set of theoretical knowledge and competences that allow the identification of an informational need, followed by the location, evaluation and use of the information found, in order to develop an approach to solve a certain problem, to find a response and to communicate the held and processed information" [17]. According to the definition provided by ALA (American Library Association): "in order to possess information literacy a person should be aware of the need of information, to be able to locate, evaluate and use effectively the information" [4].

The high-level symposium, organized by IFLA and UNESCO and held in November 2005 at the Alexandrina Library in Egypt, issued "The Alexandria Declaration on Information Literacy and lifelong learning" [5]. The named declaration mentions that *the lifelong learning is based on*

information literacy that helps people to find, evaluate, use and create information in order to achieve their personal, social, professional and education goals. Moreover, the Alexandria declaration urges governmental institutions and non governmental organizations to promote the policies and the programmes related to the field of the information literacy and lifelong learning.

Being a product of the information society, the information literacy is the key to lifelong learning and has a great importance for the education curriculum, because it improves the teaching and learning environment. It is even considered to be „an ability to survive during the 21st century" [13].

The *expert's information literacy* deals with the entirety of knowlwdge and skills that allow the orientation in the existing information flow, the identification and the effective, fast and coherent use of information, in order to support the educational and scientific activity. The contemporary educational practices do not pay the needed attention to the role and importance of the information literacy belonging to the pupils/students. The expansion of the activities related to the development of the gathering information skills, because according to the research made in this field, the pupils/students often leave the learning institutions without acquiring the skills needed in order to cope with an information based society.

Information literacy is "a fundamental component of the information society, because it reffers to the capabilities related to effective work in this society, which has the purpose to help people integrate in the new information society" [11], to change the way they relate to information and documentation, to know the new rules of the global game related to communication (the respect for the human rights, the preservation of the fundamental values of society, the cultural and linguistic integration).

The education leading to information literacy is a responsibility of all the libraries. Its strategic approach is anyway necessary, and also is the collaboration between the experts of the info-documentation structures and those involved in the education, technology and other fields, in order to develop certain programs able to improve the impact of the information culture. This kind of education should be considered as a continuous process that requires the interaction of all the structures involved.

The concept of *Information Literacy* includes or has a close connection with other terms (figure 1) [10]:

- *Information fluency* – Capability or mastering of information competencies
- *User education* – Global approach to teach information access to users
- *Library instruction* – Focuses on library skills
- *Bibliographic instruction* – User training on information search and retrieval
- *Information competencies* – Compound skills and goals of information literacy
- *Information skills* – Focuses on information abilities
- *Development of information skills* – Process of facilitating information skills

Information literacy is often confused with the skills related to the use of informational technologies. However, to possess a certain information literacy doesn't mean only to be able to use the computer, the different categories of software, the databases, the Internet and other technologies. The information literacy involves mostly the effective use of information, the understanding of the economic, legal and social issues related to the use and the dissemination of information.

The institutions and persons responsible for the formation of the information literacy must take into account certain standards related to the field, which are internationally accepted. The first standards were developed in the U.S.A. In 1998 the American Association of School Librarians (AASL) and the Association for Educational Communications and Technology (AECT) published „The standards for information literacy related to the students" [1].

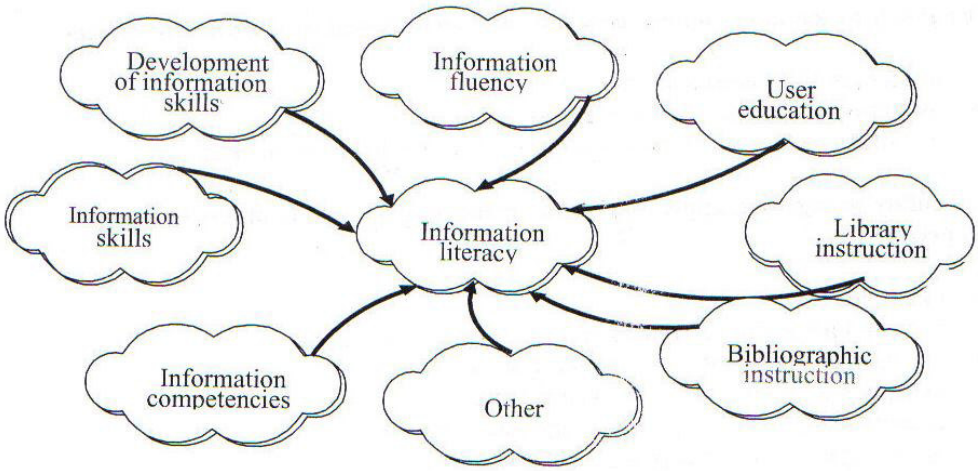

Figure 1. The Concept of Information Literacy

In 2000 the ACRL (the Association of College and Research Libraries), which is part of the ALA, adopted and published „The standards related to the information literacy in the higher education" [2]. This document sets 5 standards and 22 performance indicators in order to determine the level of students' information literacy. According to these standards, the student possessing a certain degree of information literacy is able:

- to determine the nature and the quantity of information needed;
- to access the desired information effectively and efficiently;
- to critically evaluate the information and its sources, to assimilate the selected information to his knowledge and value system;
- to use the information in order to accomplish a specific task, both individually or in groups;
- to understand most of the economic, legal and social issues related to the use of information, to use information within the bounds of ethics and legality.

The standards developed by ACRL are to be found in the manifesto „The standards related to the information literacy in the higher education" [3], adopted at the third meeting held in Mexico on October 11th 2002, in order to determine the informational abilities needed. The manifesto contains 8 competences related to the information literacy, which include 45 skills:

1. the understanding of the knowledge and information structure;
2. the determination of the profile related to the information needed;
3. the development of an effective strategy in order to search and find information;
4. the acquirement of information;
5. the analysis and the evaluation of information;
6. the integration, the synthesis and the use of information;
7. the presentation of the studied information;
8. the respect for the copyright.

IFLA (the International Federation of Library Associations) has been particularly concerned with the aspects related to the information literacy since 1990, when a working group was set up in order to train the users. In 1993 this structure turned into the Round Table for Training the Users, and in 2002 into the IFLA section related to the information literacy. This section deals with all the aspects belonging to the information literacy: the formation of users, the learning styles, the use of the computer and media throughout the teaching and learning process, the network of informational resources, the partnership with the teaching staff in order to develop the instruction programs, the distance learning, the instruction of the librarians related to the teaching of information literacy. The mission of the section is to disseminate the information related to the existing information literacy

programs. In this respect, a database of publications and resources related to the information literacy was created, in collaboration with UNESCO [8].

In July 2006, the Section published the final version of "The guidelines for the information literacy and lifelong learning" [7]. This guide aims to create a single framework for the professionals concerned with the initiation of a program related to the formation of the information literacy. The document is particularly destined to the libraries belonging to the educational institutions, but it can be applied successfully by the public libraries. It can be adapted and modified by librarians, according to the needs and possibilities of the institution they work for. The principles, procedures, recommendations and concepts included in these guidelines represent a compilation which uses various previously published international documents related to the information literacy.

The standards promoted by the IFLA guidelines are divided into 3 parts:

1) *The accessing of information;*
2) *The evaluation of information;*
3) *The use of information.*

Each component takes into account the ability of the user to employ certain knowledge and skills.

With respect to *„the accessing of information"* section the user:

- admits that he needs information;
- decides to search for the information;
- defines the need for information;
- initiates the process of nformation search;
- identifies and evaluates the potential sources of information;
- develops the search strategies;
- accesses the selected sources of information;
- selects and gathers the information found.

With respect to *„the evaluation of information"* section, the user:

- analyzes and examinates the information found;
- generalizes and interprets the information;
- selects and synthesizes the information;
- evaluates the accuracy and the relevance of the information found;
- arranges and classifies the information according to certain categories;
- assorts and organizes the information;
- determines which is the best and the most useful information.

With respect to *„the use of information"* section, the user:

- finds new ways to communicate, present and use the information;
- applies the information found;
- personalizes the information used;
- presents a new informational product;
- understands the ethical aspect related to the use of information;
- respects the legal requirements related to the use of information;
- respects the intellectual property;
- uses relevant standards for the bibliographic references.

The main role in promoting and achieving the activities related to the formation of the information literacy belongs, according to these guidelines, to the librarian. He has the task to facilitate the process related both to instruction and knowledge. As an expert in accessing the information and in selecting the information resources, he will be able to teach others in order to use the information throughout the learning process.

The modernization of education due to the information literacy

The modernization of education is carried out against the background of the reform involving the full spectrum of state. The main elements related to the quality of teaching, are: the contents of the curricula and of the education plans, the quality of infrastructure, the teaching methodology, the formation of practical skills and the knowledge evaluation. The quality of teachers and pupils/students is fundamental in the educational system.

The activity of the info-documentation structures represents also a major concern for the school/university community. This concern is justified by the fact that, as public services, the info-documentation structures have a significant contribution to the foundation of the information society, to the promotion of citizen rights, to the awareness related to the social effects of the new technologies, to the education, culture and copyright protection.

The information literacy becomes the primary condition of the modern specialist's professionalism: the specialist formed in a proper informational environment is highly intellectual, competent and emancipated.

In the informational environment, the role of the librarian becomes more complex, *the administration, the retrieval, the analysis, the organization and the providing of the information for the network users adding to the librarian's traditional tasks. The librarian acts not only as an intermediary, but also as a partner of the teachers, in order to educate the users to employ the information literacy.*

The specialists of the field emphasize the necessity of three components to exist at the level of the individual information belonging to the pupil/student, namely:

- *the basic information*, which consists of basic knowledge and concepts in the respective profile and field;
- *the thematic information*, whose purpose is to obtain information related to a specific theme or issue;
- *the current general information*, which provides for the pupil/student a large scientific horizon, continuously supplied with the novelties, the results of progress, the directions of development and the trends belonging the respective field and the neighbouring ones.

The library is a space prone to the development of these components, being perceived by the

pupils/students as a place for discovery and personal development, according to the research process. In this respect, a special training is however necessary. This instruction is determined by the way the founders and customers perceive the process of research, by the knowledge, the role and the place of information related to them.

Hannelore B. Rader, an American librarian, specifies that librarians should be seen as the educational partners of education institutions, who will help the pupils/students to become effective consumers of information. In the framework of this partnership, the librarians participate to the teaching of informational skills: the methodology and the approaches necessary to effectively distinguish and use the electronic information sources [13].

In order to maintain their role of major players in the educational process, the libraries should consider the setting of partnerships both with the members of the institution, the teaching staff, and the computer programmers and with their users.

Due to these partnerships, the libraries can offer to the users the access to a much larger number of information resources, extend their staff resources and even their physical space, attract a higher volume of financial resources, adding value to the cultural and educational life of the community they serve.

The involvement of libraries in order to promote the information literacy

The libraries and the information services must be able to promote the *information literacy* and to provide support and instruction for the information resources to be more effectively used, the information and communication technologies being included.

The need to promote the *information literacy* is determined by:

- the diversification of informational technologies;
- the rapid change of search tools;
- the diversity of accessing alternatives

The users have to face a production of information which is continously growing. The Internet search and the selection of relevant information require certain specific skills. The information literacy and the technological culture have become indispensable. The University Libraries play the main role in their users' formation of information literacy. They should guide their users to:

- the knowledge of library offer;
- the knowledge of information tools;
- the formation of skills related to the access of information.

The pupils/students trained in terms of Information Literacy represent a factor for creating a successful information society. At the national level, the performance and the competitiveness can be achieved only due to the development of coherent policies in order to encourage lifelong learning and to create certain programs providing information literacy for all the citizens.

For the librarian – user relationship to be effective and for the library to be recognized as a structure having an important role in the community, a role which participates at the development of the information literacy related to the individual, we must accept that *not only the technologies, the information and the society in general are always changing, but also are the user needs related to education and to self – training.*

I believe that the libraries should get involved by means of: information days with attracting the various publishers; weeks dedicated to certain departments; the implementation of the "open door" policies; the development and the offer of promotional materials; the implementation of local programs and projects; assistance and constant advice, etc. I consider the introduction of a module called "Information Literacy" into university curricula to be the most effective way of involvement related to the discussed concept.

A concept for the future - the "Information Literacy" module

In order to have modern specialists, trained in a benefic informational environment, competitive, emancipated and able to participate at the European educational field, today it is a must to initiate a module for the development of the information literacy, destined to the instruction at all the levels, from the undergraduate to the doctoral one.

The purpose of the module is to make the students understand and to assume the responsibility for what they learn, helping them acquire higher skills in order to think critically and independently, and to solve various problems with which they have to face, and offering them the tools required for the continuous education.

The reasons for which this concept was designed are the low level of information literacy belonging to the pupils/students and the librarians' tendency to diversify the forms and methods of amplifying it. In order to develop this concept, the technique of analogy to other fields will be applied. The main goal is to promote the free access to information, the mediatization of the "lifelong learning" phenomenon and the offer of necessary support for its implementation. The area of concrete coverage doesn't include only the students from the daily section, but also other types of users such

as students from low education sectors, doctorands, master students, teachers and external beneficiaries.

The expected impact of the information literacy is related to:

- the optimization of the information literacy formation process;
- the amplification of turning the library into a learning institution;
- the increasing of the prestige, role and place of the library and of the librarian;
- the improvement of the partnership relations "librarian - pupil/student", "librarian – teaching staff".

The purpose of education and continuous learning is not easy to achieve. However, this purpose proves to be the indispensable answer to the galloping development of the science and technology, to the evolution of communication means, requiring significant changes, adjustments and the reorganization of education and therefore of professional training.

Conclusions

The transition towards the information society is an important element of socio–economic development. The information society involves the existence of at least two elements a professional must operate with: the computer (turned into a tool available for each individual) and the information (the object of work). But how these elements could be used without possessing the information literacy? The structures able to quickly answer to such requirements have been the info-documentation institutions, in Romania and at global level.

The information literacy is a product of the information and knowledge society and the key to lifelong learning, in order to improve the teaching and learning environment. The formation of the information literacy during the post–Internet age requires from each of us the development of the adaptation, information and communication strategies, the rapid extension of informational abilities related to knowledge, evaluation and use of information resources, by the assimilation of knowledge and specific competences.

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Computer-Aided Teaching

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Abstract

The computer is an ideal tool that combines the symbol orientated with the practical learning. The students are not reluctant to using computer in the process of English language learning; the sooner they are allowed to deal with it, especially during English lessons the more natural will they get accustomed to use it efficiently. The greatest potential for the computer as a reference tools, of course, the Internet when accessing directories and search engines students can look for information.

The success of the introduction of computer and Internet-aided teaching in the process of English language learning directly depends on the competence of teaching staff to make use of the new media as well as on their own commitment to these techniques. To reach such a competence conferences and workshops are necessary for the teaching staff, so that those who perform computer-aided activities will be able to share their acquired expertise with colleagues who have reached this proficiency. Along with providing such training facilities, efforts must be made to ensure that both the teaching personnel and the academic supervising bodies understand how necessary this competence is and that it is up to them to constantly adopt it to hard and software novelties. An important aspect is represented by building a group of computers and network-assisted teaching experts and the designing of suitable teaching methods based on the new media.

Nowadays, there is an absence of pedagogical science of computer-assisted learning and teaching, as well as staff qualified for such work, undertaken from a pedagogical viewpoint. The problems arising from the lack of experience and qualified staff are intensified by the inexistence of teaching materials. It is thus obvious that computers represent nowadays an important source of information not only for specialists but also for the non-specialists. Smaller devices than used to be in the past, faster and easier to deal with, they can successfully used by teachers, simplifying many of the tasks considered to be relatively complex. It is essential to mention that teachers who decide to bring a computer into class must be ready to fulfil their tasks in a computer mediated environment.

Problems that may be encountered when designing the lessons should be resolved before entering the class. Still, we should bear in mind that language teachers are not IT specialists. Their main targets should be that of selecting the web resources and improve them if possible in order to make students develop their language skills in a dynamic environment.

Schools and colleagues use computers frequently in the curriculum of certain subjects and, lately, English as a subject has started focusing on technology. Better said, computers have brought a great contribution to the evolution of modern teaching, allowing students to be all the time in contact win=th the most communicative tools. It has become more and more difficult for the teachers to find techniques which would appeal to students during English classes.

Many researchers showed that using computers in class increases student motivation due to the interactive nature of activities, also allowing them to experience real-life situations. With the rapid development of the Internet, computer use in the classroom also offers additional possibilities for designing communicative tasks such as those built around computer-mediated information and communication, including the ability to interact in real time with written and oral communication, to conduct information searches to find attractive and meaningful material and to engage in distance learning and electronic learning.

Getting in touch with the latest models of CV-s, letters of application, memos, reports, etc is just one of the numerous facilities that they offer. Communicating on computer is no longer an alternative method but a necessary part of our lives.

Therefore, a language teacher should be aware of the instructional materials that modern computer applications have made available and try to include them in the daily teaching.

According to Harmer[1] *reference* is one of the chief uses of computers, either through the Internet or on CD/DVD-roms. This can be connected to teaching, English language or general facts about the world. There are many popular encyclopaedias available on CD-ROMS and all sorts of other information is also available. The availability of research material such as this means that we can send students to the computer to prepare all sorts of task and project work, following up references in course-books, or finding out about topics they are interested. There are many dictionaries available on CD-ROM, too which offer, apart from definitions, spoken pronunciation of words and practice exercises and activities. Increasingly, publishers are also making dictionaries available on-line. And whether on CD-ROM or through the Internet, students can now access language corpora to search for facts about English.

When we encourage students to use search engines to find information on the Internet, we should prepare the ground beforehand- by suggesting search methods and/or narrowing down the focus of the enquiry- so that students do not waste a whole course period searching. We also need to keep an eye proceedings to avoid a situation in which students just surf the net, becoming distracted by what they find there, and thus lose sight of the original task.

However, if these drawbacks are taken into account, the Internet is an extraordinary resource which has changed the face of information. Language teaching software packages, often supplied on CD-ROM, offer students the chance to study conversations and texts, to do grammar and vocabulary exercises.

A trend is the attachment of CD-ROM- based packages to accompany coursebooks, full of extra input material and exercises.

One of the real advantages of the Internet is that, teachers and students have access to "authentic" English wherever they happen to be working. Some teachers plan whole lessons around the Internet. In her book on Internet use Dede Teeler[2] gives a number of such sequences including designing a lesson around students visiting a teenage advice web site, or asking students to look at a number of different newspaper web sites from Britain or the USA.

Teachers are presented with a substantial number of teaching alternatives once they have access to English newspapers which may be used to supplement existing textbooks. It is difficult to deny the benefits of using English newspapers in the process of English learning and if they meet the learners' level English, newspaper articles may trigger a lot of discussion and at the same time increase learners' cultural awareness. Ever-lasting problems in working with newspapers are their availability and above all their price.

[1] Harmer, J- The Practice of English Language Teaching, , Pearson Education Limited, 2002,Third Edition, p. 145
[2] Teeler, D, How to Use the Internet in ELT, Pearson Education LTD, 2000, Chapter V, p.53

On-line versions seem a reasonable solution. The Internet seems a never-ending source of materials, with all the major world-wide newspapers at a click away.

Maybe the most important reason for calling newspapers into use is the fact that course books lack current information, as the texts are obsolete on account of the usually long period of time in between the moment they make it to the learner. While there will be certain disadvantages to using the on-line version as opposed to the real thing such as:

- availability –easily accessible and virtually free, with the possibility of browsing archives
- world-wide range
- first-hand unaltered news
- different and at the same time up-to date vocabulary, though most of it general English
- the chance of presenting multiple points of view in various kinds of newspapers
- authentic texts which are more current than the textbooks
- different kinds of texts (narrative, stories, letters, advertisements, reports even jokes)
- timely information of general interest

Newspapers can be used in various ways during the English course, one of them being that of producing classroom materials, be it for supplementing textbooks or as stand alone lessons. Most of the newspapers articles will be suited for the majority of the following types of activities:

- skimmimg and scanning exercises
- understanding vocabulary from context
- fill in the blanks
- jumbled paragraphs
- separating fact from opinion
- critical reading
- expressing (dis) agreement
- studying the grammar and vocabulary of headlines
- letter writing (such as letter to the editor)
- role-plays.

In doing such activities, learners are simultaneously building knowledge of the world that they can almost immediately put to work. They also benefit through building both their reading skills and on their writing and speaking skills as a result of the post-reading activities , not to mention the possibility of developing the ability to infer the new vocabulary in context.

Earlier on disadvantages have been mentioned, one of the being the copyright issue. In short, states that no creative work can be copied without giving the credit to its author. But it is not as simple as this, since newspaper articles, cannot be used freely, even if it is only for educational purposes, therefore one should ask from permission from the newspaper.

Internet may offer benefits in English instruction starting from authentic materials in the sense that many texts are designed for native English speakers to possibilities of developing the reading skills(students that navigate the Internet usually interact with a great deal of information. The numerous videos, job interviews on line, phone calls and other recordings may be of great help in the practice of the listening skills. All these activities prove to be a challenging, interesting and enjoyable way of determining students to engage in speaking tasks. Thus, Internet could be a rich resource of information that may improve the quality of language teaching.

Perhaps the most common problem in our country is that classrooms lack the necessary equipment to allow a computer session. Other common issues are related to students' background experience as far as computers are concerned. The language teacher should have in view all these aspects so that students who didn't have the chance in the past to work on a computer don't feel bad or inferior in comparison to their colleagues when the language lesson starts. On the other hand, many classes

don't offer the possibility of having a computer for each and every student. Yet there are activities that may be used in classes using only one computer or the personal laptop of the teacher and a projector.

A useful adjunct to classroom learning- or indeed alternative to it- is the self-access or open learning centre. In self-access centres (SAC) students can work on their own (or in pairs or groups) with a range of material, from grammar reference and workbook-type tasks. SAC-s are equipped with a large collections of learner literature, dictionaries, reading texts, listening materials or computers for reference and language activities. When possible, SAC-s are rooms divided into sections for different kinds of material, though it is also possible to put large amounts of self-access materials on a trolley that can be wheeled from class to class.

The idea of a self-access centre is that students should drop into it either as a regular part of the timetable or in their own spare time. Once inside the room, learners will decide what work to do, find the right kind of material, and settle down to complete the learning task.

SAC assistants and teachers have a major role to play in helping students to use centres successfully and follow appropriate pathways. Students can be shown where things are, be helped with hardware and software problems, and directed down new pathways. In order to help students in this way teachers need to be fully aware of a centre's contents and benefits, and trained-through induction materials, specially designed SAC lessons and staff seminars- to help students appropriately. Although the materials and/or the teacher may suggest pathways for users to follow, our eventual aim is that students should be able to design their own routes for maximum personal benefit.

Most students left to their own devices in a self-access centre, will not know how to use the facility to its best advantage, however the classification system is. A self-access centre is likely to look rather boring or intimidating.

To prevent this situation students need to be trained to use them appropriately. Some teachers provide training in class, giving students clear tasks and then taking them directly to the SAC to have them complete tasks. This can happen on a regular basis over a period of weeks, at the end of which time the students are thoroughly familiar with what is in the centre and how best to use it.

Guy Ashton [3] took a different approach ; he told students to explore the centre, trying out the machines and rummaging through the shelves, with a view to producing leaflets and notices to show other students how to use them. Thus one group wrote about a concordancing package and other computer-based programmes with advice on which items were the best; another group gave advice on the video material. The need to make things clear for their colleagues meant that students spent more time than they might otherwise have done investigating the contents of the centre.

Even though students have bee trained to use a self-access centre, they will still benefit from the help that assistants and teachers can give them in the centre itself.

One view of a SAC has a group of individual students sitting apart from each other in silence, working profitably and autonomously.

Jeremy Jones[4] noticed that students enjoyed working collaboratively and so, instead of the usual individual seating spaces in many SAC-s, students could choose more "coffee-table" places, designed specifically to have groups working together. There was a higher tolerance of noise than might be expected in some other places, and tasks were designed which specifically encouraged pair and group interaction. Anyone setting up a SAC or designing material and tasks for use in it should think carefully about who is likely to use it and what patterns of use will be most culturally appropriate. One way of doing this is to set up a student advisory panel who take part in planning and evaluating the centre. Apart from guaranteeing the involvement of those particular students, this has the potential for a SAC design which really meets the needs of its users.

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The widespread use of the computer-indeed the digital revolution generally- changed late twentieth-century life as surely as the industrial revolution impacted on the world over a century before. In language teaching, too, things will never be the same again with computer-based materials finding their way into course book packages, self-access centres, and classrooms everywhere. Such developments will be of inestimable value. Yet we need to remind ourselves that there are still huge areas of the world where access to a computer is impossible or very difficult. Though there are wonders and marvels a-plenty on the Internet, there is a lot of rubbish, too.

We might also observe our students in class and conclude that groups of people talking and working together are still (and always will be) vitally important in language learning.

Teachers are the ones who decide upon the engagement of their students during a class. It is important to offer opportunities for learners to exchange ideas and opinions and engage with information on a personal level. Activities should be as realistic as possible so that students can see how the language they're learning can be applied outside the classroom. Computers represent authentic information so that students can be exposed to a variety of real situations and language.

Conclusion

In conclusion, computers are a necessary and useful tool in teaching foreign languages. Although the teacher may encounter some problems when he/she decides to perform the course in a computer mediated environment, solutions can be found each and every time in order for the lesson to become enjoyable and successful.

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Promoting Reading at Primary and Gymnasium Schooling Level

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Abstract

The present paper elaborates on moulding and maintaining the capacities of improving the pupils' savour for reading in primary schools and gymnasiums. The methods applied by the librarian in order to attract the reader are diverse. There are some activities that aim mainly at decreasing the cultural and psychological distance between pupils and book, through the creation of some situations which motivate reading any types of books, and also the formation of active readers, capable of discerning and having analytical spirit in their attitude towards information.

Key words : reading, book, information science, reader

1. Introduction

"The powerful God, you honest and beloved reader, may present you, after these horrible ages of our time, also with easier times, in which, besides other work, one will have time to read books too, having skilful respite, because there is not other more beautiful and more useful respite during man's life than reading books…"(Miron Costin, De neamul moldovenilor).

The school library must make its presence noticed, reveal in the most suitable way the greatness and mystery it shelters and fulfill its mission of giving pupils the savour of studying and reading, the knowledge of information, the skill of becoming accustomed with the independent work in the library, from orientation with direct access to the publications, selection and a system of reading and more than that, the ability of useful reading.

Reading develops pupils' savour for studies, it stimulates their interest for books, it satisfies their need of being acquainted with life, people and their actions. It contributes a lot to enriching an active, lively vocabulary, to develop esthetic feelings. The reading outside the syllabus represents an important method for the whole instructive process.

The contact with the literary text can not be separated from the pupils' experience and knowledge. Through analogies and similes, the knowledge acquired while reading will not remain a pure act, but it will lead towards judgements, emotions, generalizations, certainties.

Pupils' supplementary reading takes place at home, in the library, in clubs, etc. That is why, besides the training ensured by the reading classes, where pupils are initiated by general techniques of working with a book during the special reading classes, they also receive a certain training using the book for reading. It is about books or texts recommended by syllabus and manuals, and also about books which pupils, on their own, must know how to search, to request from a library and more than that, how to use them.

2. Training the Reading Skills

After de reader has detached through hearing, speaking and writing by the reading comprehention in the 2nd and 3rd form switch to an interpretive reading period in which lays the groundwork for the reader's competence to interact with the text, decoding the signals . Thus , from the training of correct, current and aware reading skills switch gradually at the interpretation of a sequence of text, according to the textual or situational indicators , as well as an aesthetic and stylistic interpretation . The formation process of the little reader interpretive capacities is achieved by : literary and musical activities, dramatization by known and accessible literary age level of students, thematic contests, exhibitions of drawings, anniversary of writers, cultural and scientific personalities, performances, meetings with writers, etc.

The intent of these activities, proposed by the library, is to stimulate the reading interest of the school children and receive benefits as:

- the activation of the linguistic personal area, leading to active vocabulary enrichment, specifying meanings of words, establishing links between words and phrases assimilation, expression, locutions;
- training and educating the creativity of children's language through hours of composing, and recognising " the artistic expressions", the figures of speech, etc ;

The text of literature, beyond the scope of teaching, must be for educating the taste for reading. The activity of reading to little readers, are still in the process of psychological and intellectual training, is based on an identification function, that the receiver, approaches empathic the text. So, the reading proves to be a connection between child and text, intermediated by own availability affect, by own emotional baggage. A great importance is the selection of thematic material, which respond their emotional dimension according to the age , and the physical and mental universe of the receiver.

The literature for children interpenetrates with the mature literature , because the children's literature prepares the reader for the future reading, so the literature addressed to children is not situated outside the adult's literature, it intermediates with teenager literature, the entry in to infinite universe of reading to come.(7)

I observed over the years that, the reader departs from the literature studied in school imposed by schoolbooks. If the student gets a taste of reading in the additional literary text, finding personal motivation, independent the school requirements, he must be supported and encouraged. A literary work reports regularly, by the theme, to expectations of potential reader, to his center of interest. If the adult reader sector is very diverse depending on many factors: cultural, social, psychological, public early age reader is largely homogeneous: they need adventure, the models, they wish to penetrate into the mysteries of the world, and become part of the world of their heroes endowed with supernatural powers. Depending of social and psychological development of the child, the reading guidance must regard his emotional and psychological pattern. Today's generation has other preferences over the grandparents or their parents, being passionate about Herry Potter's world and less than the world of Nica.

The perfect dosage of all ingredients: information, education, new, adventure, humor - ensure reading success.

3. Training Activities for Reading Skills

The reading should be a long-practiced activity, individual rather than group. Children are able to support their own reading, made outside the school if they liked it so much, and to make persuasive arguments for the recommendation that reading, their colleagues. The explanatory reading is the most popular for the students, even those with some learning difficulties. Although, it is used in the

classroom too, the entertainment reading is the most important to create the habit of reading because this reading of affectivity, feeling calls to dream , refuge in an imaginary world, what the classroom cannot be achieved. Following , the presentation made by readers, of the impressions obtained from the same book, I found that the message reception differs; each other establish a psychological report with the book and they issue information on what they feel, what they like, and aren't interested in technical matters related to the literary form of the text.

After the visit made to beginning of the school year with the teacher, students can come to register themselves and take books home to read . Those who attend the library more often, will be placed in the support and collaboration group of the librarian , which will select a group of "little librarians" that will learn to orientate themselves but also advise others, and another literary group called "Lecturiada", who participating in all cultural activities to be organized by the librarian.

At the first meeting, the children will receive information about: the guidance on the shelves, finding a book of interest to their age, respect for the book, drawing up a reading journal and how to fill it, posture and correct falling light while the reading , use the bookmarks at the stop reading, correction of diction and guiding them towards the logopedic room of the school, rules for borrowing and refunding of a book, achieving a personal library, by the seen model in school, etc.

The future readers should follow the golden rules of reading:

1) Read every day a few pages of prose.
2) From time to time and when necessarily at the end of reading, thinking of the read pages.
3) During the reading, keeps records of your reading and allow the story to capture you so that you can live the emotions and flight of fantasy, transpose yourself in the characters` situation , trying to see if the situation corresponds to the truth of life.
4) Taking notes, and storing the words, phrases, that you like more.
5) Re-read the book after some time to discover new beauties.(6)

The work done of the librarian, usually placed at the end of the program, isn't perceived by students as tiring. They are enthusiastic about the moments of freedom and escape in fiction, encouraging each other to read.

4. Practical Means

Here are some forms of guidance to reading at the pupils at this scholar level:

- *The story* is used in small classes where the pupil gets to read a story at home or he listens to it, read by the librarian, then every pupil tells one by one what that each understands from the story.
- *Reading aloud* is a sure modality to attraction towards book through: pitch, intonation, stress, pauses, etc. attentively and skillfully used, teach the pupils how to read and understand how important the sound is, meaning the shell from which the word arises out of - the core;
- *Collective reading* of long works is stopped by the librarian in key-moments of the action, inducing suspense, which will determine the readers, first to make assumptions about the way the action in the text is going to evolve, after which they will finish it individually;
- *Popularization lessons* of some writers' books are a means of promoting reading, within a certain creation of a well-known writer is being analyzed. The book exposed in the show
- window for a limited period of time is presented and announced as being the theme of the
- next meeting between readers, in the end a general discussion about the writer and other works of the same author is lead, titles which the children will put down in their notebooks, in order to get them from the library and to read them; at the presentation of a book, the pupils are divided in groups, each group presenting a chapter, other by way of drawings, posters, the reading of a

fragment, role-play etc. The best narrator will be awarded, the best drawing, the best actor, the best reading challenge of the book, and the prizes lie in diplomas and visits to other libraries, museums in the city.(3)

- The information gathered from these activities will be evaluated by *contests* on different levels of knowledge and the first winners will continue the contest at the local level, between schools;
- Another way of promoting reading is *the publication* of the reader with no.1000 or no. 2000 or of "the reader of the year" *in the local press*, with his picture and a short interview from which emerges his passion of reading; by making his attributes public we mobilize another potential reader;
- On-line cultural tests also determine the readers to come to the library and to consult the primary sources of information;
- *The development of the classes* in library facilitates not only the immediate use of the reference materials, but also the practical demonstration of their use, with the scope of acquiring new information derived from the lesson;
- *Surprise reading* is a pleasant form of getting in touch with an author's work by reading a small, but attractive fragment that the pupils should continue at home, leaving them the pleasure of ending personally the whole text;
- *Posting lists of new books* entered in library or the acquisition of some top rated volumes lead to an increase of the interest for mass reading;
- *Another experienced mode of reading* is the one of groups of 3-5 pupils, each reading individually different things which has kept their attention: either a sequence which provokes a certain reaction, a question, a connection with a lived situation etc. At the end of the reading or all along, the readers consult each other and discuss on the margin of work, in the end each group drawing up a project in which they will write down their opinions concerning the read text;
- *Reading workshops* is a modern modality which consists in choosing a literary work or a fragment, gathering many readers divided in workshops of:
- illustration (the pupils propose an illustration of a read text, justifying the choice;
- summary (in which a summary of the read text is proposed, after which they will edit it);
- personal opinions (remark what they liked and not liked in the text and arguing for or against);
- anticipation (in which students propose another ending of the work);
- change of text (are those who might transform one item or many from the text: character, location, and then rewrite the text as amended);
- oral reading (group that will propose a dramatization of the text, a reading on roles).

  This way of reading discovers the abilities of everyone, homogenizes the group and motivates the weak. Material edited by them can be made available to each reader, for consultation.
- The *Top of the Readers* established by the librarian at the end of the school year, awarding the diplomas and books at the end of the year celebration, produced a phenomenon of competition among readers;
- The creation of an individual *reading log* that will be evaluated by the teacher at the end of the year, is another means of stimulating the reader;

- The *psycho-pedagogical and professional training*, communication skills, empathy, constant good humor, kindness and solicitude, the talent to get closer to students, the warming and welcoming smile of the librarian are all ways to attract pupils to the library and reading.(1)

When reading becomes a hobby, the librarian may offer the reader an entire book collection on a specific theme related to the previous reading material or other works by the same author.

A free debate focused on a literary topic within an organized activity in the library can help the pupil engage within an efficient dispute while listening to the other opinions and expressing his or her own as well.

The education of the need and pleasure to read is a delicate task that the librarian- as an essential factor within the process-assumes. Yet, without the help of the teachers, his/her good intention, willingness and special knowledge are insufficient to attain the aims intended and thus carry out his/her task.

To turn the reading habit into a passion or hobby means to be aware of the implications of reading and to use properly one's reading skills, to meditate upon what has been read and think of what could be further done with the information acquired that way, but also to plant the seed of reading for pleasure in the fertile soil of curiosity that is specific to young age. Surpassing the level of assimilation through reading as a fundamental skill is possible for a pupil once he/she integrates skills by taking over the role of a certified reader. To the end of the primary school pupils whose interest in reading has been stimulated may be helped to develop high-speed reading skills and efficient or high-quality reading skills by taking the following steps:

- the scheduling of a daily rational program centered on efficiency
- the acquisition of different reading techniques: reading out loud, silent reading, expressive reading, high-speed reading, fluent reading, reading dialogues/role-play reading. (4)

The reading speed could be perfected in the long run through constant practice without neglecting to mind the correct structures and possible mistakes. The pupil will be helped and encouraged to expand his/her visual field both horizontally and vertically, to develop a certain discipline of his/her eye movement and focus so that by the end of the fourth grade one's reading speed be 190-200 words per minute or 25 pages per one hour. It is the mental processes that support or condition the reading speed: the intelligence quotient (IQ), the background knowledge, the cultural education and the reading practice. If the number of words known by a child varies between 2-3000 at the beginning of school life as a mainly passive vocabulary through reading and communication it becomes a merely active vocabulary. The "key" to thematic or subject study of a book, whether for pleasure or in order to get informed may be summed up under the Romanian term *RICAR,* an acronym which stands for skimming, wondering or questioning, the reading process itself, remembering and recalling, recycling and reinforcement. (6)

The drive to read id first determined by outer factors as favored by the family atmosphere and the school environment and then turns into a working style. The love for books led to both faith in life and pride for being the "owners" of the noblest human passion—that of reading.

Treasures of one's soul, the literary acquisitions keep close to all that is most beautiful, pure, mesmerizing, and unique about the childhood world and even more than that. The fantasy that drives us towards knowledge, an early reality, is shaped progressively; once a child acquires new learning experience he/she turns it into high moral behavior thus ennobling the soul. We would all be poorer in terms of spiritual life if we hadn't been introduced to books from early childhood.

Reading books is a continual or permanent gesture of creation, a responsible action, while the enemies of reading-the television, the cinematography and the computer, indulge passivity. A book is a silent friend that loyally offers answers and keeps repeating them with great patience, till their full understanding. A book leads path towards other books (the phenomenon of the rolling snowball) and they all set up together a solid basis of the individual and collective culture.

The motivation for reading is given by the huge need to learn, to become aware of things around, to know the source of our existence and our life destination, to escape the routine, to communicate and take advantage of our previous experiences. That need to read will make the difference among people. Educating through such means as words must find its equivalent in the joy of discovery and the explanation of the beauty of life on the part of the reader. All those who have found the book a friend are strong people, less affected by pain, stranger to unhappiness than others.

The verb "to read" like the verbs "to love" or "to dream" lacks the imperative form and consequently, in order to encourage someone to take that in one shall further the attempt delicately, discretely, tactfully, by eliciting love for that wonderful "drug and thus opening new paths towards the infinite diversity of imaginary things and escaping time and space. The time allotted to reading sessions may be understood as "stolen" as much as other preoccupations are concerned, yet it succeeds-as that love spam-to expand the time dedicated to life. (2)

5. Conclusion

All the activities developed by the librarian (competitions, exhibitions, literary circle: Eminescu, Creanga, Caragiale etc) determined the pupils, and not only, to pay attention to the library and the services offered by this, thus increasing the number of users.

The reading facilitates the reunion of a spiritual family, the entrance into a dream land surprised embracing the reality; it offers a glass of living water to those who has a spiritual need, an open window towards gods of culture and civilization, through which we come from somewhere and go somewhere, we leave or return with every book we read, on a covered path or which awaits to be covered.(5)

"In a book there are dead but entranced letters, which you revive with your life" N. Iorga said.

But you can test all these only by reading, Goethe mentioned about this: "Simple people don't know how much effort and how much time you need to learn to read; I have been working for this 80 years and I can not say that I succeeded".

Words carry the strength from one heart to another heart and they represent the acoustic image of the thought. The reader must pay a special attention to a book, draw nearer it carefully and when he questions aspects of the existence and he is eager to make a change, certainly he will find his answers over there, on the shelf, waiting for him, growing fond of him and giving him all it is necessary.(2)

A book is read in the light of mind and the warmth of heart. When you read a paragraph, open your heart so that the strength of every written word can emerge.

Reading can light fires inside your heart, long ago forgotten, moulding in the ashes. If you look beyond the rows, you can see the fire arousing.(5)

Raise it like bonfire of sacrifice into the sky! When reading is done this way and you experience all these feelings, you will feel the need to utter the words aloud, this being the purpose of the uttered word, expressing your gratitude, as N. Iorga said: "Oh, my holly books…how much I owe you that I am human, that I am a genuine human being…"

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The Establishment of Information Literacy in Pre-university Education in Romania Strategic Approach

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Abstract

The present paper has been set up as a pleading for the establishment, implementation and development of coherent policies on a national, regional and local level in order to form an Information Literacy in the institutions of pre-university education in Romania. The direct beneficiaries are the students, and the indirect, the teachers.

For such an approach, the first to be explained is the general support of such an attempt, namely, framing the Information Literacy in family of the six cultures (areas of competence) that need to be provided for all inhabitants of the world in the XXIth century: the fundamental literacy (writing, reading,, arithmetic), computer literacy, media literacy, distance education and e-learning,, cultural literacy and information literacy.

In this context we should mention the role of the Proclamation of Alexandria (Egypt) in 2005, in terms of establishing the key milestones of the Information Literacy, on the background of information and communication worldwide. We also observe here the role and missions undertaken by UNESCO in this field.

In order to build an accurate image and a framing into the context of the Romanian educational system, the paper continues to present the approach and the steps taken by Romania for establishing the Information Literacy in the pre-university system, through the project "Education for information". It mentions the lack of a clearly defined, consistent and sustainable policy on the part of decision makers, regarding the formation of such a culture in the schools of Romania.

The consequences of the lack of such a policy, which led to the development and deployment of unilateral activities, especially through the documentation and information centers and their managers, without an equal involvement on the part of school libraries, namely, school librarians.

The proposals presented in this paper take into account the recommendations of UNESCO on the development of national, regional and local policies and strategies, for different fields, including education. Further on, the landmarks of such a policy are set, taking into account the specific conditions of Romania, as well as the stages and objectives achieved in this field to the present.

The strategic approach of this paper refers to the main axes of such an approach, the institutions concerned to carry it out and support it, the role of these institutions in the implementation of such policies.

It also advances a series of proposals on the manner of designing and applying of a documentation policy in schools, and the necessary conditions for achieving the policy, specifying its direct and indirect beneficiaries.

In addition, the paper refers to potential partners (public institutions, NGOs, external partners) that could support, and should be involved, in order to ensure the successful implementation of such policies. It also explains the essential role of associations working in the field of Information Literacy, and of the training for information.

We also focus on issues related to the human resource development in schools and people who, by nature of their profession, directly support the development of Information Literacy and of informational skills in students, respectively documentalist teachers and school librarians.

The present paper is intended as a pleading for the establishment, implementation and development of a coherent policy on a national, regional and local level to establish an information culture in pre-university education in Romania.

Terminological Delimitation

In this paper we use the terms "*culture*" and "*information culture*" in the context of the following formulas:
Culture = a set of distinct spiritual, material, intellectual and emotional features of a society or a social group which includes, in addition to visual arts, music, theater, dance, literature, etc.., defining elements of lifestyle, system of values, traditions and beliefs of the respective group (UNESCO,2002);
Information Literacy (Maîtrise de l'information) = designates all the capacities, attitudes and knowledge necessary in order to know when solving a problem or making a decision requires information, how to express this information in words and phrases which can allow the search, and then efficient search and retrieval of this information, its interpretation, understanding, organization, the evaluation of its credibility and authenticity, the determination of its relevance, its communication to others if necessary, and ultimately the use of this information to achieve the intended purpose [1].

The International Context

The constant evolution and development in the field of information, both in terms of the quantity of the information **vehicle**, and tools and ways of communication, have made imperative the appearance of terminology specifications and delimitations, the necessity to establish the relationship and the position of society regarding this field, as well as to set some landmarks in order to provide each and every inhabitant of our planet with that which Paul Zurkowski defined in 1974 as the "information literacy".

At this moment UNESCO could be deemed the world leader in promoting and supporting information literacy through projects and actions that it has claimed:
- Elaborating field-specific documents and documentation;
- Proclaiming the period 2003 - 2012 as the United Nations Literacy Decade;
- Coordinating a series of international and regional conferences and meetings on information literacy, including The Colloquium of Alexandria (Egypt) in 2005, which may be considered of reference by the Proclamation declaring information literacy as "the lighthouse which illuminates the way to development, prosperity and freedom" [2].

Upon the initiative of UNESCO there are a series of reference works on the development of national, regional and local policies and strategies for the establishment of information literacy [1], or for monitoring and assessing the establishment of information literacy [3].

The establishment of information literacy is being developed in the context of our witnessing a global IT revolution, a fully-expanding media revolution, the development of new teaching-learning-assessment technologies and methods. To all of these we should ad the difficulties appearing in the collaboration between teachers and school librarians, in the view of achieving the desire to teach students to learn.

Information literacy (culture) is part of family of cultures which should be provided for each and every inhabitant of Earth, and that would ensure autonomy, self-training, freedom of decision and choice. The family of knowledge cultures of society includes:
- The fundamental culture, which includes basic skills, reading, writing and elementary calculus;
- The computer culture, with hardware and software skills;
- The media culture;
- Open and distance education and e-learning;

- The culture of "culture", which we could call humanist culture;
- The information literacy (culture), as interpreted above.

Upon a national or regional level, we are witnessing at this time the development of programs or projects specific for the establishment of information literacy, or education for the information. These programs are being conducted through ministries, other government bodies, and nongovernmental organizations. Among the countries that have developed several years experience in this field we should mention France, the USA, Canada, England and, last, but not least, Romania [3].

The National Context

For pre-university education in Romania, the year 1999 represents the starting point of the difficult task of achieving information literacy of undergraduate school students. On December 22, 1999, through the MEN (Ministry of National Education) order No.5135/1999 bilateral Romanian - French Project “Education for information in disadvantaged rural areas" was launched, and it was supported by the Ministry of National Education of Romania and the Cooperation and Cultural Action Service of the French Embassy in Romania. The objective of the project is: "Ensuring equal opportunities for students in rural and urban areas by:

a) improving teaching-learning conditions in schools by providing students with information and documentation within welcoming structures (documentation and information centers), which render the training process more attractive and adapted to international models;

b) improving the level of teachers' skills by training them in modern methods of teaching-learning-assessment;
c) integrating school libraries into the network of documentation and information centers." The model used for the development of this project was that of documentation and information centers and that of the implementation of documentation policy in France, with constant adaptation to the requirements of the education system in Romania.

Since 2007, the project title has been changed to "Education for Information", a proof of awareness on the part of the Ministry regarding the dimension which should be ensured for information literacy to all students, as well as assuming to the full the intended purpose to be achieved through the general objective of the project.

Since 2000 until now, by order of the Minister of Education, the establishment of documentation and information centers in 2067 undergraduate schools has been made official in all the counties of the country. So far around 1200 documentation and information centers have been opened. The financing of the organization of these centers has been provided as follows: 1135 from local budget or other sources, and 932 from the state budget through the Ministry of Education.

Within the Romanian-French bilateral project the following type of activities have been carried out:

- Training of 40 national trainers accredited by the Ministry of Education of Romania;
- Organizing information-awareness training sessions in Romania and in France for the representatives of the Ministry of Education of Romania, of the university libraries, school inspectors, directors of teachers’ training and resource centers, directors of schools, managers of documentation and information centers;
- Organizing information-awareness training sessions, in all counties, for directors and managers of documentation centers of the schools officially included in the project;

In some counties, a special support to the Project has been offered by a number of NGOs in Romania or France. We should mention here the Alba, Arad, Bistrita-Nasaud, Neamt and Sibiu Counties.
As a result of several initiatives, in 2004 there appeared the first legislative changes to the Law of Education and the Statute of pre-university education staff, by which the documentation and

information center was set as a structure of undergraduate education institutions, and also the existence of the job description form and the assessment form of the documentation teacher (documentalist) was established.

By order of the Minister of Education, in 2008 there emerged the Rules for the organization and operation of documentation and information centers in undergraduate education institutions of schools and education, as well as the status, the job description and the assessment forms of the documentation teacher.

Following the demands of the education system, in 2006, the University of Bucharest organized, in the form of post-graduate education, the first series of professional training courses for documentation teachers. Up to this point there have emerged five more universities that provide initial training for this specialization: Brasov, Cluj Napoca, Iasi, Oradea and Sibiu. On September 1, 2009 there were 92 teachers already trained for the profession of documentation teacher, of which 44 have a permanent position, following the contests for permanent teacher positions. At this point there are about 110 people involved in specific training.

In 2007, the Romanian Association for the Support of Documentation and Information Centers, based in Sibiu. Its aim is:

- To promote the information and documentation sciences within the Romanian education system;

- To support the expansion and strengthening of the CDI's implementation and a national documentation policy within the Romanian pre-university educational system;

- To participate in promoting the exercise of qualified and competent librarian, documentarist and documentation teacher within the education system;

- To develop professional relations between documentation teachers within the Romanian education system;
- To represent the Documentation and Information Centers affiliated to the association in their professional relations with national institutions and organizations in the country and abroad;
- To work with different ministries in establishing normative acts necessary for the professional recognition and development in the field of information and documentation sciences.
If the things described above could be listed as "Strong Points" to the national context on the formation of information literacy in undergraduate education, the things listed below could be the "Weak Points":

- The lack of continuity, consistency and professionalism even in coordinating the Project "Education for Information", on the part of the Ministry of Education, as a result of frequent staff changes that took place between 2004 - 2009, which led to the limited involvement and empowerment;
- The fluctuation of views and opinions on the project "Education for Information", following the lack of existence of a National Council of the project, with the role of decision-making regarding the priority axes and activities;

- The almost complete withdrawal of the French project partner, while the Romanian side underlined many times the need for consultance and expertise during the launch of the project, taking into account the experience of France in the field;

- The lack of firmness in support of the project by the Ministry of Education led to the relatively superficial approach of the activities and actions undertaken in the territory, and to an often a distorted perception of the " CDI phenomenon", which cannot represent a good premise for the establishment of information literacy of students;

- The full suspension of funding for the organization of documentation and information centers in undergraduate schools, from the state budget since 2009;

- The suspension of national contest for permanent teachers to fill vacancies for documentation teachers in 2009, (such a contest was only organized in 2008);

- The failure of to adapt study programs for the initial training of documentation teachers, the needs and requirements of this job, so as to provide the basic professional skills necessary for the training students for information literacy;

- The lack of collaboration and partnership of the professional associations and associations that want to support the formation of information literacy in pre-education institutions;

- The lack of actions and tools to promote the formation of this culture, both nationally and locally;
- The lack of policy and strategy in the establishment of information literacy, both nationally and locally.

The things presented above constitute a series of elements of a state / needs analysis that should support and argue for the need for the convergence of decision and action in order to carry out a joint effort to establish information literacy of students in the pre-university education system in Romania, which could continue on the university level, and in connection with lifelong learning. At this point, we can say that both the educational communities and the social communities realize the importance of establishing information literacy of students, as a guarantee for the sustainable development of human society.

Given the need for ensuring the establishment of information literacy in undergraduate education, in the international and national context mentioned above, we advance as follows a number of axes and actions considered a priority for Romania at this time, in the view of developing a policy and strategy of information literacy on a national level.

A possible strategic approach in terms of the establishment of information literacy in pre-university education in Romania

The establishment of information literacy in undergraduate education in Romania can not be achieved without the existence of a governmental policy / strategy for this field. Any other kind of approach could only lead to unilateral, short activities especially without a long-term impact. We believe that such a policy / strategy should be developed on a national level (through policy / public strategy) for all ages, without discrimination, with an appropriate development in infrastructure, human resources, legislative, institutional and administrative organization.

Given once again the international and the national context in the establishment of information literacy and the UNESCO recommendations [1], we consider that Romania should develop a policy / strategy on the following axes (ranked in order of importance given by the authors of this paper):

1. Training teachers, school librarians and documentation teachers to create and develop specific skills of students in the field of information culture and their own benefit.

Possible actions:

1.1 Training sessions in info-documentation practices, of modern methods of teaching-learning-assessment.
1.2 Developing minimum standards for the organization of training in the field of information literacy (organization, curriculum, skills, ...).

1.3 Information and awareness campaigns in the home network and through the media regarding the social importance of information literacy and of lifelong learning.

1.4 Developing and adapt ting the promotional material that can be used nationally or locally in the actions for the establishment of information literacy.

2. Developing policies and teaching practices based on scientific research and aimed at the relationship between information literacy, students' acquisitions and concrete results of learning. Possible actions:

2.1 Involving universities in education research, thus strengthening the development of the policy and strategy for the establishment of information literacy in pre-university education.
2.2 Including in research work the evaluation of acquisitions and results of education and of the information literacy level on an undergraduate level, and long term effects caused by this training.
2.3 Presenting of research findings in information literacy in an accessible manner to a broad and diverse public, for efficient information and awareness.

3. Achieving an adequate infrastructure to ensure in all school units in Romania, the existence of space and material resources strictly necessary for the formation of skills required in information literacy.

Possible actions:

3.1 Information and awareness of decision makers on the need to ensure the establishment of information literacy and the conditions to be provided for its efficient execution.
3.2 Continued financial support from the state, regional and local budget for establishing documentation and information centers in all pre-university education institutions in Romania.
3.3 Development of a national financial policy to support the establishment of information literacy.

4. Providing the necessary legislative framework to support the establishment of information literacy in pre-university education in Romania.

Possible actions:

4.1 Including texts previewing the need for information literacy in pre-university education, and the conditions in which to conduct in specific education laws.

4.2 Operating legislative changes to allow the transfer from the various occupational categories existing in the field at the moment (school librarian, teacher) to a single profession to provide a qualified activity in the field of information literacy in pre-university institutions, the documentation teacher (documentarist).

4.3 Developing methodologies for the implementation of legal provisions for the establishment of information literacy in pre-university education.

5. Organizing within the Ministry of Education a directorate / service to deal with the information literacy in pre-university education, developing a structural network that will liaise with institutions within the system dealing with the establishment of information literacy of students (National Council, Curriculum Group, Advisory Council, etc.).

6. Providing real reform in teaching practices, also taking into account students' training in the six fundamental areas, including that of information culturalization.

Possible actions:

6.1 Developing a national curriculum to also include the establishment of information literacy on the level of pre-university education.

6.2 Developing auxiliaries and materials to support teachers to achieve the establishment of information literacy in each discipline.

6.3 Developing auxiliaries and materials which could be used by students to develop the skills necessary in information literacy.

7. Reviewing the assessment system in pre-university education, so that information literacy becomes an important criterion in the assessment of students and the accreditation of undergraduate

institutions.
Possible actions:

7.1 Training teachers in using assessment techniques that include criteria for assessing the pupils' information literacy skills.

7.2 Including in the accreditation standards of undergraduate teaching institutions, the criteria for assessing the achievement of information literacy.

8. Promoting and developing partnerships at all levels to form a collaborative network for the establishment of information literacy in pre-university education.

Possible actions:

8.1 Launching a campaign to support the establishment of information literacy on a national level.
8.2 Developing a collaborative network and establishing partnership agreements, on the national level of structures, institutions and organizations, in information literacy.

8.3 Organizing national, regional or local conferences, meetings, workshops in information literacy in pre-university education.

Conclusions

As you can see, the pre-university education system in Romania does not offer a policy, a coherent strategy for achieving information literacy.

The results obtained so far through various projects and programs have been ignored and in some cases projects or programs were abandoned.

The expertise gained in the field (through public funding) is currently not being used and tends to deteriorate.
The inability to generate solutions for establishing information literacy in the pre-university education system in Romania can have unexpected effects and can significantly affect the development of society on a long-term.

Providing free and unrestricted access to information of any individual with the purpose of addressing a personal matter is a given right. Such a right remains only declaratory when society does not provide proper training of the individual in order to harness the maximum efficiency of information, both for the individual and society.

We believe that it is a duty of the education and training institutions, the non-governmental bodies, the civil society representatives to intervene and observe, inform and raise awareness on political and administrative levels upon the need to conduct activities in establishing information literacy in the pre-university education system.

Such an effort would result in immediate benefit to each and every student, the future adult, and thus the wellbeing of the society in which they live.

The directions that have been given priority and mentioned above by the authors of this study should be made compulsory in the political decision system on a governmental and ministerial level, with appropriate support in the territory and especially on school level education. As F.W. Horton, Jr. observed, "... when the ministry of education, the national education system, the school policies and curricula become aware of it (the need for establishing information literacy) in formal education, only then can they implement effectively the development of information literacy in the educational process. "[1].

The current international realities and conditions require assuming an attitude and a change in mentality. It is time to pass from an essentially humanist culture to a complex culture, a culture of the knowledge of society.

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Information Literacy in School Libraries

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Abstract

The topic approached brings to interested readers` attention various aspects of practical ways of achieving information literacy in school libraries. Theory and practice work together to provide a coherent and comprehensive image of the impact the school library and the librarian have on helping school-children locate, use and pass on information. The study includes initiation and training activities in the area that are run by us either on a permanent basis or within projects.

The paper is divided into: *The Rationale; The Need of Acquiring Information Skills; Information Literacy; How to Improve Information Literacy; Conclusions.*

The first part examines the importance of the library in identifying the most effective ways of data collection; the second insists on the imperative of becoming aware of how information is vital at all education levels and it argues that information skills development should start in the first school years. It also establishes the terminology, such as *swapping information* and *information skills* and provides the basic working principles for school libraries : being familiar with the school curricula; understanding learner-centered teaching methods and the extent to which users have access to alternative information sources.

The third part gives the definition of „ information literacy" and explains its premises: identifying the nature of the data you require, organizing the data, finding alternative ways and research techniques to acheive the same information. Given the fact that we only have one computer with no Internet access, we discussed mainly the conventional way represented by the school library.

The fourth chapter lists the *objectives* of information literacy development with an emphasis *on learning and data access tools*; it also presented *data research activities* and identified *the information resources and the opportunities* for further cooperation and learning activities.

The last part underlines the fact that information literacy wich is the the key to life-long learning can improve both teaching and learning, being rightfully referred to by professionals as the surviving skill of the XXI century.

1. The Rationale

We are living in the age of significant educational and informational changes where knowledge is key. Information exchange between emitters and users is part of the fundamentals of moving forward.

Librarians have at their disposal, in theory at least, all necessary tools and knowledge to tap into the information pool. They can guide and assist users in getting to that piece of information in the library`s fund that is relevant to them; they can help them use the online network efficiently, select websites and so on.

One of the challenges for today`s school librarian is finding the best way of initiating users on the path of information literacy. All school libraries must provide the necessary tools that help school-children learn about information sources and about ways of accessing it.

2. The Need of Acquiring Information Skills

Information skills refer to those abilities that enable someone to use information efficiently. School-children or employees who resort to the library frequently know how the data is organized, how to find relevant information and how to use it. This knowledge prepares them for life-long learning. They can always find the required piece of information needed in problem-solving and take informed decisions.

Acquiring and developing information skills is vital even in the early school years. All along their school years today`s children need to achieve working methods and research techniques. During classes, DIC activities or library actions, in cultural events at class or school level, the school-children are assisted in finding their bearings within the basic bibliography of various school subject matters. Bibliography in all its forms plays a vital role in the knowledge acquisition process.

We believe that librarians and document-owners themselves need to keep up-dated with the novelties in the information process, which is absolutely key if they are to achieve correct working skills and the ability to gather and select data for a paper. We therefore point out the importance of becoming aware of how relevant getting informed is, irrespective of the school level. It also shows that accurate and comprehensive bibliographical references are the pre-requisites of informed and beneficial decision-making.

Acquiring information skills requires a permanent effort which needs to become part of the teaching activities of the school and thus part of the educational process. The principles that guide howa school library is organized are: - knowing the school curricula; - understanding learner-centered teaching methods; - understanding the extent to which users have access to alternative information sources.

3. Information Literacy

Information Literacy is not a new concept. We find it in what is generally referred to as assisted study room. Both concepts refer to facilitating access to and passing on of information. Professionals in the area offer us a panoply of definitions. In short we could say that information literacy is drawing up coherent steps to identify, extract, assess and use information with a view to satisfying the user`s need of knowledge (Târziman, p.14.). One needs to know the nature of the information they are looking for. It also presupposes the user has at his disposal an array of access ways and specific techniques as part of the broader researching process. The process includes both the librarian`s work to make working tools available, to identify the information in the database and arrange it and the user`s effort of putting together the paper and assess it. Research also requires the user to adapt and apply the data to certain situations. Therefore information literacy skills is based on a solid „background" and „ a set of specific skills" (Tarziman, p.15) which allow users to integrate in the information society. The same author considers information literacy to be the fifth essential skill „ which enables an individual integrate into the labour market of the future" "(Târziman, p.16).

In the context of the school library, information literacy means that children need to learn how to easily access printed editions of books. These abilities are:
- reading skills learnt in class and in the study room;
- going through literary and scientific works, etc;
- knowing how to access catalog cards;
- being familiar and pursuing the paper research process;
- initiating users into how to obtain information from magazines through subject indexes, quotation indexes, review magazines;
- watching slides, movies, etc

4. How to improve information literacy

In their work with the public, the librarian needs to bear in mind some methodological principles: - to take care that users achieve the necessary skills that enable them to make the best of the library`s services and database; - to permanently assess users who take part in various activities; - to win their trust in his/her ability to help them with whatever they need; - to establish close working ties with the users.

The school librarian is responsible with the initiation, easying up access to information, passing on knowledge and strengthening users` information literacy skills. This can be done within planned or ad-hoc activities, multidisciplinary projects in conjuction with teachers at all levels, IT specialists, school therapists, medical staff, information centers.

With this in mind they focus their activity on achieving these goals:
- develop learning and information access tools;
- organize activities on identifying relevant information in a written text;
- guide the use of available resources and open opportunities regarding joint learning activities;
- provide support with tapping into information over the Internet

4.1 The first objective, develop learning and information access tools, can be achieved by:

**making Bibliographical Lists and Catalogues of the library available*

The librarian can introduce school-children to the need, opportunities and advantages that these tools present. Here are some examples of topics for discussion: "How to use the Catalogs of the Library?", "Library resources", "How the books are arranged in a library.", "The book as a resource. School-children`s attitude towards it.", "Identity traits of a book. The structure of a book.", "Cataloging books", "How bibliography listing is put together."

Below we give an example of an activity on how to access the library resources.

Topic: How we use library catalogs

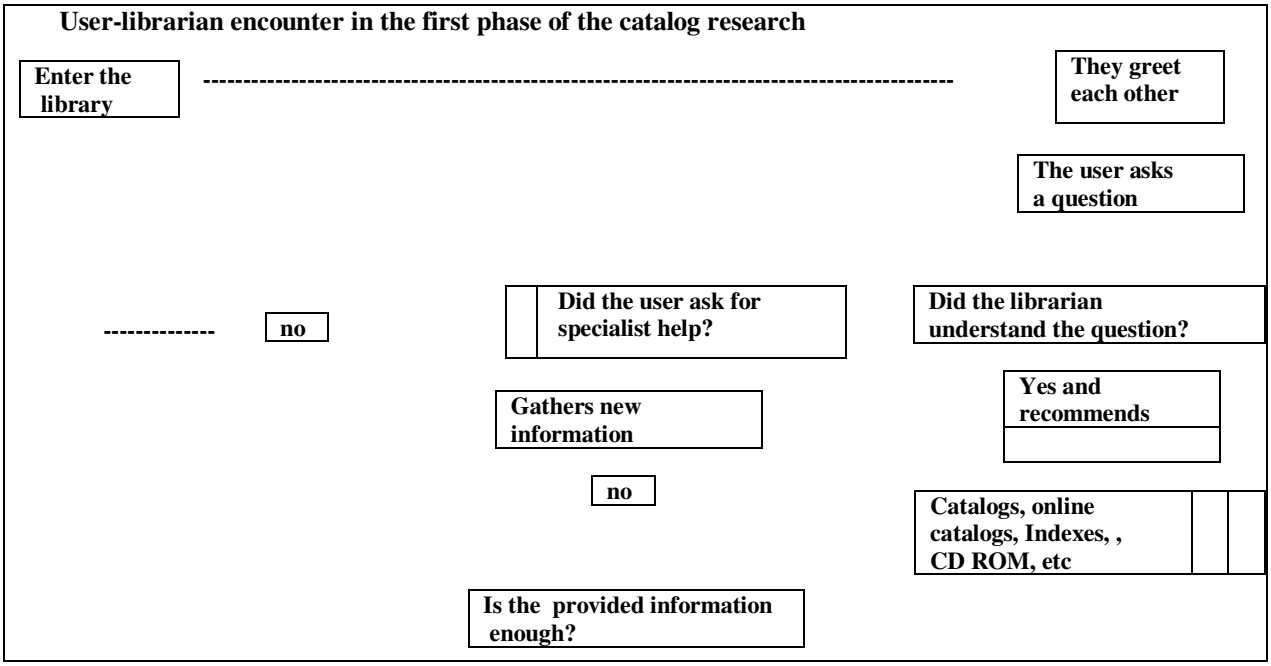
1.The target group: 10-12 students from the 7th grade, 8th grade. 2. The date: … 3. Present the objectives By the end of the activity the students need to: - identify the types of existing library catalogs;- to notice similarities and differences ;- to select catalog cards for one type of catalog.
4. Preparing for the activity: we make the objectives known, hand out necessary material: catalog cards, book cards, other library items…5. The activity proper: consult the systematic catalog first and the alphabetic one later. The librarian will explain the cards, the ways of putting together and consulting a systematic and alphabetic catalog. 6. Assessment: the students will create a Bibliography list on a given topic. Then, they will create cards for the two catalogs. Assisted by the librarian, the students start working.

Similar activities are held in order to introduce primary education children to using a dictionary, an encyclopedia, an atlas, to determine the identification features of a newspaper or magazine. The idetification exercise is repeated until we are sure that the children grew accustomed to the process.

Gathering information and documentation requires direct contact with the library items. Once the research topic is set, the student-user must locate and use bibliographical resources. At first the librarian provides the user with a minimum bibliography. He recommends that they refer to the systematic catalog right from the start of their research and later to other access tools. The student has, thus the chance to find out document titles from the library collections which refer to different aspects of the theme. He will procede to making up a list of the books he needs to read. We offer you below:

The steps of the research

1.Consult the library catalogs, the systematic one first and then the alphabetic one.; 2Read reference material that bring more clarity and precision to the topic; 3Search on the Internet; 4.Search in a database, on the CD-ROM.



* making reading lists available from the start of the school year (either by cycle or by class)
* listing the latest acquisitions – purchased, donations, or transfers, etc.
* book presentations intended to sharpen the appetite for reading (if they are for the 1st graders they mainly take place in the classroom
* boards that show research techniques – displayed in a visible spot in the study room.

Here is an example of a board:

Practical advise for efficient reading

1. Set reference points that make the text more accessible: title, author, layout, name...

2. Go through the text once so that you have a global understanding of it. You will achieve your goal you:

- **relate the text to your personal experiences;**
- **have a uninterrupted, correct reading – without stopping at every word;**
- **can explain the title and how it connects to the content.**

3. Re-read the text for a deeper understanding.

4. If it is too long, split it into chunks.

5. Look in the dictionary, ask the librarian, the teacher, colleagues, parents if you come acress an unkow word....

6. Write down your impressions on the text as the meaning of it becomes clearer (sentences, titles, mai ideas).

7. Note down your oppinion on the text. Compare it to other colleagues` ideas ..

8. Remember ideas that made a deep impression on you.

4.2. The second objective, looking for information in a printed text, requires direct contact with the selected books for your paper..

The variety of items and materials our library has cover areas that the school-children gradually become familiar with through the school curriculum. The library is the place where people borrow books, read in the study room or organize various activities. This is where extra-curriculum activities take place involving pupils and guests from outside the school. Given the furniture, the shelves for books and catalogs, the 10 tables and chairs in the study room, we can say that the library has limited room, fitting a maximum of 24 people. The library opens into the main hall where school-children and teachers can see boards announcing contests results, artifacts made during national projects, in children`s clubs, excerps from the library magazine " Cultural Screen", etc..

Information literacy gains contour within the school with the writing of papers: essays, critical analysis, character analysis, scientific papers on curricular subjects presented in communication sessions, seminars, papers for teacher certification, reports, graphics, diagrams, etc.

We address school-children who are new to documentary research and teachers who are familiar with both the fundamentals of a given topic and the broader area of study. Two different approaches are needed for the two categories of users. Teachers tend to look for the latest in the specialist literature, whereas children need initiating onto the path of conducting a research.

In order to be able to find information sources, school-children need to know the layout of the library, how the books are organized, what the data access tools are, what book details to look for, their rights and obligations as users as stated in the "The Internal Regulation Policy"; they also need to acquire the ability to take reading notes and later use them. Beginner readers – 2nd and 5th graders, 1st graders in the second half of the academic year- are first introduced to the library. The presentations differ according to the users` age. We will ask 2nd graders to: - define the concept of library,- mention the library hours,- describe the process of borrowing books, - list several rights and obligations they have as users, - list several conduct rules within the library. The 5th graders will be also asked to:- find their way in the library by the position of shelves, tables, audio and video devices, subject area, etc; - to identify various document categories: monographies, periodicals, audio-video and electronic. The activity is repeated with different user groups throughout the year. The librarian is free to adjust the activity depending on the knowledge background and the age of the target group. Without going too much into details we present a assessment test at the end of the activity:

II grade **Assessment test**

1. What are the library working hours? A…..

2. May you take notes on the margin of the page of the book you borrowed, May you fold its pages: Yes/No

3. Who can use the library tables to read and write? A …

4. Are the students allowed to speak outloud or run within the library? A……

5. Who has the right of borrowing books from our library? A…..

6. How long can you keep a borrowed book for? A…

7. One can borrow a maximum of ……..items.

V grade

Assessment test

8. Identify and name the objects within the library.… ……

Possible answers: ***shelves, luggage racks,documents shelves,systematic and alphabetic catalogs,: shelves,tables,chairs, computers, etc***

9. What pieces of furniture would you add or leave out. A…….

10. Write three sentences on your own impressions regarding the light, colour and furniture display in the library.----------

Initiating school-children in documentary research comes in addition to teachers` regular courses. This iswhy it gradually goes from identifying "Types of resources", " The Book as a library resource", "Books and Textbook presentations" with the aim of highlighting their identification details. These activities are conducted progressively with users groups starting from the 2nd grade.

Our purpose is that at the end of the process they be able to: - mention the main identification details of a monographic document (book): cover, title, author, volume; - track down a piece of information in a book using the content or the index.

Fifth and sixth graders should be able to: - give the definition of: cover, spine, front cover, erratum, jacket, etc; - identify them on the book. Once the activities are completed, we suggest the following tests:

II Grade

Assessment test

1.Write the name of the author and the title of the book on the table ----------
2.What draws your attention on the first cover (images, colours, etc)----------
3.Flick through the book. Note down a chapter title ----------
4.Read the first five lines on the page you like.

V-VI Grades **Assessment test**

I

1. What information does the front cover of the book on the table offer ----------
2.The place where it was printed and the publishing house are mentioned : on the front cover, the first cover or both ……..
3. Does the document have a foreword? …….
4. Does the document have footnotes? ……
II. Try it yourself
5. Look on the shelf for a book with a afterword. Pick up an idea and write it down.----------
6. Mention 3 pieces of information on the front cover of the given book ----------
7. As you flick through the book, mention other elements you can identify:----------
A. afterword, contents, index, glossary, price, drawings.

The most common activity involving a library is introducing users to taking reading notes: on the author, the characters, quotations, ideas, bibliographical, make a summary.

In schools, it is in the fifth grade during Romanian classes that children get accustomed to taking and using notes. It is, however true that they start noting down ideas in the 2nd and 4th grade, when they also begin to express their opinions on the text, pick up unknown words or idioms, etc. The number of hours alloted to this practice in the primary education is limited to 2 to 3 hours. The teacher can, though, depending on his interest and enthousiasm discuss note taking in their "How to write a text" or "Composition" classes.

The librarian can use practical activities and dialogue to provide information on the notes layout, their content, classification, etc. This is why in places such as study room, on the tables we display the following boards:

Notes

Remarks on matter, notes, layout, abbreviations

1Notes cards are small pieces of paper or thin cardboard used to take notes with the view of keeping track of the information we have read or for the elaboration of a paper.

2. The notes are taken while reading takes place or immediately after it has completed (the article, the item).

3. The notes we take depend entirely on the information we are looking for when reading something.

4. We can note down: an idea, an argument, a relevant detail, a character or nature description, etc; a summary of a chapter or sub-chapter, a quotation, impressions, personal remarks, remarks on the style.

5.The cards are arranged according to issues, ideas, chapters. It is advisable, therefore that each card specify up at the beginning the main category (main ideas, characters, clashes, style, genre, arguments, dates, phenomenon description, causes, consequences, etc).

6. Notes must be concise and clear, in accordance with the subject of the book. Quotations are put within inverted commas and must be followed by the author`s name, the title and page number (the chapter or sub-chapter number where necessary).

7. Abbreviations are allowed: id.(idem=by the same author); ibid.(ibidem=previous title, we do not mention the book again; ap.(apud=at, after– before mentioning the author and the book which originated the extracts, ideas etc, taken from another author`s paper); cf.(confer=compare– points to another paper that provides further information on the subject).

8. The cards are arranged in a file, envelope, portfolio and serves as a reference point.

4.3. .The objective about utilizing information sources and identify opportunities regarding joint learning activities refers mainly to multidisciplinarity.

Multidisciplinarity is a chance given to the library to open up its activities projects through an alternative and complementary method of knowledge. The projects make use of the available information sources and create opportunities of joint learning practices. Through them students have the possibility of being introduced to documentary research and have their skills valued. Multidisciplinarity is not practical on every occasion, but it does encourage students to diversify their reading and makes it more appealing. Furthermore, it is both necessary and at hand.

We ran activities within various projects! The most prominent one, „ The library at its users` service", was approved and financed by the non-govermental Earth Friends Association. It took place in the 2004 – 2005 school year and continued into the following year. The outcomes were: a small collection of fiction works, entitled "January Dream", made up by the 4th and 7th graders. Its subtitle was „Small anthology of literary works done in the library". The 6th graders came up with a small anthology of quotations about books „The Joy of Reading".

4.4. The objective refering to using electronic support in looking for information, is based on its efficiency and relevance. It is also our strong believe that using electronic devices does not exclude conventional reading.

Today`s children are emersed in an electronic environment: the radio, the TV, audio-video devices, computers, mobile phones. Reading in the study room suddenly seems less attractive. We acknowledge the fact that the swift changes in the electronic environment that generate an abundance of information are useful to us and to our subscribers.

Resorting entirely to it, though is not sufficient. The downsides are numerous. We will only mention here its failure to cultivate intellectual skills specific to humans such as: the imagination, an innovative spirit, emotions, etc. It is also responsible for inducing a state of unrest and for diminishing the concentration span of readers.

As librarians we encourage the use of electronic devices for information purposes unless it is done at the expense of conventional reading. Briefly, what we mean is that:

- *the computer, the Internet* offer the possibility of partial or total reading of a book, but

- *reference to the printed version* plays a decisive role in building the child`s personality.

We notice that gradually but steadily the time of writing papers, character analysis, structured essays copied from the Internet is slowly dawning, as it is also the true about learning by rote remarks on I.Creangă, L.Blaga, M Sadoveanu, T Arghezi`s literary works, etc.

In school, boosting the love for books and the written word is the ultimate outcome of the librarian`s colaboration with teachers and parents. The library and its collections are a whole: they are united by the space dedicated to reading and books.

It is here that school-children are encouraged to create their own books: about winter, holidays and the joy of reading. This is how creation activities were born in our library wchich resulted in the book „ January Dream" or the in the „The Joy of Reading „ quotation book. This year we propose children to write about being hard-working. Who keeps his word in Creanga`s stories? What do the characters have to say about being honest and keeping one`s promises!? (*Fata babei şi ..., Povestea lui HarapAlb, etc)*

Using and integrating the new technologies and electronic means of information within the library is necessary and effective. It does not exclude books as they will continue to be read just as the library which needs to adapt its collections to the needs of its users.

5. Conclusions

Documentary structures in schools can help in gaining partially or not children`s skills of locating, exploiting and transmitting information. This is a gradual process which takes place through various initiation and development activities.

The school library plays a vital role in building information literacy among users. The true key of life-long learning, information literacy is absolutely relevant in the school curriculum irrespective of the education level and helps improve both teaching and learning. This is why it is referred to by professionals as "the surviving skill of the XXI century". Libraries and librarians can contribute to enhancing this trait.

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The Brukenthal Library and the Information Literacy

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Abstract:

The Library of the National Brukenthal Museum from Sibiu is an 18th century cultural institution, one of the most important libraries in Romania. Its founder was Baron Samuel von Brukenthal, Governor of Transylvania (1777-1787). The collections consist in manuscripts, incunabula, old books from the 16th-18th century as well as old Romanian writings. An important part represents also the collection of journals, books from the 19th century and over seven hundred maps.

Sibiu achieved its European status thanks to its history, and its cultural institutions. One of these institutions is the Brukenthal Museum, founded in the second half of the 18th century by Baron Samuel von Brukenthal, Governor of Transylvania (1777-1787). The museum is famous for its art collections but also for its library which from the very beginning was an important research centre of Transylvania and later of Romania[1]. The paper is aiming at presenting both, the literacy aspect as well as the research in the holding of the library.

Baron Samuel von Brukenthal (1721-1803) was an outstanding Transylvanian personality of the 18th century, a man of great erudition and refined taste, whose political career culminated with the dignity of Governor of the Principality of Transylvania, which he held between 1777 and 1787. Deeply influenced by the generous ideas of the Enlightenment, the baron wished both, the economic as well as the cultural development of his country and everything he did contributed to his goal. While he did not manage to realize a major economic progress of the Principality, his cultural achievements were remarkable, placing him in the broader context of Central European personalities. Living many years abroad, the baron got acquainted with Viennese cultural patterns, patterns he tried to implement in his own country. He became famous through his major creation, the Brukenthal Museum, the first museum in the South-Eastern part of Europe opened in 1790 to *connoisseurs*, and in 1817 to the large public. But the baron's sphere of interest was much wider, including also a large scale of sciences, the educational system, the musical life of his city, the art of gardening[2].

Samuel von Brukenthal – whose father belonged to the lesser nobility – due to his merits became Samuel Baron von Brukenthal, the title being granted to him by the Empress Maria Theresia in 1762. During his Viennese years, Samuel von Brukenthal had the opportunity to enrich his art collection which, already in 1773, according to Kurzböcks *Almanach de Vienne*[3], was mentioned on the second place among the private collections of the Habsburg capital (after baron von Hagen's art cabinet). On one hand, the question concerning the sources of von Brukenthal's fine art and book

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collections is not yet fully elucidated. On the other hand, the Brukenthal Palace and Library were first mentioned by Johann Lehmann, a German traveller in his book, *Reise von Pressburg nach Hermannstadt in Siebenbürgen* ('Travel from Bratislava to Sibiu in Transylvania'), published in 1785[4].

The Brukenthal Library – which actually is a department of the museum itself – was mentioned first in the Baron's last will where he states: *because the library, the engravings, naturalia* […] *are under my special arrangements* […] *there will be free access to the library, art gallery, to the mineral and numismatic collections, which will be held in my own house in Sibiu* […][5].As a representative of the Enlightenment, Baron Samuel von Brukenthal, a real *homo Europaeus,* regarded his library as a way to introduce these generous ideas into the late 18th century Transylvania. The rich baronial library comprising 15,972 volumes was the collection its founder liked best. When speaking or writing about his possessions, von Brukenthal always mentioned the library, that wonderful place of spiritual ascension and meditation, on the first place. Besides precious illuminated handwritings, he also owned incunabula, philosophical writings, the books of the French *Encyclopédie*, all kind of science books and literature.

Talking about the first stepts in information literacy in the Brukenthal Library – in its history, I should say –, I take into consideration either the ability to identify what information is needed and the skill to locate it in written sources. In brief, I am thinking about the skills of knowing how to locate, estimate and use information[6]. The first person who did this job in the Brukenthal Library was its first librarian, Christian Friedrich Samuel Hahneman (1755–1843), the founder of homoeopathy. Hahnemann was the eldest son of a pottery painter in the porcelain town of Meissen in Saxony. Firstly he enrolled at the University of Leipzig to study medicine, then, in 1777, he transferred to Vienna, to gain greater experience, though this proved very costly on his modest allowance. After only nine months, financial hardship forced him to abandon his studentship. However, he had so deeply impressed the physician to the Court, Professor Joseph Freiherr [Baron] von Quarin [1733-1814], that he placed him to Brukenthal. Hahnemann became the physician of the family and curator of the museum and library. During his stay in Sibiu, which lasted for 18 months, Hahnemann worked out the first catalogue of the coin collection, of ancient books and manuscripts. In the spring of 1779 the librarian left the capital of Transylvania for Erlangen University, where he graduated MD on the same year, qualifying with honors. Christian Friedrich Samuel Hahneman coined the name of his research *homoeopathy* to describe this approach to healing, deriving it from the Greek: *homos* ('same') + *pathos* (suffering). He also espoused the law of cure known as *Similia Similibus Curantur* or *Like Cures Like*[7]. What I would like to point out is the idea that the Brukenthal Library, thanks to its books as well as its first librarian, became the starting point in a research field, that of *homoeopathy*.

During all those years when von Brukenthal was Governor of Transylvania and lived in Sibiu, he kept close connections with Vienna and got information about book auctions from his friends Abbot Neumann, Professor at the University of Vienna and Director of Coins and Antiquities Cabinet (*Direktor des Münz- und Antikenkabinetts*), Karl Adolf Baron von Braun, adviser at the Imperial Court (*Reichshofrat*), August Gräffer, bookseller and editor, and the latter's brother, Rudolf Gräffer, editor[8].

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[4] Johann Lehmann, *Reise von Pressburg nach Hermannstadt in Siebenbürgen* (Travel from Bratislava to Sibiu in Transylvania'), Dünkelspiel und Leipzig in Komission by Christian Gottlieb Herter, 1785.

[5] G.-L. Ittu, *Geschichte des Brukenthalmuseums,* Sibiu/Hermannstadt, 2003, 82

[6] http://www.mvcc.libguides.com/content.php?pid=63018

[7] This means that a remedy that produces symptoms in a healthy person will cure those same symptoms when manifested by a person in a diseased state. This law of cure has been verified by millions of homoeopaths all over the world since the time of Hahnemann.

[8] Constantin Ittu, *Tainele Bibliotecii Brukenthal* ['The Mysteries of the Brukenthal Library'], Sibiu, 2007, 19–28 (Neumann), 29–32 (von Braun and the Gräffers').

By far the outstanding piece of the Brukenthal Library is the so-called *Breviarium*, a wonderful rich illuminated manuscript. Manufactured in the Low Countries, later it belonged to the St. Margaret Monastery, near Prague. After the monastery was closed, von Brukenthal bought it in Vienna on the second of January 1787, for the price of 130 guldens.

The *Brukenthal Breviarum,* is one of the most outstanding works of Flemish manuscript painting in the first quarter of the 16th century. It, contains ninety-two miniatures and 648 fully illustrated folios. Miniatures, initials and borderdecorations follow a fixed lay-out. It is likely that the Brukenthal manuscript with its highly standardized iconography and decorations was based on existing models which had been established at around the same time[9]. Until recent years, the supposed date of completion was around 1495. As a result of new research, it is supposed a time between 1515 and 1520. One of the arguments consists of the clearly inscribed year 1517, which was found hidden in the altar cloth on one of the miniatures. Another argument is offered by a miniature which represents Charles V as crowned king on the throne to which he acceded the same year. He became Emperor two years later, in other words, in 1519[10].

Today the library consists of several collections: comprising over 250,000 books and journals, 778 manuscripts, 422 incunabula, approximately 30,000 rare books dating from the 16th-18th, more than 900 old Romanian books, over 7,000 maps, and of course, contemporary books and journals specialized mostly in history and archaeology, history of art and culture, natural history etc.

The process of enrichment of the library was an ongoing phenomenon from the 18th century until now. During the 19th century, the Brukenthal Library added to its collections two important libraries from Sibiu, the so called *Kapellenbibliothek* in 1879, and that of the Academy of Law, in 1885. In this very year the Academy, a high level educational institution from Southern Transylvania was closed. The *Kapellenbibliothek* preserved books from different medieval libraries in Sibiu, as the *Town Library* (first mentioned in 1300).

The collection of incunabula has its own history. Most of them, 280 items, came from the *Kapellenbibliothek*, while the second source was Baron von Brukenthal's personal collection. In 1937, there were bought another three incunabula. Today the books from all this three sources are united in the Brukenthal Library, which with 422 incunabula is one of the richest collections in Romania, if not even the richest[11]. The process of digitization of this collection is under way, being soon available on http://www.brukenthal-digital.ro/

From the very beginning, the Brukenthal Library was regarded as the main research centre of Southern Transylvania The nowadays reality proves that it remained one of the leading cultural Romanian institutions of our country. Researchers from Romania and abroad carry out research work in the library and the results of this activity are mainly published in the periodicals of the museum. The first journal issued by the Brukenthal Museum between 1931 and 1940 was *Mitteilungen aus dem Baron von Brukenthalischen Museum* ['Communications from the Baron Brukenthal Museum'], the second one *Studii şi Comunicări. Muzeul Brukenthal* ['Studies and Communications from The Brukenthal Museum'] published in Romanian – between the years 1950-1989 – and the third *Brukenthal Acta Musei* (from 2006 onwards), with three series: 1) History and Archeology, 2) Art History and History of Culture, and 3) Natural History. The museum also launched recently a series named *Bibliotheca Brukenthal* in which there were already published 45 books (2006 –until 2010). The authors are either researchers or curators of the Brukenthal Museum or scholars from different cultural institutions from Romania or from abroad.

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[9] Michael Csaki, *Das Breviarium Brukenthal,* Hermannstadt/Sibiu, 1912,, 3–8.

[10] Jan De Maere, 'Ein wertvolles Werk in der Bibliothek. Das Breviarium Brukenthal', *Openbaar Kunstbezit Vlaanderen,* Antwerpen, 2007, 16–19.

[11] There are numerous books concerning the incunabula collection: Fr. Müller, ''Incunabeln der Capellenbibliothek', *Archiv des Vereins,* 14, 2–3, Sibiu, 1877; G. Seivert, 'Die Wiegendrucke des Baron Brukenthalischen Museum', *Mitteilungen aus dem Brukenthalisches Museum*, Sibiu, 1944, Veturia Jugăreanu, *Catalogul colecţiei de incunabule* ['The Catalogue of Incunabula Collection'], Sibiu, Muzeul Brukenthal, 1969.

The Brukenthal Library – thanks to its collections as well as to its status as a department of the Brukenthal National Museum - belongs, according to IFLA (International Federation of Library Associations and Institutions) scheme, to the Division I (*General Research library*), Section 2 (*Academic* [Previously: *University*] *and Research Library*). Brukenthal Library belongs to this scheme because it perceive the so called **IFLA's Three Pillars** (*society, profession, members* – Declaration adopted by IFLA, Haga, 10 December 2004):

Society: as a cultural institution, the Brukenthal Library *serves society by preserving memory, feeding development, enabling education & research, and support in international understanding & community well being*.

Profession: the Brukenthal Library has always been vitally concerned with improving methods, technical means and standards.

Members: its members contribute with time & resources to achieve IFLA's goals to improve libraries & information practice & to serve global society.

Thanks to the fact that the Brukenthal Library offers free information – scientific information in this particular case – it follows *Alexandria Manifesto on Libraries, the Information Society in Action* adopted in Alexandria, Egypt, Bibliotheca Alexandrina, on 11 November 2005, according to which: *libraries and information services contribute to the sound operation of the inclusive Information Society. They enable intellectual freedom by providing access to information, ideas and works of imagination in any medium and regardless of frontiers. They help to safeguard democratic values and universal civil rights impartially and by opposing any form of censorship.*

On the web-page of the Brukenthal Museum (http://www.brukenthalmuseum.ro/) one can find information about the museum itself, its departments, about its precious holdings and about exhibitions (http://www.brukenthalmuseum.ro/biblioteca/index.html).

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The University Library of Sibiu: From Classic to Modern, a Need for Information Literacy

Ioan-Irinel VIŞA, Elena MĂRGINEAN, Mihaela MANOLESCU
Library of the "Lucian Blaga" University of Sibiu

Abstract

The "Lucian Blaga" University of Sibiu is a young and dynamic academic institute and so is its library: the new library building was inaugurated in 2009. With modern facilities and new services offered to its readers, the University Library is one of the most modern university libraries in Romania. If technology is the latest, including the Library Information System based on the Rfid technology, services can be improved by the Information Literacy, by organizing a training programme for the library staff, teachers, students or readers. First, a course of IT training, then effective courses on IL. This is really an imperative need.

Seeking ways for further development, we find in the Information Literacy the new concepts, theoretical basis, future trends to be followed to prepare the library for the knowledge society.

Keywords: university library, user-centered services, information society, information literacy, training requirement, lifelong learning.

Where are we now? The international context

At the beginning of the XXIst century we are in full transition towards the Information Society, where "*production and consumption of information is the most important human activity, ... and environmental information with social and ecologic environment – the human existence environment*" (Wikipedia).

The Information Society has been defined as "*a society in wich the creation, distribution and manipulation of information has become the most singnificant economic and cultural activity*".

Until now, the main factor of post-Industrial transition was the information technology, that created tools for producing information of all sorts, the most important being the computer and all the other equipments/gadgets around.

By including these IT-equipments, interconnected to the Internet Network, in people's every day lives, the production and the consumption of information has become general, starting with instantaneous online news, scientific articles, etc. Everything is „online" now, including the human knowledge. These are all explosions of information of the last 20 years of Internet (see fig.1).

A huge quantity and a chaotic jumble of information is now available online. What about its quality? How valuable is it?

It is absolutely necessary to set up up a competence, an authority, for arranging, structuring not only the huge quantity of data, but searching a valuable information.

That's why we need information literacy.

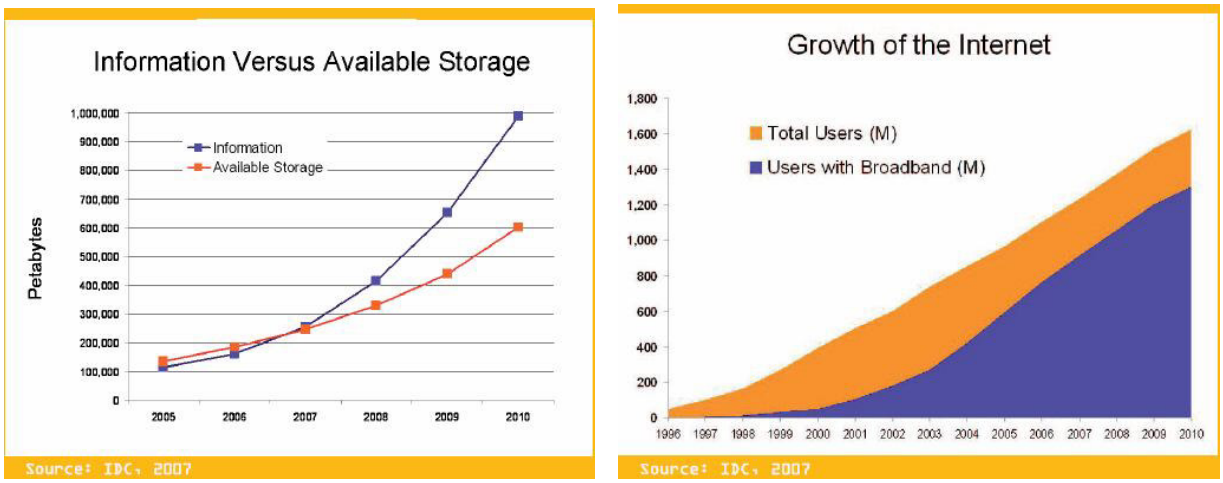

Fig. 1 Information growth versus Internet growth (IDC source)

Where are we now? The local context

The "Lucian Blaga" University of Sibiu is a young and dynamic academic institute. The Library of the LBUS is younger and more dynamic: in 2009 the new building was inaugurated. We had to cover a long way towards modernization in a short period of time, following separate stages but all aiming the improvement of services offered by the library.

Until recently, the library offered the classic, basic services: the search in the bibliographic fiches printed by the machine or hand-written, the home lending; the reading rooms (few and modest), references for the syllabus study in the university.

The computerization itself started by acquiring computers(1992), setting up the electronic catalogue and the library automation management system based on the dedicated information system - *Softlink Alice for Windows* (1998).

The Library branches had constituted one locally electronic catalogue and by connecting to the university network (2002), the search in the main library and its branch libraries catalogue could be performed on the Web.

A Programme of Data Retro-Conversion, in cooperation with the **Library of the Marburg University - Germany** – that had already carried out such a process, had started in 2004.

Thus, from a number of about 25,000 recordings (plus 15,000 in the branch libraries) during the 2 years of retroconversion, the growth of over 250,000 recordings references was registered.

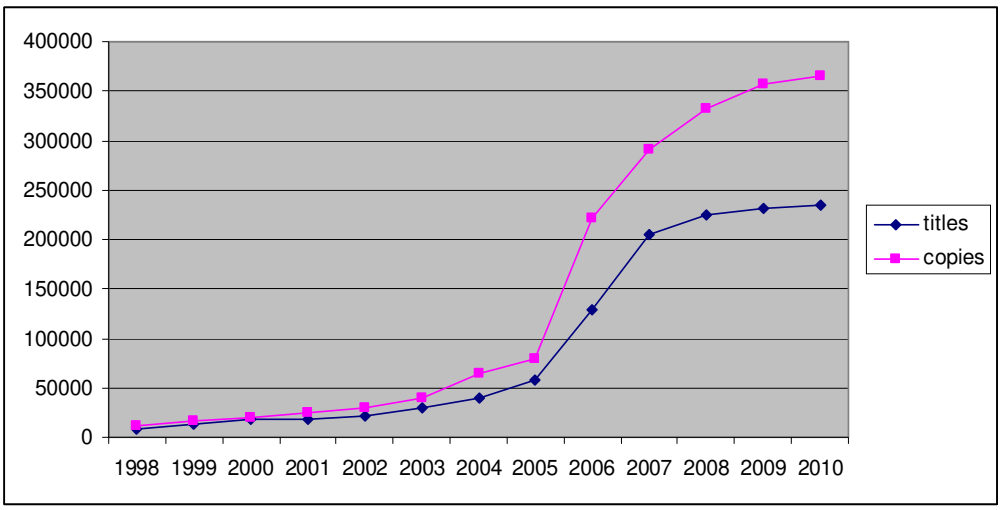

Fig. 2 LBUS Library - Electronic Catalogue growth

2006 had bought a library system for the automated management, Softlink–Liberty3, based on oriented web technologies.

By carrying out the data import from the main library and the branch libraries catalogue, the central-computerized catalogue has been set up (2008). So now, it contains records of the main library and its branch libraries, including the Evangelic Library, the Ecumenic Research Library and the Library of the „Friedrich Teutsch" Cultural Dialogue Centre.

Starting with 2007, the Sibiu Library attended the Virtual National Catalogue **RoLiNeST**, the largest virtual collective Romanian Catalogue. It consists of the catalogues of the Central University Libraries - using the computer system Aleph -, the Romanian Academy Library Catalogue and those of the University Libraries, having computerized systems compatible for the network interconnection.
There is a place here to mention and appreciate the functioning of the project in rather difficult conditions (the lack of a financial support): the *National System of Information and Scientific and Technical Documentation (NUSIDOC-S&T)* - libraries systems unification**.** It's a sectorial project financed by the National Authority for Scientific Research.

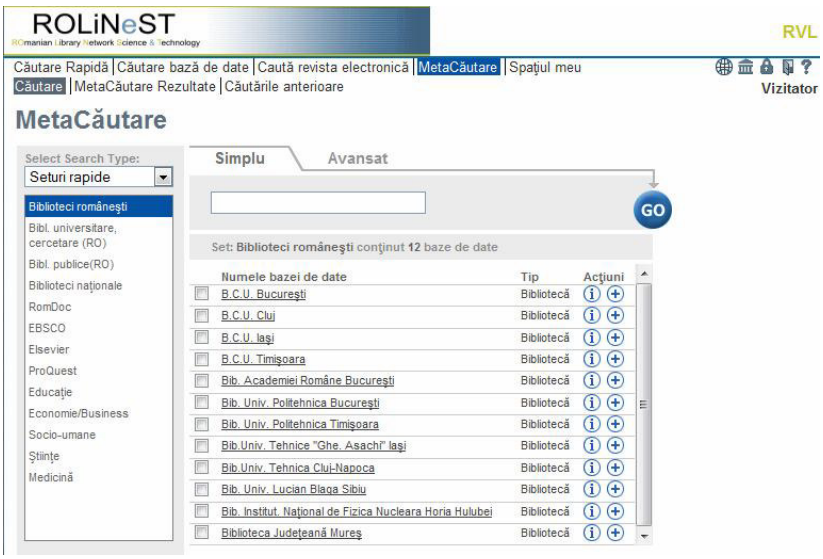

Fig. 3 ROLiNeST - metasearch

The Library of the "Lucian Blaga" University of Sibiu is the coordinator of a programme „Socrate/ Eramus with „Haute Ecole Namuroise Catholique (HENAC) Malonne"Belgium, started in 1998, which is under way until 2013. The working sessions held by the Belgian specialists, were related just to the search of the professional information in visible Internet, or in the hidden Internet – the databases themselves.

During the programme „*Sibiu 2007 – European Cultural Capital"*, the University Library has achieved the project ***"SCRIBe -*** *Computer System for purchasing, processing and viewing the Funds of old Book***"**, to provide to the local community the cultural heritage of the Sibiu county. The main objective of the project had been drawing up a computer system, offering users (citizens, Romanian and foreign researchers and representatives of museums and libraries), the possibility of accessing the Funds of the old Book, whose access is limited both because of the few copies, and because of the need of protecting documents from a large degree of wear. 20 of the most valuable old books held by the library, were scanned, and the results may be visualised on the web page of the library.

The "Lucian Blaga" University of Sibiu, through its library, is a founding member of the *Consortium to purchase the electronic resources in Romania (CARER)*, with: the Central University Libraries in Bucharest, Iaşi, Timişoara, then The Library of the Romanian Academy, the Academy of Economics, the main universities in Romania. This is the Professional Association of university

and research libraries in Romania, an Association representing the interests of information of the scientific community and the university research in Romania. Through this consortium, we have obtained access to the most important scientific databases, support for valuable academic research.
The free access to scientific databases, through the program ***National Electronic access to scientific literature of research - ANELiS***:
a) scientific databases, with full text: Sciencedirect, Springerlink, ProQuest, Oxford Journals, Cambridge Journals, Ebsco, Emerald Management;
b) References databases: *ISI Thomson* (up more than 15,000 magazines are indexed and quoted ISI), ProQuest CSA Research Pack, Ulrich's Periodicals Directory, Scopus.
It is only now, that we can offer access to the richest resources for scientific information, ensuring a support, apart from the basic educational process, for the basic and real research.

Fig. 4 Project logo - ANELiS

In setting up and organizing the LBUS new library, inaugurated in May 2009, we aimed at reaching the following:

- *Books flow*: acquisition, processing/cataloguing, application of the barcodes- Rfid labels, ordering the shelves;
- *The Users' Flow*: Reception - Information, entry-ID-cards Rfid, search in Opac, Internet Room, multiplication, book consulting in free access reading rooms, home lending, books return;

The aim of this organization has been to have a quick access to the book by obtaining rapid information and orientation indicating the exact location. The display system of the information on the Lcd screen monitors available on every level, provides basic data for : the organization on fields & on levels, library services, the description of the library information system, the search in the catalogue, the access to the databases.

For a better understanding of the readers'requirements - the user profile of the library - there have been made periodical polls with specific questions. Based on the responses, we could take the appropriate steps. We are continuously sensitive to the users'suggestions. Direct interaction with the users through the Reception-Information department, especially during the first months/year of study, is one of the best reactions of the library for directing "training to familiarize with the basis of the user-reader", with efficient use of clasique resources, made available, especially with the new technologies on, which are at their disposal.
With all these, we wanted all *the services be user-reader oiented*.

Access to resources now exists, BUT how effective is it used ?

All through the years, LBUS has had access to the various databases: Springerlink – almost all the time, then only periodically, to Proquest, Ebsco, Sciencedirect, Nature, etc. The library was one that managed the access to these databases, has popularized and advertised the access, offered bibliographic researches for the teachers, for the doctoral candidates and for the students. The requests to the library had been rather rare, search can be considered "satisfactory", but it could have been done more (the statistics had been made, based on the feed-back from the databases).

Only in the fall of 2009 the National program ANELIS, for accessing the most valuable databases, has become operational. We can do now an analysis of the databases for all participants in the consortium, to see the domains of interest for research in universities, the differences between the participants, etc. The last months of 2009 were not enough, only in Summer, after the first six months of use, some positive results could be obtained.

On the basis of the analysis of the electronic resources use, a conclusion should be drawn: databases are rarely accessed, especially for few scientific papers or for the doctoral ones…things that firmly confirm the nowadays status quo, the research crisis that is well sensed in Romania. The Romanian education faces the same problems, the new is very rarely accepted, the students are not eager to study, to participate in the research projects, etc.

A brief and bitter conclusion: The technological infrastructure exists now, there is also access to the valuable information resources, but one can feel an overriding need to teach staff library to use the databases, to acquire authority of critical search, so that they could be able to teach the others, the users themselves! But this may be the **first *Romanian Education System to be prepared for such an opening to the research.***

Where to look for help? What is Information Literacy?

General Background: the global information society demands an educational response that focuses on the information use, distinct from the use of information technology (it): *educating for information literacy rather than IT literacy*.[4]

Being the first conference of Romania on the issue, here is the place and time for a brief presentation of IL in the world. They have raised several versions of definitions of IL:

1. Adopted by the Wisconsin Association of Academic Librarians (WAAL), October 9, 1998 :
"*In a complex and rapidly changing environment, higher education must help students to become information literate. Information literacy enables students to recognize the value of information and use it to make informed choices in their personal, professional and academic lives. An information literate student effectively accesses, evaluates, organizes, synthesizes and applies information from a variety of sources and formats in a variety of contexts. Information literacy requires an ongoing involvement in learning and in evaluating information so that life long learning is possible"*

2. According to the *Association of College and Research Libraries (ACRL)- January 18, 2000*, "*the information literate individual is able to:*

- *Determine the extent of the information needed*
- *Access the needed information effectively and efficiently*
- *Evaluate information and its sources critically*
- *Incorporate selected information into one's knowledge base*
- *Use information effectively to accomplish a specific purpose*
- *Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally".[3]*

ACRL well defined: Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." [1]

Information Literacy „may be accomplished in part by *fluency* with *information technology*, in part by sound investigative methods, but most important, *through critical discernment and reasoning*. Information literacy initiates, sustains, and extends ***lifelong learning*** through abilities which may use technologies but are ultimately independent of them." (ACRL)

Information literacy forms the basis for lifelong learning.

3. Christine Susan Bruce in *White paper prepared for UNESCO* [12]: „As we enter the twenty-first century, three models of information literacy, and two sets of standards have assumed particular importance in the educational sector. These are:

- *Eisenberg and Berkowitz' Big6 information skills (Eisenberg and Berkowitz, 1990)*
- *Doyle's attributes of an information literate person (Doyle, 1992)*
- *Bruce's seven faces of information literacy (Bruce, 1997)*
- *The information literacy standards for student learning (ALA and AECT, 1998)*
- *The ALA information literacy competency standards for higher education (ALA, 2000)"*

4. Information Literacy working definition is that:
IL is the adoption of appropiate information behaviour to obtain, through whatever chanel or medium, information well fitted to the information needs, togheter with critical awareness of the importance of wise and ethical use of information in society.

5. Here we can delimit other forms of literacy:
- *traditionally, literacy* simply means the fundamental ability to read, write and calculate;
- *computer literacy* covers PC operation, Internet, Word processor... all focused on how to use the computer and computer tools;
- ***information literacy*** means computer literacy plus abilities to searching, finding and using the information, also critical thinking (see figure).

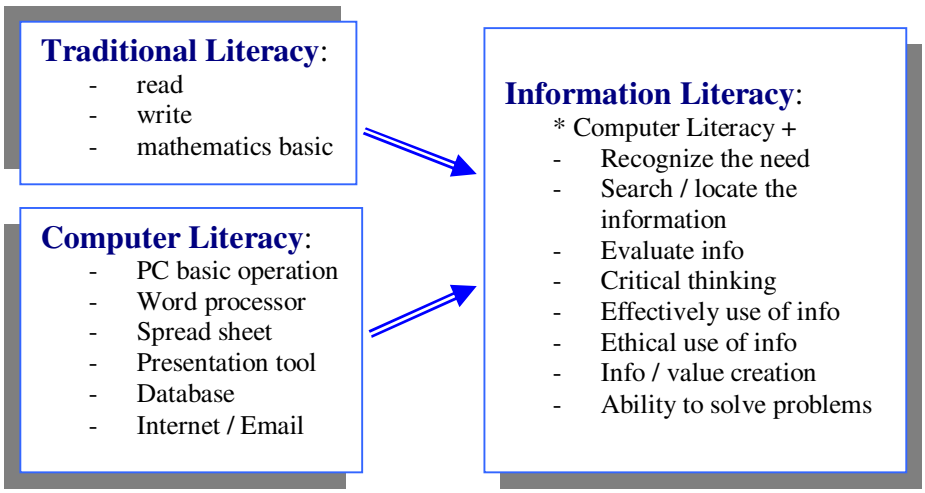

Fig. 5 Types of Literacy

Now, almost all people are traditional literate, many operate on the computers, but "computer literate" is not enough, and not many are "information literate". That's why we must ask for an education reform...

Asking for an Educational Reform

A Romanian pertinent voice: *„All around the globe, society has changed profoundly in recent decades (...), dealing steadily the last places in assessments that measure effective educational systems."* Romanian Academic Society (Societatea Academică Română)

The today School curriculum was conceived in the early part of the twentieth century, during the industrial period of the economic history.
„As America moves towards an information society, critical thinking skills, problem-solving skills, and competence in information literacy, in order to process information, become increasingly more important for all students. Information literacy needs to develop in the context of school reform, restructuring, assessment, and national goals. Currently, the professional curricular organizations of major subject areas are engaged in the process of redefining their national standards.(http://www.libraryinstruction.com) [7]

„As students prepare for the 21st century, traditional instruction in reading, writing, and mathematics needs to be coupled with practice in communication, critical thinking, and problem solving skills" (Costa, 1985).

Information literacy and **critical thinking** skills should be taught before the graduate level, but many graduate students have skills that are insufficient for the required level of the academic research.[2]

A current challenge for Libraries: *„The proliferation of information sources and educational technology have created a dysfunctional relationship between community college faculty and librarians that is based on an outdated teaching / learning paradigm*" (Tompkins, 1996).

The traditional librarians were viewed as merely custodians of printed information resources. Now, in *„the current Information Age however, librarians have become the primary instructors in community colleges to teach research methods and critical thinking skills as applied to information access*" (Academic Senate for California Community Colleges, 1996). As such, *„there is increasing support for community college librarians to be seen as key instructional team members and as partners with faculty*" (Tompkins, 1996; McHenry, Stewart & Wu, 1992).

„Especially as libraries are transformed into integrated library / high technology centers, resource-based learning and information literacy can be adopted as goals across academic disciplines." [8]

The Information Technology has now a major impact:
- in the past, in education, there was one primary information resource: the textbook;
- due to the explosion in the ***information technology*** and networked information, now the users are turning to web-based, electronic resources and services for information.

„Information technology is a tool for writing papers, communicating with colleagues worldwide, and exchanging experiments, ideas, and programs internationally. As community colleges are considering distance learning and adding new technologies to their curriculum, ensuring students' information literacy becomes vital. However, this shift may challenge existing campus dynamics." [8]

An interesting view over the new correlation between Education and I.L. is shown in the next graph: a typical hierarchy of education in the spectrum of literacy education expected, details which may differ from country to country.

Information literacy education may start in parallel with computer literacy education, providing that appropriate portions of computer education are given. At the other level, the content of corporate education and general public education may be different, depending on motivations and goals. (www.TechKnowLogia.org) [9]

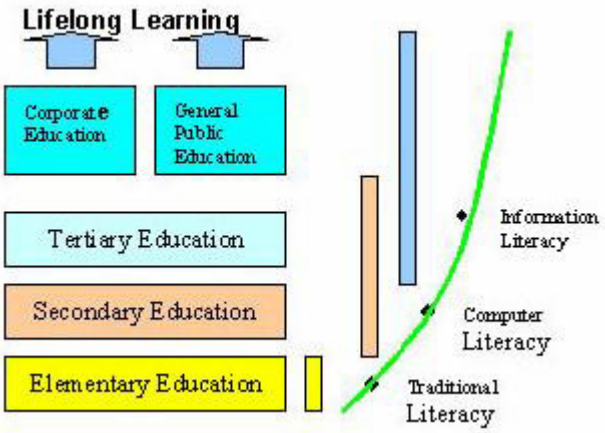

Fig. 6 Spectrum of Literacy Education (after www.TechKnowLogia.org)

Education is fundamentally information-based. Information Literacy services and instruction are essential components in the 21st Century, for every library.

Flashes of Debates in Libraries worldwide

The United States is leading the technological development and the generation of scientific information and research; here are some controversial debates, concerning the redeployment, re-thinking of the library place in society, re-location in the educational process.

In The New York Times, February 10, 2010, a new heading is: Room for Debate [10]:

1. „***Do School Libraries Need Books?*** by The Editors:
Keeping traditional school libraries up to date is costly, with the constant need to acquire new books and to find space to store them. Yet for all that trouble, students roam the stacks less and less because they find it so much more efficient to work online.
One school, Cushing Academy, made news last fall when it announced that ***it would give away most of its 20,000 books and transform its library into a digital center****!!!*
Do schools need to maintain traditional libraries? What are the educational consequences of having students read less on the printed page and more on the Web?"

2. „***Books in All Formats*** : Cushing Academy's decision to create a digital format for our library collection in no way signaled the end of books at Cushing. Rather, it reflected the way students learn and conduct research today, as well as our belief that traditional libraries must be reimagined to remain vital."
Suzanne E. Thorin, the dean of libraries at Syracuse University, reached a similar conclusion when she said at the 2009 Educause Conference, "…we need to move on to a new concept of what the academic library is." The last six months, with the explosion of e-readers and the rapid acceleration of digital technologies, have only validated for us that we are ahead of a curve that will affect every institution of learning.
A small collection of printed books no longer supports the type of research required by a 21st century curriculum. We wanted to create a library that reflected the reality of how students do research and fostered what they do, one that went beyond stacks and stacks of underutilized books.

3. Matthew G. Kirschenbaum is associate professor of English at the University of Maryland and director of the campus honors program in Digital Cultures and Creativity:

„Do schools need libraries and do students need books? Of course they do. There are the predictable brickbats: Not everything is digitized yet, nor soon will be. A screen is less conducive to deep concentration than the stillness of the page. Bits are brittle…

Books and libraries are working (or living) models of knowledge formation. We need them for the same reason we need models of atoms and airplanes. They are hands-on. They are immersive. Holding a book in our hands, we orient ourselves within a larger system."

4. 21st Century Librarians - Liz Gray, a former English teacher: „*Just because there's a lot of information online does not mean that students know how to find it, nor is the freely available information always the best information or the right information. One of my primary responsibilities as a librarian is to teach information literacy skills - defining research questions, selecting and evaluating sources, avoiding plagiarism, documenting sources - and in my experience this works best face to face with students.*
Libraries need to hold on to things that work well even as they keep up with new technologies.
That personal interaction is supported by the electronic availability of materials but is not replaced by it. Besides, no online collection can replace the unique collection of resources that I have built over a period of years to serve the specific needs of my students, faculty and curriculum.
My other responsibility as a school librarian is to encourage reading, which all the research shows is crucial to student success. Focused, engaged reading occurs with printed books, and far less with online material." [11]

The "bookless library" is becoming a reality... "This is the start of a new era."

What awaits us tomorrow?

E-revolution is just at the begining: the electronic information resources had been growing rapidly, in many formats: e-journals, more recently – blogs, twitter and now... e-books.

E-books could transform teaching and study. Collections are growing steadily, International Digital Publishing Forum reports: a 23 per cent increase in e-book revenues in 2005 compared to 2004 and a 20 per cent increase in e-book titles published year-on-year. E-book sales 166.7% growth so far in 2009.

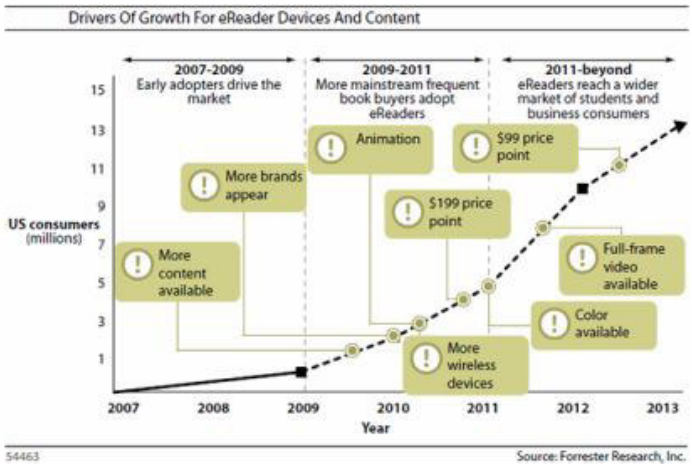

Fig. 7 Growth for eReaders

The local market of the „e-reader" is at their shy beginning, there has been created a new web-site „Librariadigitala.ro", where about 100 titles will be launched in May this year. Among the publishing houses interested, that will have books available, in electronic format, to the readers are: Polirom, Nemira, Litera and Trei, and the price of a book is half that of her classic format.

Mircea Cărtărescu, an important contemporary Romanian writer, appreciates the gadgets and is attracted to them, but: "*I like to rummage through my books in the library, to put them in collections or size, to align them, stick them with tape torn counterfoils...* "

Future reading is the electronic format!

Conclusions

Today the world is continuing to change, to pass towards the knowledge society and the library must follow its change: to further develop traditional book deposits, to optimize their local needs, but in parallel, to develop the new digital repositories. Modern user dispose of the new technologies of information, search for information to become easier, from anywhere, in any place in the world's repositories. The library provides local services – this is the traditional sense of a library, but it must add online services, too – the digital collections of a modern library. **So the library's role is changing here**.

The University Library from Sibiu has made a big step towards modernization, the new building has been organized and equipped with the most modern technology, we are focused on the users' demands. Further, we found in "*Information Literacy*" the basic principles for further development of the library. The services can be improved through *Information Literacy*, by organizing a training programme, for the library staff, teachers, students or readers: first, a course of IT instruction, then effective courses on IL, to become "*educated*".

"*In the next century, an "educated" graduate will no longer be defined as one who has absorbed a certain body of factual information, but as one who knows how to find, evaluate, and apply needed information*" (Breivik, 1998, p.2). Our ability to be information literate depends on our willingness to be lifelong learners as we are challenged to master new technologies that will forever alter the landscape of information.

Information Literacy is the Foundation for learning in our contemporary environment of continuous technological change.

Information Literacy Education is the catalyst required to transform the Information Society of today into the Learning Society of tomorrow. [12]

Learners who are able to do this will have lifelong skills they will need in the Information Age.[5]

Information and technology literacy is clearly the "basic skills set of the 21st century".

Acknowledgements
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[10] James Tracy, headmaster, Cushing Academy; Matthew G. Kirschenbaum, English professor, University of Maryland ; Liz Gray, library director, Dana Hall School ; Nicholas Carr, author, "The Big Switch" ; William Powers, author, "Hamlet's BlackBerry" - *Do School Libraries Need Books?* by The Editors, Room for Debate in The New York Times, February 10, 2010

[11] Liz Gray, a former English teacher, is the library director at *Dana Hall School*, a girls' school in Wellesley, Mass. She is the president of the board of the Association of Independent School Librarians

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[13] http://ebooks.unibuc.ro/filologie/utilizatorii/1.htm - Octavia-Luciana Porumbeanu - Utilizatorii si intermediarii de informatii si documente in epoca contemporana.

The Virtual Library, a necessity for Academic Area

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Abstract

Most of the traditional libraries are isolated from the information system worldwide. This paper presents the virtual library and maintains that it will improve the quality of education in the academic area. Case Study: The Library of Petroleum-Gas University of Ploieşti.

The management of the library services is a component of the management science which studies the management of library techniques, the management processes and relationships in libraries, in order to obtain and provide information services required by clients. The identification and assessment of the organizational culture of a library is essential to improve the quality of the services offered, especially in the present, when these structures cross a deep crisis, due mainly to the lack of financial resources [1]

A characteristic of modern libraries is the increasing complexity of the services offered to users due to the integrating effect. The information technology has the merit of making possible the creation of a fabric of the services based on the final ”product”, useful largely to the applicant. [2].

Virtual Library vs. Library with”covers”

University libraries have purchased many books, totaling a weight that cannot be supported by the rooms in which they are stored.

The creation of virtual libraries instead of the usual ones becomes convenient both from the natural need to adapt to the modern, computerized conditions of the XXIst century, and from the need to reduce the physical weight borne by the rooms in which classical books are stored.

A traditional library provides its readers catalogs (alphabetical, systematic) through which they have access to the existing collections (books, periodicals, analytical articles, audio tapes, disks, compact disks, etc.).

In some cases, the nonexistence or the impossibility of maintenance of the catalogs is solved with the free access to shelves.

The disadvantages of the free access to the shelves instead of consulting the catalogs are multiple: a title borrowed seems nonexistent, the only method of information retrieval is the order in shelf, additional security measures, etc.

The computerized method provides to its reader electronic catalogs. Using the computer, the reader can find a title using one of the following information: the name of the author, the proper title, the publisher, the publication date, the subject matter etc. Basically, we can say that he has more traditional catalogs available ordered by: author (star), title, publisher, publication date, subject, keywords and many more. A book whose description was inserted into the computer automatically appears (without additional effort from the librarian) in all the catalogs, on the correct position.

Using the electronic catalogs, an information is obtained very quickly (in two-three seconds). The walks from one drawer to another or from one shelf to another are replaced by pressing a key. Within minutes information can be retrieved which otherwise would have required entire days of searching or to found it would be impossible.

The main advantages of a virtual library are:

- The space – instead of the large rooms that are occupied by a classical library, the virtual one occupies only an electronic space;
- The location - as long as there is an internet connection, people worldwide can access information, without traveling to certain arranged areas with a precise destination;
- The access - the same paper can be accessed at the same time by a large number of readers;
- The working hours - nonstop access at any time;
- The conservation – there are identical copies available of the works, without deteriorations;
- The access to information - is done with digital support, with interfaces easy to use

A possible disadvantage might be the cost, especially in terms of the current economic and financial crisis. In general, the maintenance costs of a virtual library should be lower than those of a traditional library. A traditional library consumes large amounts of money on the staff, the maintenance of property, the additional publications etc., although virtual libraries don not have such costs, it was found that they may have similar high costs in their way of functioning. Their costs result mainly from the transposition in the electronic format of the classic formats, the courses that the employees must follow in order to maintain the assets and the maintenance costs of the online access. Also, the information from such a library must, once every few years, be moved on the latest support of information available, in accordance with the technological evolution. This process may involve substantial costs in technology and qualified personnel.

However, due to the difficulties encountered by publishers in the promotion of production of books or in the process of selling itself, the difficulties in which broadcasters, bookstores, libraries, book readers pass in determining the selection of the desired titles are well known, the virtual library represents a worthy alternative to consider. The purchase of books is becoming smaller, but the internet access is increasingly extended.

The virtual library can provide access to every citizen in exchange for payment or freely to electronic books and information on the products which the national and foreign companies want to publicize in this way. Working with libraries, publishers and associations interested in promoting the concept of eBook ensures the continuous improvement and diversification of the digital library supply.

The current stage of implementation of the concept of virtual library in the Romanian academic area

Increasingly more prominent lately, a specific, modern type, of culture of the independent academic learning is promoted becoming not only a component, but also a standard of quality of processes, products, satisfaction, efficiency, effectiveness and competitiveness of the university.

The electronic storage of information in existing manuals follows their structure, being configured according to: chapters / lessons with title, description, contents, graphic presentations, bibliography, and links to subjects related to the addressed matter, self-assessment tests at the end of chapter / lesson or overall tests. The materials in the library are open a web browser window being created in hyper-text format.

In October 2004, at the Frankfurt Book Fair, one of the most powerful search engines has introduced the concept of *book search online*. In essence, the service enables the Internet user to

access a database created based on and from the best-known libraries worldwide. For publications protected by intellectual property rights, the search engine automatically limits the number of pages viewable by the user, as well as the possibility to download these volumes. But, for the works considered as a part of the public domain or other publications which are not governed by the laws of copyright, there is the possibility to access their downloadable form.

The virtual library is that library where the digital formats of the works are stored (unlike traditional libraries, microfilms or other supports) that can be accessed with the use of computers.

One of the best examples is the virtual library of AES Bucharest. The site interface which makes access to the library is very easy to use, accessible also for persons less versed in Informatics.

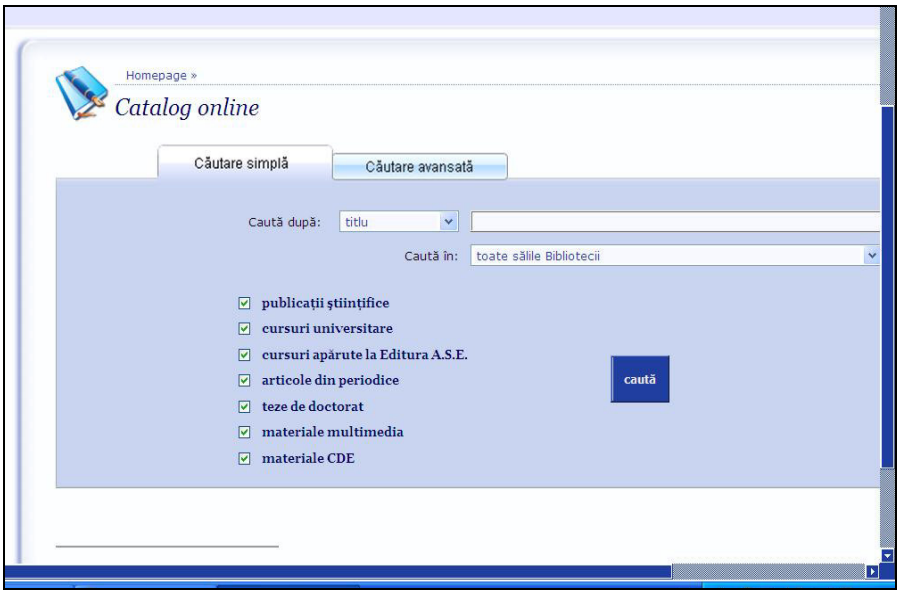

Fig. 1 Online catalog interface

The collection of courses that the Academy of Economic Studies makes it available to its users includes over 450 titles of university books written by the teachers of AES.

Users have the possibility to consult freely the online full-text versions of books, to download the chapters of the manual of interest. Chapters are blocked from printing and copying. The access is granted by the insertion of the author or the title of the manual in the search bar. [3]

Here are other examples of putting into practice the concept of virtual library in universities and research institutes in our country:

- The library of the Faculty of Automation and Computers of ”Gh Asachi” Technical University of Iasi publishes works, lectures, papers of the members of the academic body for the following areas: Artificial intelligence, Complex dynamic systems, Machine learning, Neural networks.
- The library of ”Gheorghe Baritiu” Institute of History offers free access to the current works in .pdf or .html formats and of high academic level of the researchers of the Institute. The themes explored refer in preference to the history of Transylvania, but also deals with issues of pedagogy, philosophy, popular culture, etc.
- University of Bucharest - Virtual Library. The site provides full text of books and lectures published by the University of Bucharest as well as references to web resources organized thematically and succinct summarized.

- The library of the Romanian Academy has available online digital facsimiles of the manuscripts of Mihai Eminescu and a fund of manuscripts and plans of the aircraft of Traian Vuia. The access to the digital images of Eminescu's manuscripts is made starting from the description in the catalog of each manuscript.
- AES, Central Library. E-Resources: Romanian Economic Papers, older, in .pdf format. Also contains biographical presentations made by the authors.
- The virtual library of the Faculty of International Economic Relations – Works in Romanian and English, in various formats (.html, .ppt, .pdf), which addresses issues relating to financial relationships, financial market, financial management.
- The Faculty of European Studies in Cluj - Online lectures section of the IDD section. The themes are related to the history of Europe, the European unification, European programs, but also deals with topics such as communication, capital markets, public finance, cultural anthropology, international law, Italian, English, etc.

Fig. 2 – EBooks interface of the University of Bucharest

Case Study – The Central Library of Petroleum-Gas University of Ploiesti

The Library of the Petroleum-Gas University of Ploiesti was founded in 1948 along with the advent of the Oil, Gas and Geology Institute in Bucharest. The Library works from the year 1967 in Ploiesti, where it have been moved along with the first faculty transferred from Bucharest.

The library collections have an encyclopedic structure determined by the evolution of the University. In this way, there are insured possibilities of documentation and information for all specializations. The fund shall consist of 360,000 u.b. which represent about 70,000 titles.

The library provides for consultation manuals, treaties, guidances, specialized magazines, reference works, standards, patents etc. the computerization of the library began in 1995 using the CDS / ISIS program.

Since 2001 the library has a computer network having as software support, the integrated library program ALICE. The currently accessible database was performed, in part, by converting the data from the previous program. [4]

Services offered:

- Consultation of publications at home or in reading rooms;
- Bibliographic information;
- Interlibrary loan;
- Access to databases (OPAC).

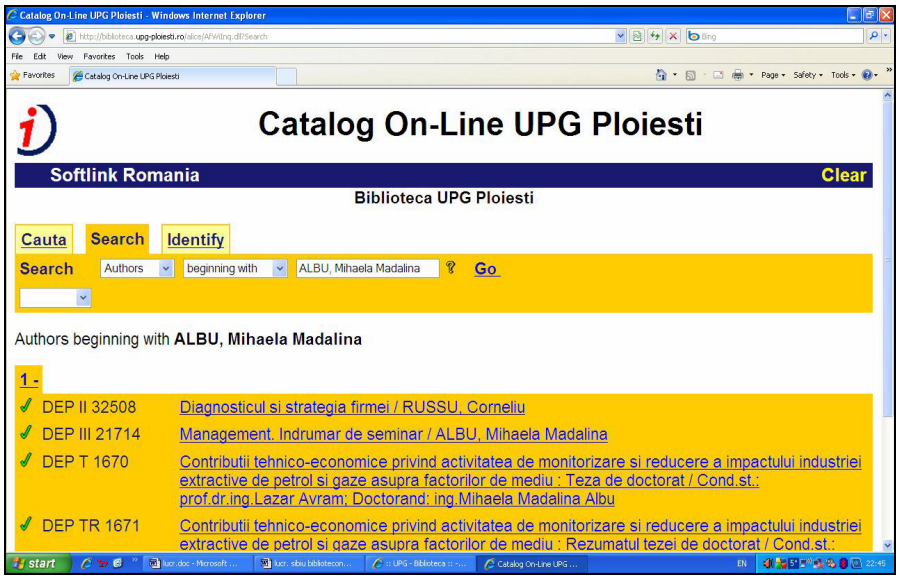

Fig. 3 – PGU library interface for access to online catalog

In the Petroleum-Gas University of Ploiesti a pilot center in order to create pedagogical resources for distance learning has been created.

A number of online courses can be found under the platform PLEI@D5 which is on the site http://pleiad.upg-ploiesti.ro.

Fig. 4 - PGU library interface for access to online courses

Through collaboration with all the authors who are teachers at the Petroleum-Gas University of Ploiesti, it is hoped in a short time to create a database much richer. This should include, first, the support for course for all the disciplines in the educational plans of the faculties of the university.

Also, working with libraries of other universities, should lead to the enrichment of the electronic fund of documents.

Clearly, the most important qualitative leap for the library of PGU Ploiesti will be the connection, the join up to the national network of computerized libraries.

Conclusions

The operating principle of the virtual library fully simulates the operation of a traditional library. The book offer is available; users can see and access it. The difference is given by the method of communication.

The key benefit is overcoming regional barriers. A title entered by a publisher, bookseller, famous in the Virtual Library is visible anywhere in the country (or world). Based on the information found in the Virtual Library the beneficiary may purchase either âin exchange for money or freely the title or titles that he wants. Users can access the information directly from home, standing in front of the computer and browsing, and a simple click can bring the desired material directly to the beneficiary.

All the matters presented in this work, come to emphasize the opportunity to develop the concept of Virtual Library in Petroleum-Gas University of Ploiesti also.

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Creating resources for the local digital bibliography

Dr. Corina APOSTOLEANU
"Ioan N. Roman" Constanța County Library

Abstract

In the last years, the public libraries are more and more attached their traditional structure should go through changes in order to support their integration into the information society environment.
The emergence of the electronic documents, "in competition" with the traditional ones attracted the library in technological areas formerly at a large distance from the librarianship domain, and created the necessity for the libraries and librarians to be adapted to them.
The librarians–information sciences professionals- have also the role to "empower" users in retriving information in a new environment the users are supposed to consider friendly.
At their turn, users can learn the stages of these new research methods and can be orientated themselves for other future information necessities. The term of *user* implies participation into the information literacy process.
By transforming a traditional document into a digital one, library supports both a necessary preservation process and a more democratic access to information.
Digital resources mean an increasing number of up-to-date services for library users.
Constanța County Library owns an important number of old Dobrujan periodicals, both on paper and microfilm support (almost 700 titles), most of them very damaged. Though, the paper samples were reconditioned, their usual manipulation means continuous danger. The same process of degradation is to be noticed for the microfilms, about 40 years older and some of them in a very bad condition. In order to offer better opportunities to study them for users, the digitization process is more than necessary.
There would be visible advantages both for user and library, if they are changed into digital documents.
Users information literacy can be also served by learning how to deal with new technologies in the library and not only.

A. Information technology era challenges

Public libraries have had public relations and readers from the beginning of their existence, even if their access was very restrictive in order to preserve unique or rare collections. Under these circumstances only the librarian could deal with documents and information.

But, in time, readers have been more and more involved in "exploring' libraries book stocks, being these days in a "co-worker"relationship with the information science specialists, in searching for information.

As everybody knows, the public library is an open system with a continuous feed-back which needs permanently to be very dynamic, to renew its working methods, to accept and use very up-to-date technologies. That's the reason for it goes through changes in order to support its integration into the information society environment.

Thus, the librarian in a public library has to cope with this new "challenge", being himself/herself a very well trained person who is able to guide users in reaching information. A democratic access to information can be offered by public libraries, nowadays, using the most recent information technologies.

The term *user* implies participation into the information literacy process.

By transforming a traditional document into a digital one, library supports both a necessary preservation process and a wider access to information.

Digital resources mean an increasing number of up-to-date services for library users.

Users' information literacy can be also served by learning how to deal with new technologies in the library and not only.

A high-quality information network assures an increased reliability by the access to more equipments for alternative storage, reduced costs by splitting data and the peripherics, a better function of the library services in an automated environment, a better access to the Internet services offered to the library.

The public library it is supposed to provide a wide range of materials in a variety of formats and in sufficient quantity in order to meet the interests and needs of the community. In the same time, the culture, social life and historical development should be reflected in the collection. Public libraries must use new formats and methods of accessing information. Under these circumstances, the development of local resources is vital. Collections complement library services, as it is already known. The specified primary purpose of the collections is conservation and preservation of these sources/resources for the next generations, they have also a dispensing role and a bibliographic importance.

Nowadays it is considered that large collections are not synonymous with good collections, particularly in the new digital environment. The relevance of the answer to the local community needs is more important than the size of the collection itself.

B. Possible standards for public libraries

The development of standards for the provision of electronic information facilities

facilities is at the beginning. Some current standards include the following:

- one computer access point per 5000 population has been used in Canada, for example ;
- a recently developed standard in England recommends that the total number of workstations, including those for online catalogues, that are available for public use, should not be less than 6 per 10 000 population ;
- in Queensland, Australia it is recommended that the following be provided:
  - for populations up to 50 000 – one PC per 5000 population ;
  - for populations over 50 000 – one PC per 5000 population for 50 000 population and one PC per each additional population ;

These standards recommend that at least half the public PCs should have access to the Internet and all should have access to a printer.

C. Constanța County Library old periodicals patrimony

Constanța County Library owns an important number of old Dobrujan periodicals, both on paper and microfilm support (almost 700 titles), most of them very damaged. Though, the paper samples were reconditioned, their usual manipulation means continuous danger. The same process of

degradation is to be noticed for the microfilms, about 40 years older and some of them in a very bad condition. In order to offer better opportunities to study them for users, the digitization process is more than necessary. Unfortunately, the most important institution preserving documents from the most important city in Dobruja, in the region informational knot-Constanța County Library-the access to serials is very restrictive. And not by any condition imposed by librarians, but by the periodicals situation. More than 400 titles of newspapers, magazines published in Dobruja between 1878-1946 have been put on microfilms in the 60's, after the originals existing in the collections of the Romanian Academy Library. Together, all these microfilms reach the impressive length of 4 km. Now, Constanța County Library has only one microfilms reader machine, *Documator,* made in The Democratic Republic of Germany, out of date from all points of view.

Dobruja had a very uneasy past, passing along the centuries under the sovereignity of the Ottoman Empire and coming back to Romania definitively in 1878. Because of this agitated history, the Dobrujan archives have been lost or are scattered in other countries, and the written historical sources, the documents about this territory are few. That's why the monograph works and serials after 1878 and up to the end of World War II are inestimable and their importance for a fair reconstitution of the past and understanding present is very great.

Researchers, historians, journalists, students ask frequently for these collections, being interested in information and documents dealing with the historical evolution of Dobruja. All these requests imply consulting the original documents, in time meaning damaged journals and magazines, in the spite of the the reconditioning stages they have passed through.

This type of service offered to users is inappropriate for at least two important reasons : no more than an user can consult a document in the same time and seeing the microfilm becomes a difficult opperation.

As the request for studying these microfilms is very great, the librarian working with microfilms plans every week users schedule to organize the access to the documents. On the other side, the request for printing of some pages of the documents on microfilms can not be answered as the machine allows only reading. Although, all the historical, ethnography, folklore, philosophy, sociology and anthropology works concerning Dobruja could be written and develop ideas based on the microfilm documents collection and of the old reading machine. Many graduation, master or PhD papers of the students in the three universities in Constanța have been achieved after dozens and hundreds of hours reading microfilms .

Anyway, an essential source of exploring the local community past is poorly used because of the modern high standard equipments lack.

There are visible advantages both for user and library, if these microfilms are transformed into digital documents.

Under these circumstances, the only possible action to be taken is the modernization of the access to this type of this very valuable information.

D. A digitization programme

The digitization programme should take into consideration the following :

- Meeting the community information needs
- Diversification of the information offer
- Quality of the information products

Generally, from the point of view of the library, we must admit the users satisfaction to be very important.

The digitization process implies a tight cooperation among the following departments :

- Periodicals (Journals and magazines) collection
- Special collections –for microfilms
- Preservation
- Automation
- Local bibliography-where the information from old Dobrujan periodicals is processed and the specific bibliographic records are offered to the public

Working stages:

- establish the scanning high priorities, taking into consideration : the age and importance of the documents, the users information requests, the documents degradation ;

- prepare the documents to be scanned : for the periodicals on paper –to be dust off, unbind, reconditioned as much as possible the damaged pages ; for the microfilms : the identification of the slides (the titles of the articles or another element of identification) and marking them ;

- the proper scanning process page by page or slide by slide ;

- saving and storing the images on electronic media ;

OCR image processing and their transformation in full-text, collate and correction of the text, where it is necessary ;

- create bibliographic records based on ISBD rules.

These bibliographic records are to be used by the module of the local bibliography, creating internal indexes in the databases in order to answer the requests based on : title, subjects and different types of indexes : geographical, Dobrujan personalities, institutions.

Other fields include information about : the place of the publication on the shelf ; the indexing XML file attached to that record.

When all the operations are ready, the periodicals on paper are bound in the initial shape and stored in order to be preserved for a long period in special conditions of humidity, temperature and humidity.

The microfilms are stored in special small boxes, being saved from the environment factors : (humidity, excessive heat etc).

Taking into consideration the team includes persons working for preservation department, librarians, bibliographers, automation department representatives, each person takes into consideration special operations needed.

The final product of the project-the bibliographic records, image, full text are put at users' disposal by integrating these information into the Dobrujan information system. The full-text is accessible to users on a dedicated computer situated in the special collections lecture room. We mention that in the situation of the bibliographic activity, the information coming from the periodicals on microfilm are described identically with those on the paper support.

E. Impact

- **Immediate**

Practically free and not limited access to the information of all the users (local and at distance) by integrating information on the library web page (the *online* catalogue),

- diminish the searching time of some information inside type of documents
- diminish user's dependence on librarian
- integral usage (under the circumstance the microfilms are read, some of the users are tempted to give up consulting them), an increased number of users of the documents and implicit of the library.
- a democratic access to information

- **Long time**
- preservation of documents on paper and microfilm in proper conditions ;
- delay the degradation process by handling documents frequently ;
- increased level of appreciation for library's services ;
- an integrated database

F. Examples

A number of old Dobrujan periodicals are already accessible on the web page of the library. Among them, we mention : "Astra" (1935), "Aurora Dobrogei" (1932-1937) ; "Farul"(1933) ; "Farul Constanței" (1883-1885) ; „Gazeta de Constanța" (1928) ; „Ovidiu"-the first literature magazine (1898-1910) ; „Litoralul" (1939-1943) ; „Graiul Dobrogei" (1935-1936) ; „Geana mării" (1933).

Other titles are to be processed very soon and will be accesible to the public.

G. Conclusions

1. The digital documents need specific technologies for preservation ;
2. The dispensing role of the collections is dramatically changed as *:* local storage is no longer a necessary condition for the access to information as all categories of users can see them on the web page, for example. Actually the user needs not know where the disk-drives are physically located, or if he/she has access to information on Internet. Material will not need to be stored locally, will not be out on loan (because it is copied rather than lent), and will be available wherever the user's workstation is located. So, the decisions about what to store locally will depend on technology and economic factors ;
3. Bibliographic role: the bibliographic records are to be linked with the full text and that is a very important aspect for library users. That means a lot of advantages in the same time : on-line bibliographies and catalogues and immediate access to all of the texts for searching, browsing, scanning, and reading ;
4. Symbolic role*:* the access to a large collection on paper is replaced with the access to digital documents, so the traditional way of understanding a library is changed fundamentally.

Organizational culture between national culture and information society

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Abstract

Organization culture represents the personality of an organization. The culture of the organization is a set of postulates concerning the collective action, admitted and expressed through symbols that have a value which the members of the company believe in, accept and respect.

The organization culture requires a major attention, fact justified by its functions and importance in the contemporary company. First, we have to mention that the modern company is mainly based on human resources, on employees, and secondly, on capital and equipments.

The nature of competition has changed in time. The statistical competition, when the success or the failure were determined by the endowment with factors of production, has become a dynamic competition whose main factors are the technological progress, the new openings of the markets and the modern methods of management.

Many researchers have defined the term of organization culture, trying to illustrate its true nature. We are going to underline some representative definitions.

- R.Griffin[1] considers culture to be a set of values, belonging to an organization, which helps its members to understand their aim, the way of action and what is important for them.
- Stanley Davis[2] considers the organization culture an assembly of values and beliefs shared by the staff of an organization having certain meanings, and which offer them rules for an accepted behavior.
- Gary Johns[3] considers that, formally, the organization culture consists in beliefs, values and hypothesis shared within an organization.
- Geert Hofstede defines culture as "the mental collective programming that distinguishes the members of an organization of the members of another organization."[4]

Hofstede considers that there are three levels of the mental programming: the universal level, the collective level and the individual level. The collective level lays on the basis of the mental programming.

In an effort to understand the forms and consequences of organizational culture, researchers have explored how various internal processes, such as individual and organizational selection and

[1]Griffin, R., *Management,* Houston Miflin Co, 1990, p.20.
[2] Davis, S., *Managing Corporate Culture*, Harper & Row Publishers, 1984, p.38
[3] Johns, G., *Comportament organizational*, Editura Economica, Bucuresti, 1998.
[4] Hofstede, G., *Managementul structurilor multiculturale*, Editura Economica, Bucuresti, 1996.

socialization (Harrison and Carroll, 1991) and characteristics of powerful members-such as an organization's founder (e.g., Schein, 1985) or groups of members (e.g., Schneider 1987)-influence the content and intensity of and the consensus that exists about organizational values. It appears that researchers have generally adopted the assumption that organizations develop a culture of their own that is distinct from the national and industry contexts in which the organization is embedded, thus ignoring the potential impact of external environmental factors on organizational culture. Despite concern with achieving improved business productivity through focusing on the development of a cohesive organizational culture, the literature to date is characterized by this narrow, internal focus, rather than looking to the external, cultural context within which organizations exist. This appears to be an unfortunate development, insofar as cultural elements appear most easily understood in contrast to the contexts against which they appear.

In addition to internal factors, features present in the external environment in which the organization operates are likely to affect the suitability of an organization's culture. Specifically, national culture and industry characteristics are likely to determine which organizational values lead to superior business outcomes. In other words, the parameters of the relationships between specific organizational values and outcomes will logically differ for firms in vastly different national cultures and in industries using vastly different technologies.

The resulting shared values, preferences, and behaviors of population groups differ widely between countries. That is frequently also the case between different subgroups within a country, so keep in mind that the term "national culture" can be misleading. It may only be referring to part of the people in a given country.

The benefit of cultivating a pronounced organizational culture is that it helps establish common values and align behaviors among employees. Many multinational companies use employee hand-books, corporate ethics guidelines, written value definitions, and other tools for their employees world-wide in order to drive this kind of alignment.

One may ask to what extent organizational cultures are based on national cultures. Available research results in this field are insufficient for a conclusive answer. However, a few published results, combined with anecdotal evidence, suggest that while there is a strong correlation, organizational cultures are also shaped by many other influences. Sometimes, organizational cultures have been nurtured over such a long time that they seem to have acquired a life of their own, regardless of the person at the top; IBM comes to mind in this category.

In her book International Dimensions of Organizational Behavior, McGill professor Nancy Adler asks whether organizational culture does "erase or at least diminish national culture". Her surprising conclusion is that there actually is more evidence to the contrary. Adler cites researcher André Laurent's finding that cultural differences were "significantly greater among managers working within the same multinational corporation than they were among managers working for companies in their own native country. When working for multinational companies, Germans seemingly became more German, Americans more American, Swedes more Swedish, and so on".

The reasons are not well-understood, but it appears that employees may be resisting a company's corporate culture if it is counter to the beliefs of their own national one.

Adler's observations support the conclusion that national culture outweighs organizational culture.

Companies strongly nurturing the trend may be able to maintain a fairly homogenous culture across their foreign locations. However, from my experience such companies are giving up several of the benefits of cross-cultural diversity. On top of that, they risk becoming estranged from national cultures with possible consequences to local relationships.

“Information technology (IT) has become the generally accepted umbrella term for a rapidly expanding range of equipment, applications, services, and basic technologies that process information”.[8] These elements of IT fall into three principal categories: computers, telecommunications, and multimedia data (Keen, 1995). Across an organization, thousands of these building blocks can be combined in many ways to create the total IT resource. If one asks how IT might be successfully applied to enhance performance and increase productivity, a long list that embodies many aspects of the organization begins to develop. These aspects include an organization's human relationships, policies, strategies, controls, and internal/external organizational relationships. One common thread that has been shown to greatly affect each of these organizational aspects is the widely shared and strongly held values that underlie and define an organization's culture.

Organizations successfully implementing IT systems seem to value the free flow of information between individuals and groups more than less-successful ones do. Creating information flows throughout the organization that minimize contradictory interpretations of information retrieved from others is paramount. Peters and Waterman (1982) define it as the basic control mechanism in excellent companies. It is not a chain-of-command control system wherein nothing happens until the boss decrees action. General objectives and values are set forth and information is shared so completely throughout the organization that people know quickly whether or not the job is being performed efficiently, effectively, and accurately.

It is important to focus not only on existing cultural attributes that promote successful implementation but also to identify cultural attributes that would slow or halt success. This is evident from the number of moderately negative-correlated cultural attributes that contribute to the best-fit data. For example:

* Rigid rules may govern how employees and groups within the company think about information.

* If information threatens established lines of authority (compliance) or financial resources, it will not be shared easily.

* An organization that is overly careful and predictable would be less likely to indulge in experimenting with new IT initiatives, particularly if that technology might encourage change.

* Organizations with these cultural attributes seem to have a more difficult time changing people-oriented programs such as training, incentive, and supplier/customer relations systems to the degree that might be required in an IT implementation

Companies should also consider the relationships between the IT initiative and the way it will interact with the existing organizational culture. By looking at this relationship as the organization's information culture, a company can measure and examine those people-sensitive attributes that seem particularly important to success. IT implementations can be leveraged utilizing those attributes that are already strong, and business plans can be developed to strengthen weak attributes.

In essence, an organization's culture should be ideally balanced with both people and productivity components. However, the organization culture must adequately address appropriate human behavioral elements to successfully implement IT systems. One should identify the attributes of the existing culture and then begin the process to lessen or remove those cultural attributes that prevent or slow successful IT implementation, while establishing organizational cultural attributes that support successful IT implementation.

The organization culture has a considerable impact on the function and performance of the company, and facilitates the preventing of the illicit organization demeanour.

The high influence of the organization culture on the organization performance leads to a new way of conceiving the organization and of acting inside and outside the organization environment.

In a world where the environment is continuously changing, culture helps the company to evolve or, on the contrary, as shows the detailed plans from below.

Training – the increasing of productivity. Man has become the main resource of the modern company. Thus, the investments for ensuring the staff's involvement in the formation and training programs lead to the staff training and to the increase of productivity. The web type culture, specific to the companies from research-development field and to the ones with creative activities, and also person type culture, that offers specialized services, are cultures, oriented towards results, being aware of the importance of the specialists' contribution to achieving the assumed objectives.

Making each employee responsible. It supposes the practice of investing with commitments, staff's responsibility, the creating of identity feeling, the harmonization of the individual interest with the general one of the company. The setting up of half independent teams, the intensification of the dialogue between groups, harmonizing the work relationships and the development of the employer-trade union partnership, the consolidation of teams and solving the conflicts have as a result the increase of work efficiency at the individual level, and in the same time, the achievement of the objectives at the organization level.

Assuring an open-close system. The companies are open systems in the sense of intensive reciprocal exchanges with external environment and, in the same time, of achieving the competition with companies from similar fields, which creates an organization environment favorable to new employees' rapid integration. In close type systems, the competition takes place at the internal organization level, the new employees' integration is rather difficult, and this affects the results of the company.

Respecting the ethics in business. Ethics presents a real interest due to its implications. The practice of the management according to the ethical norms requires the achieving of a balance between the financial and social interests of the company. The values of the company and also the respect for clients, employees, loyalty for business partners are defining elements of the managerial ethics.

Capitalization of the innovative potential of the company. The innovation is a major factor of competitiveness and economic development, within the company. Shortening the durability of products and the globalization of the economic life determine the increase of the research-development activity in companies.

Creating a positive image of the company. A favorable image of the company, created by a legal, real, fair advertising, by a process sustained by public relations, by products and services quality, represents an essential element of a competitive company. In the field of products and services quality are compulsory: implanting an organization culture oriented towards the client, making a market–report concerning client expectations and satisfaction, development of a commercial system quality.

Making the company responsible in the social field. The accomplishment of the requirements specific to the labor protection, to cultural–artistic activities, to organizing holidays, to assurances and donations leads to the improvement of staff's work-living conditions and to a positive motivation and concentration on work.

The most relevant reasons that justify the rise of theoreticians and managers' interest in the study of the organization culture, would be the following:

1) *Studying the organization culture is a modality of evaluating the staff* without using highly sophisticated psychological or social models. Organization culture allows the examination of the human behavior, its joint and motivation by describing symbols, values and ideas within the organization;

2) *Organization culture is more and more accepted by the managers as a developing instrument of management*, because it holds the realities of the company which although difficult to describe are relevant for its competitive function. In order to help the organization to reach a high degree of performance in time, the organization culture must have three fundamental conditions:
   - to be powerful through a coherent and rigorous values system, shared and unanimously agreed not only by the leaders but also by the employees of the company;
   - to be strategically adequate;
   - to be adaptable;

The organization culture is an essential aspect absent in the Romanian organizations, although there are many exceptions. Of course, this state of facts is determined by the important objective factors. The first aspect is the size of company, the issue of organization culture being discussed especially for big companies. But there are still foreign small companies (less than 50 employees) which initiate and impose a certain organization culture, from the very beginning.

In fact this is a mentality issue. A foreign company has initially a specific vision about business administration, a vision created in an advanced economic environment different from the Romanian one. Companies are really meant to succeed due to this vision, to people's selection and to assumed values.

In Romania there are two types of organization cultures: bureaucratic and entrepreneurial culture.

The bureaucratic culture is specific to national enterprises, educational and health institutions which belong to the government, military institutions. This type of culture is daring, oriented inside the system, and extremely politicized. An adaptation of this culture to the environment is difficult because there is not any strategic thinking or any knowledge of the issues concerning the competitive management. Within these organizations hostile relationships take place between employees and managers and the work results aren't seen as important. The entrepreneurial culture appears within private companies, highly adaptable to the environment, with a great opening towards new values and strategies, and leads to positive results. Employees receive values, norms meant to create a relaxed, professional environment: respect for client, for employees and community, creativity, involvement, courage and fidelity towards organization.

Conclusion

In order to conclude, we may say that within the most Romanian companies, organization culture has to go through a change to fulfill a progressive role, eliminating in this way the employees' resistance to change. This is how, something difficult to count and measure, almost invisible, but real and concrete in the same time, such as business mentality, makes the difference between a successful and an unsuccessful company.

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Information Literacy and the New Media - Measuring Impact

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Abstract

A library derives its individuality from the types of materials is designed to collect. We have art libraries, audiovisual libraries, map libraries and similar collections specializing in audiovisual materials. Progress made in communication technology meant changes in the physical media of communications stored by libraries. Each development in the mass media has led to a new type of library: film libraries, newspaper libraries, television libraries and audiovisual librarianship. This paper aims to study what impact the new media have on the library and information literacy development. Also, we consider different types of literacies, like information literacy, cultural literacy, media literacy or new media literacy.
Because literacy cannot be considered separately from the social and institutional structures in which it is situated, we try to discover the social involvement of individuals, necessary for promoting particular forms of literacy. Modern libraries are being redefined as places to get unrestricted access to information in many formats and from many sources. They are extending beyond the walls of a building, because they store material accessible by electronic means, and they provide the assistance of librarians in accessing large amounts of information with a variety of digital tools.

Each development in the mass media has led to a new type of library. Each change in the design and shape of these media has challenged the library to rethink its design. As each mass medium became popular it was seen as a threat to the normative book library. But the library adapted its design to the needs of readers and its structure to the developing new media.

Trying to describe the new media, we can refer to their characteristics. 'The media usually refers to 'communication media' and the institution and organisations in which people work... and the cultural and material products of those institutions….We investigate the wider process through which information and representation the content of the media is distributed, received and consumed by its various audiences …In this sense, 'the media' is understood as a fully social institution, while the 'new media', on the other hand, immediately suggests something far less settled, known and identified.'[1]

The new media have some special particularities: digital, interactive, and virtual. We can also speak about hypertext and cyberspace regarding the new media.

They are digital because all their physical data are converted into numbers, into abstract symbols. The input data can be subject to the mathematical processes of addition, subtraction, multiplication and division through algorithms. The principal consequences of digitalisation are that media texts are 'dematerialised', meaning that they are 'separated from their physical form as photographic print, book etc; data can be compressed into very small spaces and it can be accessed at very high speeds and in non-linear ways; in can be manipulated more easily than in analogue forms'.

The information is in a permanent flux, any net user can interact with it editing, saving and sending them, (the signature of the author disappears) so the new media are interactive. As opposite to the 'old' media, who are characterised by an audience that receives the message sent by some medium,

with the new media we can speak about a 'user' rather that the 'viewer' of visual culture, film and TV or a 'reader' of newspapers. 'In an interactive multimedia text there is a sense in which it is necessary for the user actively to intervene … in order to produce meaning'(M. Lister *et.al.*, 2005)

The concept of virtual regarding the new media refers to virtual reality, meaning 'simulation', something that is not really real. Virtual reality becomes simulated reality, a world that we access that is not real, but a prolongation of technologies.

Hypertext (*hype,* gr. = above, beyond, outside) describes a text which provides a network of links to other texts that are beyond itself. 'The conventional means of footnoting, indexing, and providing glossaries and bibliographies – in other words the navigational apparatus of the book – can be seen as antecedents of hypertexts, again guiding the reader beyond the immediate text to necessary contextualizing information'(M. Lister *et.al.*, 2005).

Analyzing new media we can also speak about cyberspace. The term was used by the science-fiction writer William Gibson to describe a fictional computer-generated virtual reality; the word is also used in general terms to cover any sense of digitally generated 'space', from the World Wide Web to virtual reality.

And now some examples in the new media field: we can speak about new kinds of textual form and patterns of media consumption (computer games, hypertexts, special effect cinema); computer mediated communications (email, chat rooms, avatar-based communication forums, voice image transmissions, the web and mobile telephony); new ways of distributing and consuming media texts characterised by interactivity and hypertext formats (the World Wide Web, CD-ROM, DVD), virtual reality (simulated environments); transformations and dislocations of established media (in photography, animation, television, film and cinema).

We can see the Internet as a new communication environment. Because communication is 'the essence of human activity', all domains of social life are being modified by the extended uses of the Internet. 'A new social form, the network society, is being constituted around the planet', with impact on people lives, depending on history, culture and institutions. [2]

Modern libraries are being redefined as places to get unrestricted access to information in many formats and from many sources. They are understood as extending beyond the physical walls of a building, by including material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing large amounts of knowledge with a variety of digital tools.

Libraries that store materials in electronic format are called virtual, digital or electronic libraries. The collection of information is in a variety of media: text, still image, moving image, sound, all in digital form.' Trolley (1995) defines an electronic library as the common vision of librarians, publishers, technology experts and researchers of access to all information anywhere, anytime…Collier et al. (1993) see an electronic library as a physically identifiable library but with no print, and which is part of a virtual library. Beckman (1993) argues that…the electronic library can still maintain a physical presence, whereas the virtual library, since it is perceived as transparent, will have transparent physical facilities and transparent librarians. Poulter (1993)… regards the Internet as a virtual library…Others might argue that the real electronic library is not a library at all, but a data warehouse' [3]

The Internet is widely viewed in libraries as fundamental for future community networking, the 'digital library' or the 'information highway'.

Libraries were among the first users of information technology. 'Computer systems to manage and provide access to library holding have been used since the 1960s…By the end of 1993 there were over 500 libraries in North America, accessible via the Internet…One of the most important developments it the World Wide Web (WWW), a hypertext multimedia information system. Coupled with the widespread use of freely available… WWW has created an explosion of interest

that is expected to change dramatically the way in which people publish and use electronic information.'[4]

A distinction is often made between content that was created in a digital format, known as born-digital, and information that has been converted from a physical medium, e.g., paper, by digitizing. The term hybrid library is sometimes used for libraries that have both physical collections and digital collections.

How will a digital library look like? 'Not all information or documents will be in digital form, and not all will be available for access over digital networks. The real challenge will not differ much from that which libraries face today – to manage a multimedia collection for their community or customers. On the other hand, the options and tools available to support this process are undoubtedly likely to undergo further significant change'(J. Rowley, 1998).

Computer systems were first seen as appropriate in libraries where the number of management transactions was large. The first systems were based on mainframe (a large computer, often the hub of a system serving many users) and minicomputers (a computer with processing and storage capabilities smaller than those of a mainframe but larger than those of a microcomputer).

The online public acces catalogues (OPACs) have improved their search facilities to include features encountered in information retrieval applications. Many OPACs act as windows on a wider collection of resources, including Internet resources and the collections in other libraries. The Internet is a worldwide 'network of communication networks, in which search engines support retrieval of information. Another way of accessing some of the same databases is to acquire the database on CD-ROM. The way in which information or documents are retrieved should be dependent upon the needs of the anticipated client group, not on its type of publication, on its form (print or electronic) or its location (in a local or remote database).

In order to access different databases, to acquire the information they need, the users have to master abilities for searching, retrieving and using the information they need. This set of skills is also defined as literacy, or literacies.

The '86 UNESCO definition of literacy says that 'A person is literate who can with understanding both read and write a short simple statement on his everyday life...., who can engage in all those activities in which literacy is required for effective functioning in his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development.'

According to' International Encyclopaedia of Information and Library Science', literacy is defined as 'the ability to read and write in the mother tongue...In more theoretical terms, literacy is the ability of a person to code and decode, smoothly and effortlessly and with understanding, a living and growing system of symbolic transformations of reality, including words, numbers, notations, diagrammatic representations and other marks, inscribed on paper or other two – dimensional surfaces (cloth, celluloid or the screen of a computer terminal), all of which have become part of the visual language of a people and thus have come to be collectively and democratically shared by both the specialist and the non – specialist (such ability having become part of the current social, economic, political and cultural demand system of a society).'

The relationship between literacy and library remains strong. Today's library uses the logic of literacy and print, in its physical organization and its information organization. The technical transformation of a library does not lead to lower expectation of literacy. The modern library requires higher levels of literacy and knowledge of the conventions of print materials.

The development of the new information technology means new ways of reconfiguring information, with two important dimensions: interactivity and no boundaries of time and space. The user is able to reconfigure communication systems. For significant interactions with the information environment, one needs to be not just a reader of messages, but also a composer and editor.

Literacy cannot be considered separately from the social and institutional structures in which it is situated. It implies that individuals 'do not create meanings in isolation, but through their involvement in social networks, or interpretive communities which promote and value particular forms of literacy'[5].

In 'Keywords in language and literacy'(1995), Ronald Carter defines a new type of literacy: 'The new literacy studies has its origins in the collapse of the old 'oral culture – literal culture' contrast. Out of the deconstruction of this contrast comes more contemporary approaches, not to literacy as a singular thing, but to literacies as a plural set of social practices.'

Cultural literacy can be explain as being able to master and interpret the ideas, customs and artistic productions of any society. Developing cultural competence results in an ability to understand, communicate with, and interact with people around cultures.

Media literacy is seen as a set of competences that enable people to analyze, evaluate and create messages in a variety of media modes. Education for media literacy uses a pedagogic model that encourages people to ask questions about what they watch, hear, and read. Media literacy education helps people to critically analyze messages, it offers opportunities for learners to extend their experience of media, and helps them make their own media messages.

The television can be considered a 'magic window'. Children, at the age of two, have the ability to identify three-dimensional shapes, they come to understand the functions of language and they begin to develop hypotheses about the relationship between the television and the real world. From the age of eleven upwards, they develop an aesthetic appreciation of how television creates the illusion of reality.

Only the media do not offer a transparent 'window of the world', but a mediated version of it. They don't just present reality, they re-present it (D. Buckingham, 2003).

Critical analysis of the media can include detecting propaganda, censorship, manipulation, subjectivity and objectivity of the messages, understanding how the economic side of the media affects the information presented. Media literacy can be seen as contributing to an expanded conceptualization of literacy. People must see the media consumption as an active and critical process, gaining awareness of the potential for misrepresentation and manipulation (especially through commercials and public relations techniques). Mass media have an important role in constructing views of reality. Media literacy sometimes means a way of protecting people from mass media's ill effects.

Some media analysts reject the idea that our understanding of visual communication is based on a command of cultural conventions like those that apply in language. They suggest that we understand visual and audio-visual representation using the same skills that we use to interpret the everyday world around us (D. Buckingham, 2003). The literacy generally referred to in the case of media literacy is more than a simple functional literacy – the ability to make sense of a TV programme or to operate a camera – is a form of critical literacy. It involves analysis, evaluation and critical reflection, it involves understanding of QAthe social, economic and institutional contexts of communication, and how these affect people's experiences and practices. Social action is related to the operation of power within society and literacy is about the producing of symbolic meanings, which enact particular relationships of power. Individuals have histories of media experiences that may be activated in particular social contexts, or by particular 'literacy events'.

There is an ongoing discussion about media literacy but the question is if we can speak about 'new media literacy', or 'digital literacy'. The technical possibility of digitizing forms of communication – writing, visual and moving images, music, sound and speech – makes the boundaries between print, television and computer – generated media break down. Just as print literacy involves writing as well as reading, digital literacy must involve creative production in new media as well as critical consumption. The new media raise new questions, in relation to interactivity and none of them can be seen merely as neutral 'vehicles' of information. The Web is no longer an open-access,

decentralized medium, it is used for particular motivations and purposes, some of which essentially commercial.

If we are to analyze virtual reality, we can return to the opinion that television is considered a 'magic window'. In extension, virtual reality is considered to be a step through 'Alberti's window'. 'The reference is to Leon Battista Alberti, a fifteen-century Italian art theorist, who formulated a practical method of perspectival depiction in which he conceived of the framed surface of a picture as a window through which a view of the world was seen.'(M. Lister *et. al.*, 2005). It is considered that when a user puts on his head the VR apparatus they step into 'Alberti's window'.

Margaret Morse in 'Virtualities: television, media art and cyberculture' (1998) thinks that 'entering a virtual environment is like being able to walk through one's TV or computer, through the vanishing point or vortex and into a three-dimensional field of symbols'; the VR user is a spectator whose 'station point is inside the projection of an image'. VR becomes a new medium of communication, because VR images are no longer artifacts that we look at, but environments that we inhabit.

While the actual window can be understood as mediating between spaces, and thus as a site of communication, it is mainly its metaphorical use for other (visual) media like painting, television, or computer interfaces that link it to media theories. Looking closer at these metaphors reveals that the familiar window might actually not be transparent, but rather concealing what is on the other side.

Marshall McLuhan argues that 'All media are active metaphors in their power to translate experience into new forms. The spoken word was the first technology by which man was able to let go of his environment in order to grasp it in a new way. Words are a kind of information retrieval that can range over the total environment and experience at high speed. Words are complex systems of metaphors and symbols that translate experience into our sense...the entire world can be evoked and retrieved at any instant.'[6]

What will the information society look like in the future? It is clearly that information systems are changing society. In a virtual society, where all communication is electronic, and processes such as teleworking, telelearning, and teleconferencing substitute for person-to-person contact, must have important implications for the way in which human beings satisfy their need of interaction with one another. In a society that values tradition regarding human contact, with social conventions associated to non-verbal communication, the new emerging social contacts will be challenged.

The new telecommunication systems allow people to form their own communities disregarding geographical location. One other consequence of the globalisation is that improved communication changes people's horizons and expectations of life styles (J.Rowley, 1998).

David Lyon thinks that any form of computer-mediated communication – electronic mail, teleconferencing, computer bulletin boards tends to isolate individuals, reducing their interaction with other people. Concern is expressed at present about the effects of anonymity and 'reduced self- and other-awareness. The historical, contextual and non-verbal clues we are used to in everyday conversation..., are missing altogether in electronic signals.'...'over time new computer cultures will evolve to overcome the problems raised by the present impersonality of systems. Or again, it could be said that reliance on traffic signals and parking meters has not atophied all sense of moral responsability, so why should computerized libray check – outs or personal identification numbers at the bank do so?'[7]

As we have seen, new technology means new challenges to the way we look at human interaction with self and others. For retrieving the information they need to use in their everyday life, in their professional career, people must have the ability to retrieve, select and use the right type of knowledge, according to their set of moral, social and cultural values.

They can access information through a variety of media: old media - written text, audio, video, or new media, which are digital, interactive, and virtual.

In the World Wide Web the information is in a permanent flux, any net user can interact with it editing, saving and sending them.

We can speak about new kinds of textual form and patterns of media consumption, computer mediated communications, new ways of distributing and consuming media texts characterised by interactivity and hypertext formats.

We can see the Internet as a new communication environment. Because communication is the essence of human activity, all domains of social life are being modified by the extended uses of the Internet.

Modern libraries are being redefined as places to get unrestricted access to information in many formats and from many sources. They are understood as extending beyond the physical walls of a building, by including material accessible by electronic means, and by providing the assistance of librarians in navigating and analyzing large amounts of knowledge with a variety of digital tools.

A new concept of library arises, the virtual or electronic library. The electronic library can still maintain a physical presence, whereas the virtual library, since it is perceived as transparent, will have transparent physical facilities and transparent librarians. The electronic library is also seen as a data warehouse.

The Internet is widely viewed in libraries as fundamental for future community networking, the digital library or the information highway.

The relationship between literacy and library remains strong. The modern library requires higher levels of literacy and knowledge of the conventions of print materials.

Literacy cannot be separated from the social and institutional structures in which it is situated. It implies that individuals do not create meanings in isolation, but through their involvement in social networks.

So the digital library, or virtual library, is based on user experience in mastering the new technologies of information. The responsibility of the modern librarian is to guide the user through different sources of information, using communication as a tool for acquiring new skills and developing a variety of literacies.

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Information Literacy – a product of Information Society

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Abstract

Since the informational universe offers new perspectives in what concerns lifelong learning, the Information Society has requested the emergence of the concept *Information Lliteracy* because, without doubt, it can no longer exist without an informational literacy, without informational mechanismes. The developing of information literacy is for the present, as well as for the future an important objective of the society.

The informational revolution is marked today by constantly increasing flow of information. Without an informational literacy, no one can cross the multitude of information. Information and the access to the information represents an essential condition of the progress.

Information has revolutionized the way of thinking, has brought major changes to the very existance of the society, has changed all the activities, relationships and the connections between them. It can be said that information has become the core of society and without it we plunge into darkness and suffocation. Information is certainly a:

- a vital element for creativity and innovation
- a basic resource for learning and human thought
- a key resource in creating more knowledgeable citizens
- a factor that enables citizens to achieve better results in their academic lives, with regard to health, and at work
- an important resource for national socio-economic development. [1]

Information is everywhere. It is all around us. There are many mechanisms for conveying information and many reasons for wanting and needing it. Contemporary society is influenced by information, all activities and processes are based on information, on retrieving and using it effectively, so it is vital for anyone to quickly and easily find the documents necessary to education and work.

The process of informatization of the society has changed the nature of the user's demand, its informational needs are influenced by major factors in the educational reform, which determines the demand for informational insurance services related to the training processes. Librarians act as mediators between library resources and users, trying to establish the necessary balance between collection and their movement, they having value only insofar as they are brought into the circuit of the information, the scope of attention and activity of the beneficiaries.

Information has been identified as one the fundamental requirements of the human existance. Essential changes that are being consumed with an unprecedented intenssity, involve the information and engages it in comprehensive terms. Depending on technology, the information has found a way to return the developement of the technology into its favour and to exploit the recorded

advance. So it does today, when technological innovation receives increasingly large coordinates and media globalization has become a fact.

The flow of informations has become increasingly dynamic and since the introduction of computers and other technological devices, it required the existence of some activities concerning informational organization, planning information and therefore an informational management.

New professions were created witch related them to the transfer of information and library became a "technologycal space", an important infodocumentary structure.

Librarianship and information science field all over the world has seen in the recent years major changes in concepts, structures, activities, resources, etc. Intense use of the computer, the rapid development of information technology, network technologies, all of them as characteristics of Information Society have brought new challenges on the scene of documentary information professions. Today libraries, information centers, etc. need specialists able to operate with traditional techniques, as well as dealing with modern techniques.

The library has an important role in the creation of the university informational medium. In a traditional way, the library offers the information involved in the document fund. It is the library that assures the on-line access.

Through informational environment we see the framework in which the information is circulated. In the university medium, the information in the sense of "knowledge" has always been an important factor. Currently, it takes on new dimensions across the deeper social significance, extending its scope, increasing the volume, the transparency of the borders, etc. using modern technologies. Computerization occurs, it creates a favourable environment to satisfy the user's informational needs, the achievement of human rights to get access to the information.

University libraries all over the world are facing new challenges and new circumstances. The new and different environment will e.g. manifest themselves in the widely seen changing user behaviour, when the users are more and more using the electronic resources. Also, as the European Bologna Process puts more emphasis on students writing essays, this calls for new ways of using the library. [2]

Today's library provide a flexible informational environment with trained specialists that keep pace or develop collections with enabling technologies, in order to better serve a broader and more library/computer literate population. Librarians no longer serve simply in partnerships with teaching faculty, but most become educators themselves. They can encourage students to look beyond a specific school assignment to view the tools and processes of resource-based learning as valuable for life.

Information and resources are available today in many locations beyond the walls of the classroom and library media center. The learning environment is open, with an array of information providers. It is important for students to consider all potential information providers as they develop a plan for finding information related to their research question or information need. In order to achieve information literacy, the students need to follow five simple principles:

- first, they, identify the kind of information needed to address a specific problem;
- then, they, locate and access the information;
- they analyze and evaluate the content;
- they decide how to use the information and organize it appropriately;
- finally, students effectively communicate the outcome.

Everything is information, but not all information is equally appropriate to use in every situation. Students apply these principles insightfully across information sources and formats and use logic and informed judgement to accept, reject, or replace information to meet a particular need. The interaction of different kinds of learning is the focus of two kinds of learning experiences. Critical

thinking and problem solving emphasize the importance of higher-level thinking skills; metacognition that means reflective thinking.

Education focuses increasingly on developing intellectual capacity, not only in terms of the mastery of content but in processing, adapting, applying existing information, and, more importantly, in creating new knowledge. The new learning environment and lifelong learning necessitates of new modes and methods of learner support services.

The new focus on student learning creates a need for a reconception of library's roles and responsibilities. The importance of information skills has increased tremendously and libraries are strongly influenced by the changes in the education sector.

The importance of managing information will grow considerably in the civic society. Emphasis is on availability and quality of services, with focus on the customer and freedom of choice. Traditional divisions of labour between various organisations and the commercial sector are changing. For the library world, new challenges arise from the rapid development of technology, from changes occuring in information transfer systems and from the growth in service demand.

Libraries are involved in a number of ways – in terms of resourcing the relevant materials, facilitating the use of those materials, as well as in providing a collaborative focus for partnerships. The effectiveness of the library should be promoted and evaluated in new ways, for example in terms of impact on educational and research outcomes, in recognition of this new dimension. [3]

If resource-based learning becomes the foundation of genuine educational restructuring, it is because students regard learning as meaningful. Lifelong learning is becoming the goal of education supplanting the transmission of knowledge. Students must know how to learn, not only for current needs, but also for future success.

Information literacy can contribute to:

- participative citizenship
- social inclusion
- acquisition of skills
- innovation and enterprise
- the creation of new knowledge
- personal, vocational, corporate and organisational empowerment; and
- learning for life. [4]

Librarians have the opportunity to gain (or regain) a central academic role in the teaching, research, and service missions of the university. As student learning becomes the focus of the institution, the learning that occurs in the library can be seen as essential to the goal of developing lifelong learners. The librarians play the role in helping students to become independent users (access, evaluation, and application) of information.

Students today have a hole new world of information, ideas, and experiences accessed through the Internet. In the recent years the amount of information that exists, moves, can be stored and consumed in electronic form is growing.

For the first time in history, information and scientific knowledge are not just means of modernization of contemporary society, but the main items of the economical activity. The challenge for higher education today is to develop better ways to guide individuals through rapidly expending old and new resources in their search for knowledge.

Information Literacy is a key factor in the development of Information and Knowledge Society. A society based on learning throughout entire life is inconceivable without a sustainable informational literacy. In the continuous training, Information Literacy helps people find, evaluate, use and create information in order to achieve personal, social, professional and educational goals.

In other words information literacy and the information society are not only inextricably linked, but the very concept of the former flows from the demands of the latter. In simple terms the impact of the information society on individuals is to create a requirement for functioning effectively within it, and that some of the associated capabilities might be encapsulated in a concept called "information literacy". [5]

The necessity to promote Information Literacy is caused by the diversity of informational technologies, rapid changes of searching tools, the variety of access methods. Information and communication technologies are key factors in reaching to the Information Society.

Continuous modernization of information and communication technologies leads to changes in the user's behavior, their level of education, the barriers encountered by them in the information process. And information technology shapes the channels of publication, access and dissemination of information; the influence, and the intrinsic nature of digital documents, raise new issues in the activities and practices of analysis, assessment, evaluation and criticism. And much of today's information technology and supporting infrastructure is intended to enable communication, information finding, information access and information delivery. An important characteristic of technology is that it is a continuous state of innovation and development.

The science of learning, with all aspects involved, including information technique with the search and retrieval processes, as well as the art of reading, now occupies a key position within education. During university studies, we can talk about completing the personality and about developing the creativity of the students. To think systematically and effectively, to use the new, to be creative, it is required a sustained and constant effort.

The climate of instability and uncertainity is the fundamental nature of the information age. Being literate in the information age, involves the ability to find meaning in the vast barrage of diverse messages that form our learning environment.

The emergence of the Information Age makes the ability of students to locate information for themselves of vital importance to a full educational process. If students are unable to locate, synthesize, and evaluate information, they will not have the skills necessary to succeed in any field. Even if student retention of course content were high, knowledge changes at a rate so great that what is learned today may be inaccurate or irrelevant a few years from now.

This rate of change will impact students lives. Students must be prepared to navigate successfully through a profusion of print and nonprint media. The challenge is to equip students with the skills and knowledge that will enable them to live satisfying and productive lives in the Information Age. [6]

Information Literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

- determine the extent of information needed
- access the needed information effectively and efficiently
- evaluate information and its sources critically
- incorporate selected information into one's knowledge base
- use information effectively to accomplish a specific purpose
- understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally [7]

Today students are not only engaged in learning in information-rich environments, but also in learning how to learn in these new environments. This involves the ability to learn in dynamic situations where information is constantly changing. It involves the ability to manage information

overload, where determining what is enough information is as significant as locating and selecting relevant information. Most importantly it involves the ability to find meaning by making sense of numerous and diverse messages that do not fit togheter neatly in a predigested, prepared text. Students must learn to construct personal understanding from incompatible and inconsistent information. Literacy, then, is the ability to construct one's own meaning from an information-rich environment.

Information and documentation literacy is a component part in the education of the future specialist and citizen, and its importance is increasing in terms of building the Information Society. University library's user has changed a lot through his behavior. From the simple user, he turned into a user-partner. For the most part, we are dealing with a new user who has not only scientific expertise but also masters modern technologies. [8]

Users are forced to face a growing information production. The future will choose not "those who learn, but those who know how to learn". Major learning competencies include formulating questions, accessing potential sources of information, evaluating the information for accuracy and pertinence, organizing the information, and finally, applying it to answer the original questions-the last and most valuable step in the process. It is not just finding the information, but the use of it that motivates the learner.

More frequently is stated that libraries as auxiliary institutions of the educational process are perceived as ideal training grounds for the information skills required by contemporary civilization. Their goal is to help the user to know the library offers, information tools and research, its informational resources, informational technologies.

Today's student lives and learns in a world that has been radically altered by the ready availability of vast stores of information in a variety of formats. Innovations in traditional printing techniques have joined with advances in electronic technologies to transform the ways we seek and gain information. The information explosion has provided countless opportunities for students and has dramatically altered the knowledge and abilities they will need to live productively in the twenty first century.

Information Literacy may be considered a strong tool for the participation in the information society, for the encouragement of the information production and interdisciplinary creativity. The education in Information Literacy induces knowledge and critical and analytical thinking. [9]

Students must become skillful consumers and producers of information in a range of sources and formats to thrive personally and economically in the communication age. The student who is information literate recognizes that having good information is central to meeting the opportunities and challenges of the day-to-day living. That student hnows to seek information beyond his or her personal knowledge, how to frame questions that will lead to the appropriate information, and where to seek that information. The student knows how to structure a search across a variety of sources and formats to locate the best information to meet a particular need.

Information Literacy – a product of the Information Society, representing all the knowledge and skills necessary to identify the individual's informational needs, followed by locating and evaluating information, using information found/selected is the keystone to lifelong education. Information Literacy as the "ability to access, evaluate, and use information from a variety of resources, to recognize when information is needed, and to know how to learn" becomes the first condition in dealing with professionalism and professional success.

Information Literacy is composed of four interconnected components:

- knowledge of information sources, the organization of information, and the nature of knowing — the attributes of scholarly knowledge
- skills in finding, evaluating, using, and effectively communicating information

- generalization of knowledge and skills to various applied settings with a positive disposition toward the use of new and extant information sources and information technologies
- social context for the use of information, equal access to information, and the dissemination of knowledge. [10]

Trained citizens in terms of Information Literacy are a vital condition for creating a successful Information Society. Nationally, the performance and the competitiveness can be achieved only through developing coherent policies that encourage lifelong learning and through creating some informational literacy programs to consider all citizens.

The informational univers opens new perspectives for training. It creates major opportunities to learn and obtain knowledge throughout lifetime. At the same time, it is possible self-education, the access to different educational and documentaries resources, there can be radically altered the relationships between the individual and the community.

Rapid and explosive multiplication, of the training processes through the new informational and communicational technologies (distance learning, self-education, virtual universities, online training) shows that we have entered in a new era which sees in training the secret of the development of contemporary society. Since librarians assume multiple roles: advocates of intellectual freedom, intermediaries in seeking information, libraries are considered laboratories of ideas and knowledge, institutions contributing to the achievement of the goal of information society – the development of information literacy of each citizen. [11]

To be literate means not only to recognize when information is required, but involves the ability to construct one's own knowledge through a process that gives meaning and self-interest to the notion of learning throughout a lifetime.

New imperatives that develop knowledge and skills appear to be essential to the practices of professional solidarity. Thus, documentation centers and libraries come to be educational or pedagogical resource centers. Virtual libraries become more than simple database, they are true instruments in knowledge development. Student gets to be some sort of "navigator and consumer", going tirelessly through the information flows, requiring guidance and continuous training, *training of an information literacy adequate to the development of the information society.*

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The management and classification of a document corpus for a European Documentation Centre

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Abstract

This article presents a pattern of document classification (web documents and printed documents) suitable for the use of a European Documentation Centre. EDC has a heterogeneous corpus of documents which needs a certain pattern of classification so that it can be used properly. That is why a certain pattern of classification needed to be created, a pattern that can be easily handled by users interested in finding more about the EU. The classification of documents can be made using two main criteria: the format of the document and the scientific research domain. This adaptable classification pattern is important because it can be used by anyone regardless of the profession or interests.

Introduction

European Documentation Centres (EDC) are a network of information centres which were established by the European Union in 1963 to support study, teaching and research at university level. They contain official publications and documents of the institutions of the European Union. The EDC's can help you find information on the following subjects: European law, European integration and European policies and instituions. Apart from EDCs, which are targeted at university students and researchers, there are several other information networks which also provoide information and advice:

- Europe Direct
- Euro Info Centres
- Urban forums for sustainable development.

Such a centre is designed to help Universities and research centers in promoting and extending education and research in the field of European integration. The EDC's are also responsible in encouraging these institutions to take part in European debates and they help citizens who are interested in learning more about the European policies. Other goals of these EDCs include making information concerning the EU available to the public, both academics and others and offering publications of the European Union institutions.

My article focuses on how to create a pattern of document classification for the EDC here in our University Library.

Documents can be divided into two main parts: printed/written documents and electronic documents. We define the electronic document as any set of data from the computer (others than programms or system files) which are meant to be used without being printed. The web document is

a file or a set of files which can be transfered from a web server to a client server. The document may contain text, graphic, sound, videos or links to other documents.

Document classification is a problem in information science. The task is to asign an electronic document to one or more categories, based on its contents. Document classification tasks can be divided into two sorts: **suoervised document classification,** where some external mechanism provides information on the correct classification for documents, and **unsupervised document classification,** where the classification must be done entirely without reference to external information.

1. Patterns of classification

1.1. Patterns of classification used by libraries

After they have been registred in the primary and individual catalogues, each written document (books, papers, magazines etc.) must be described bibliographically so that we can create the library catalogue.

Cataloging, as a branch of biblioteconomy, has the goal of creating a cataloguing system, which allows the user to find the document starting from any components of the cataloguing note: author, co-author, title, publishing house, etc.

Cataloging has the following goals:

- The bibliographic description of the document by precise rules.
- Establishing the specific elements by which a book is cataloged: the classification index, the quotation etc.
- Establishing the identification elements of the document through specific means requested by the automatization process.

The classification of documents can have the following forms:

Special – focusing on a particular subject.
General – covering the whole spectrum of information.
Scientific – focusing on the aspects from the scientific domain.
Enumerative – focusing on the classes in which the information was divided.

If we focus on library matters only, the library classification means arranging documents in a library, by content, so that the readers are able to find it easily [9].

Here are some examples of library classifications:

Dewey decimal classification,
Universal decimal classification,
Cutter classification,

The classification of the Library of Congress, USA.

The Universal Decimal Classification is the world's foremost multilingual classifciation scheme for all fields of knowledge. Since 1904, since it was invented, it has been extensivley revised and developed, and has become a highly flexible and effective system for organizing bibliographic records foe all kinds of information in any medium. It is used in bibliographic services, documentations centres and libraries wold-wide.

The Dewey Decimal Classification is a system of library classification developed by Melvil Dewey. It has been greatly modified and expanded through 22 major revisions, the most recent in 2003. The

DDC attempts to organize all knowledge into ten main classes. DDC's advantage in using decimal for its categories allows it to be both purely numerical and infinitely hierarchical [8].

1.2 Patterns of classification for web documents.

A web document is a self-contained publication by a member of the web community. Examples of web documents are: web pages, e-mails, blogs. Classification plays a vital role in many retrieval tasks and information management tasks. On the Web, classifciation of page content is essential to the development of the web directories and crawling. Web document classification can also improve the quality of web search.

Web document classification, also known as web document categorization, is the process of asigning a web page to one or more predefined category labels. The general problem of web document classification can be divided into multiple sub-problems: subject classification, functional classification, and other types of classification. Subject classification is concerned about the topic of a web documents. Functional classification cares about the role that the web document plays [2]

Compared with standard text classification, classification of web content is different in the following aspects. First, traditional text classification is typically performed on structured corpora with well-controled authoring styles, while web collections do not have such a property. Second, web pages are semi-structured documents in HTML, so that they may be rendered visually for users. Finally, web documents exist within a hypertext, with connections to and from other documents.

Document classification tasks can be divided into two sorts: supervised document classification where some external mechanism provides information on the correct classification for documents and unsupervised document classification, where the classification must be done entirely without reference to external information [5].

Here are some examples of web document classification techniques:

Naive Bayes Classifier
Latent semnatic indexing
Support vector machines
Artificial neural network
Decision trees
Concept mining.

2. An adaptable pattern for the classification of the EDC documents.

Our European Documentation Centre, hosted by the Central University Library, has at present about 1000 printed documents, including magazines, leaflets or newspapers, and a data base of electronic documents which is in continous and full development.

The electronic docments can also be downloaded for free from the EU bookshop at the following address: http//bookshop.europa.eu.

The users who are interested in these documents can visit the Centre and search the book they want by hand or search our database which is found on the Centre's computer.

This search can be done by using the classification pattern shown below. The classification pattern is based on categorizing the documents from the document corpus using the following classification criteria:

- The format of the documents
  1. Printed
  2. Web documents.

- The documentation domain:
  1. Foreign affairs;
  2. Science and technology;
  3. Education;
  4. Law;
  5. Environmet;
  6. Social domain;
  7. Economic domain;
  8. EU in general;
  9. The European Institute in Romania;
  10. The european Parliament.
- Subdivisions:
  1. The Common Foreign and Security policy, humanitarian aid.
  2. Research, development and inovation.
  3. Culture and communication.
  4. Treaties and institutional aspects.
  5. Health, employment.
  6. Finance.

The classification scheme would look like this:

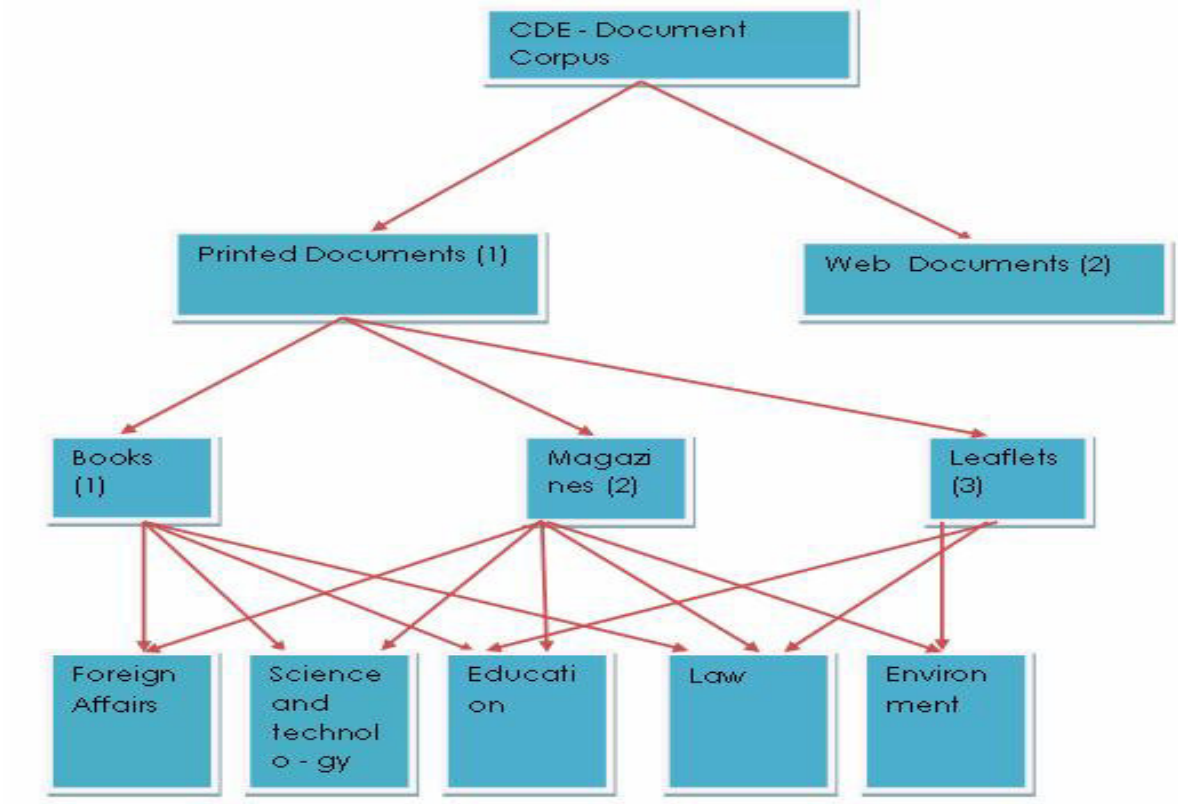

Fig. 1. Classification scheme

The classification structure shown in figure 1, can be also observed in detail in the following classification chart:

Document Code	Document type
00	Document corpus
001	Printed documents
002	Electronic documents
0011	Books
0012	Magazines
0013	Leaflets
0014	Posters
00111	Books on foreign affairs
00112	Books on Science and Technology
00113	Books on Education...etc until the domains come to an end.
00121	Magazines on foreign affairs
00122	Magazines on Science and technology...and so on.
00131	Leaflets on Science and technology
00132	Leaflets on foreign affairs...etc.
00141	Posters education
00142	Posters on science and technology...etc.

Table 1. Chart of classification pattern

The code of a document from the corpus is made up of 10 digits and it is constructed morfologically as follows:

Digits	1	2	3	4	5	6	7	8	9	10
Code	9	9	9	9	9	9	9	9	9	9

Table 2. Morfological code.

- Digits 1 and 2 represent the document corpus.
- Digit 3 represents the category of the document (printed document, web document).
- Digit 4 represents the type of document from the category (book, magazine , leaflet, others).
- Digits 5 and 6 represent the domain from which the document is taken.
- Digits 7 and 8 represents the subdivison of the document's domain.
- Digits 9 and 10 are reserves.

Conclusion

This article presents a pattern of how both written documents and web documents can be categorized in a simple and efficient manner. Though the pattern is not yet fully implemented as a system this is due only to logistical matters which should be resolved soon. During the last century, the role of library classification schemes has been expanded as tools for locating library holdings. The adoption of traditional classification schemes to digital environment is promising for the following reasons: major library classification schemes have been used in organizing information and a rich set of organization tools has been developed and available.

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Communication Link Design Using Optical Fiber

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Abstract

The explosive growth in data communications has stimulated the development of optical systems for high channel capacity and high bandwidth. Today almost all voice & data traffic is routed through terrestrial and submarine optical fiber link. This paper emphasizes the basic requirements and designs an efficient approach which is certainly optimum considerations for optical fiber communication link and involves the following steps: creating the optical signal involving the use of a transmitter, relaying the signal along the fiber, ensuring that the signal does not become too distorted or weak, receiving the optical signal and converting it into an electrical signal. The experiment used semiconductor laser diode at the transmitting end and a photodiode at the receiving end. This project is relatively low cost and adaptable. An overview of the project is included with representative designs and information.

Keywords: Information generated, Information desired, Laser Diode, Data Transmission, Optical Communications, Infrastructure Information.

1. Introduction

Fiber optic communication has been growing at a phenomenal pace over the past two decade so rapidly, in fact, that its impact is increasingly felt in nearly all aspect of communications technology. Fiber optics has, in just a couple of decades, metamorphosed from a somewhat exotic research curiously into a strong commercial reality- to the point where even the general public has some idea of its ever expanding role in communications.

In April 1977, General Telephone and Electronics tested and deployed the world's first live telephone traffic through a fiber-optic system running at 6 Mbps, in Long Beach, California. They were soon followed by Bell in May 1977, with an optical telephone communication system installed in the downtown Chicago area, covering a distance of 1.5 miles (2.4 kilometers). Each optical-fiber pair carried the equivalent of 672 voice channels and was equivalent to a DS3 circuit. Today more than 80 percent of the world's long-distance voice and data traffic is carried over optical-fiber cables.

As far as we can see, the demand for transmission over the global telecommunication network will continue to grow at an exponential rate and only fiber optics will be able to meet this challenge.

In this paper we explained a project that we developed in University of Dhaka, based on communication link design using optical fiber as a transmission medium.In this purpose we designed an optical receiver and transmitter and then established a link between two computers.

The paper is organised as follows, section two explains theoretical background behind this project,section three explains the design basics of optical transmitter and receiver and its implementation, section four explains different practical findings like oscilloscope tracing, maximum frequency range, distortion, attenuation are accumulated and analyzed and in the final section contains the discussion on the performance of the established fiber–optic link and different areas of improvement.

2. Theoretical Backgroung

A fiber-optic communication link[1] consists of a transmitter, a receiver and transmission medium. All these sections have an equal importance in the link design.

The subject of communications really begins with the situation shown in Figure 2-1. Here is an entity called the source and one called the user- located remotely from the source. The source generates Information and the user desires to learn what this Information is.

Figure 2-1: Source, User pair with information

Figure 2-2 shows the basic building block for a fiber optic based network. The illustration indicates the Source-User pair, transmitter and receiver. It also clearly shows the fiber optic cable constituting the transmission medium as well as the connectors that provide the interface of the transmitter to the transmission medium and the transmission medium to the receiver.

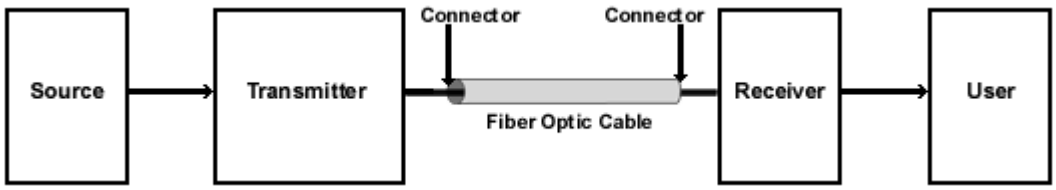

Figure 2-2: Model of "simple" fiber optic data link

A fiber optic cable is a cylindrical pipe. It may be made out of glass or plastic or a combination of glass and plastic. It is fabricated in such a way that this pipe can guide light from one end of it to the other.

The transmitter component serves two functions. First, it must be a source of the light coupled into the fiber optic cable. Secondly, it must modulate this light so as to represent the binary data that it is receiving from the source. With the first of these functions it is merely a light emitter or a source of light. With the second of these functions it is a valve, generally operating by varying the intensity of the light that it is emitting and coupling into the fiber.

The receiver component of Figure 2-2 serves two functions. First, it must sense or detect the light coupled out of the fiber optic cable then convert the light into an electrical signal. Secondly, it must demodulate this light to determine the identity of the binary data that it represents. In total, it must detect light and then measure the relevant Information bearing light

wave parameters in the premises fiber optic data link context intensity in order to retrieve the source's binary data.

3. Design and Implementation of Fiber-Optic Link

The design procedure and implementation of optical transmitter and receiver[2] are described in this section.

3.1 System Block Diagram

The simple block diagram of the system is shown in fig: 3-1. The whole system consists of three sections- the transmitter, the receiver and the transmission medium which is in this case optical fiber. The transmitter section consists of signal processing unit, laser driver unit and the laser diode. The receiver section consists of photodetector, amplification unit and signal processing unit.

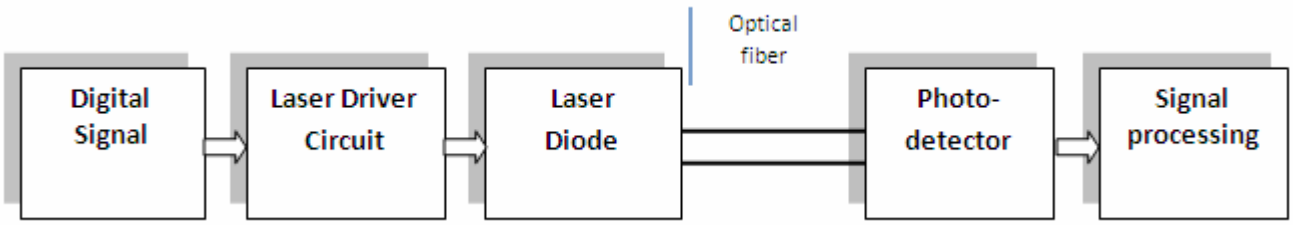

Figure 3-1: System block diagram

3.2 Optical Transmitter Basics

The transmitter transmits the signal in the form of light. A transmitter consists of a light source, coupling optics and electronics. The heart of the transmitter is a light source. The major function of a light source is to convert an information signal from its electrical form into light. Today's fiber-optic communications system use either LEDs or laser diodes (LDs) as a light source[3]. Both are miniature semiconductor devices that effectively convert electrical signals into light. They need power supply connections and modulation circuitry. All these components are usually fabricated in one integrated package denoted as an optical transmitter.

3.3 Transmitter Design

The circuitry of the optical transmitter is illustrated in fig: 3.2. The driver circuit used here is a simple common emitter laser driver. The anode of the laser diode is connected to the positive terminal of the power supply and cathode connected to the collector of an npn bipolar transistor. The emitter of the transistor is grounded. A current limiting resistor of 1kΩ is connected to the base. Power supply used for this purpose is of 5 volt.

Components for constructing the transmitter are listed below:

- npn transistor (C828)
- Laser Diode
- Base resistor of 1kΩ
- Power Supply(5 volt).

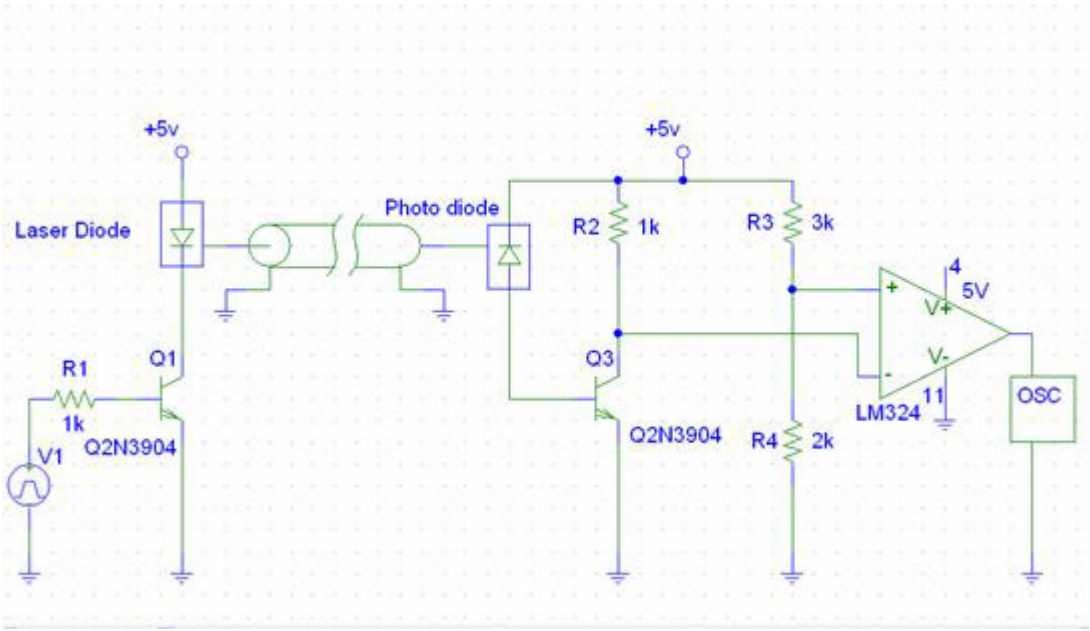

Figure 3-2: System circuit diagram.

3.4 Optical Receiver Basics

The optical receiver receives the light transmitted through the fiber at the receiving end and retrieves the original electrical signal. A receiver consists of coupling optics, a photodetector and electronics. A photodiode is the heart of a receiver, very much like an LED or an LD in a transmitter. Many types of receivers are used in modern fiber-optic communications systems. They differ in their architecture and in the components they use; however, most of them have very much in common functionally.

A photodiode along with the preamplifier[4] linked to it do the job of the receiver. The function of this section is to convert light into electrical voltage of required amplitude. This is done in two steps: First, the photodiode converts light into photocurrent; secondly, the preamplifier converts the photocurrent into voltage, amplifies the signal, and presents at the output.

3.5 Receiver Design

The practical circuit of the receiver is shown in fig: 4.4 the photodiode in this receiver is connected between the positive terminal of the power supply and base of the npn bipolar transistor. It is used in the reverse bias. A resistor of 1kΩ was connected at the collector of the transistor, and the emitter was grounded. The collector is fed to the input of a comparator which has a reference voltage of 2 volt. The comparator is designed with an op-amp. Voltage divider is used to set the reference voltage. With supply voltage of 5 volt a 3kΩ and a 2kΩ resistor is used for this purpose.

Components used to build the receiver are:

- npn transistor
- Photodiode
- Resistor of (1kΩ, 2kΩ and 3kΩ)
- Op-amp IC (LM324)
- Power supply (5 Volt)

3.5.1 Comparator Design

Let the reference voltage of the comparator[5], $V_{ref} = 2$ volt

And supply voltage, $V_{cc} = 5$ volt

As, $V_{ref} == V_{R4}$ then $V_{ref} = \{R_4/ (R_3+R4)\}. V_{cc}$

So, $2= \{R_4/ (R_3+R_4)\}. 5$

Or, $R_4/ (R_3+R_4) = 2/5$

Or, $3 R_4 = 2 R_3$

If $R_3= 3$ kΩ, $R_4= 2$ kΩ

$+ V_{sat}= 5$ volt and $– V_{sat}= 0$ volt

4. Data and Result Analysis

The frequency and amplitude of the input signal and received output at the oscilloscope are included

4.1 Data and result

The results of the project work are discussed is this section.

Input signal frequency, $f_i = 50$ kHz

Input signal amplitude, $V_{I\,p-p} = 6$ volt

Output signal frequency, $f_0 = 50$ KHz

Output signal amplitude, $V_{0p-p} = 4.2$ volt

The designed link has the following attributes:

1. Data Rate of 50 MBPS.
2. Link length of 5 km (premises distances).

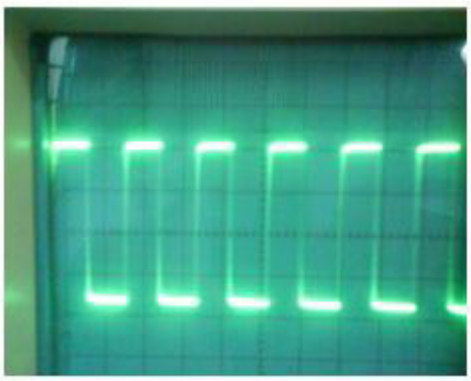

Figure 4-1: Transmitted signal

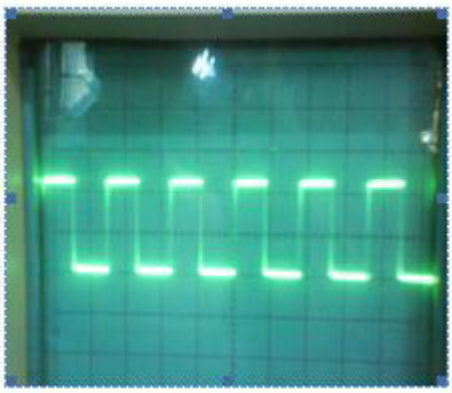

Figure 4-2: Received signal

3. Multi-mode[6], step index, glass fiber optic cable having dimensions 62.5/125. Transmitter uses LD at 850 nm.

4. Receiver uses PIN and has sensitivity of -40 dBm at 50 MBPS.
5. Fiber optic cable has no splice.

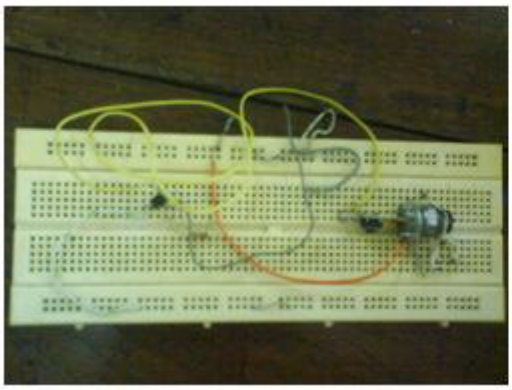

Figure 4-3: Transmitter

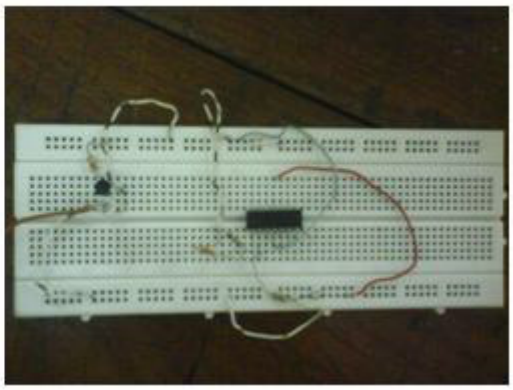

Figure 4-4: Receiver

Figure 4-5: Fiber-optic cable

5 Discussion and Future Work

5.1 Discussion

The complete system is a combination of all components and processes so far discussed in the previous sections. The incredible information-handling capabilities, greater numerical aperture of multi-mode fiber has made it feasible in short-haul communications. In simple terms the system consists of optical interface devices, the optical link and the electronic transmitter and receiver. To accomplish the interface portion of the system, the fiber industry has manufactured devices which can be retrofitted to most (computer or communications) existing equipment.

The system that was built is a simple one in the context of today's advancement in fiber-optic communications. There are number of areas to improve in the system. However the system has been developed using the locally available components. The system works properly. So it can be a useful work for demonstration of the optical fiber link in laboratory for educational purpose. Since all the section of the system is made locally, quite a variation can be made in system design and study its performance. We have had a clear concept about the fiber-optic communication link which will be helpful in further advanced research on fiber-optic communication and related areas.

5.2 Conclusion

An optical transmitter and a receiver was designed and implemented. A signal of square wave was sent over the optical fiber and received successfully at the receiver end with the sacrifice of small amplitude attenuation. The received signal was observed in the oscilloscope.

5.3 Future Work

This project implementation can be further improved for the application where there is a need for the data communication link between a mini computer located in the front office of a company and a PC located on the company's factory floor (both at the same building) by using auto powered line driver.

Coupler or, connector could be used to connect the fiber with the transmitter and the receiver. That would decrease the loss. For longer distance communications splicing is required and optical amplifier can be used. This improvement will make the overall system efficient and reliable.

Acknowledgment

We would like to thank Prof. Dr. Habibur Rahman for his guideline during implementation of this project and the authority of University of Dhaka for allowing us to work in the laboratory of Applied Physics, Electronics & Communication Engineering department.

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Prince or beggar in the mirror of the new information literacy

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"Lucian Blaga" University of Sibiu, student

Abstract

Once upon a time, there was the Word and just by pronouncing the names, God simply created the World. It inferred his miraculous power. Pushed by Luciferian instincts, the man transferred his entire existence in the virtual world, helped by only two digits: zero and one.
Texts, sounds, images, an explosion of information accelerated the amazing dynamic of information and communications technology.
It is about a true industry that delivers an essential product in the new society, able to change the entire human existence and redefine the information literacy. The gravity centre of this industry is the desire to create and defeat frontiers imposed by time and space.
The ambition to conquer more freedom and creative force challenges us to e-communicate, to e-learn, to e-business, to explore the world, to e-buy, enjoy and turns any active player of community into a species of cyber sapiens.
The most important fact is that this new reality, through its instruments and environments influences our senses. Good or bad? We don't know! What is certain is that it's inevitable. The man is in danger of losing his creative identity of the virtual world and to turn from prince into a beggar. I am not the only one who's talking about this, there is nothing new. It is just the reality that feels the need to be aware among the numerous surfers exposed.
In my essay I intend to raise the awareness and enable the filters that don't allow us to be kidnapped by the false mirror of freedom and to discover some of the excessive living in the virtual world effects.

Since the beginning of his existence, man has been trying, to leave a mark of his experiences to his descendants. Endowed with the gift of speech, man wrote stories that were to be carried from generation to generation for people to know their ancestors.

This period of tribulation when the existence of a whole generation occurred only in the mind of ordinary people who told the facts to their ancestor children and grandchildren was dominated by concern

The care with which they were transmitted from generation to generation forced man to find a safer way of transmission. At first in Greece and then in other countries have expanded the written evidence on pieces of parchment which were inherited by generations that followed and then the next generation and so. A new craving followed to knock off the human mind: the concern for the evidence to have a place where they can be preserved.

Some of the written testimonies of those times have had the chance to be hosted by the Library of Alexandria. This sacred pillar of humanity hosted over 70,000 parchments. Socrates, Plato, Homer and others housed their feelings of thought, fear, love between the library walls. A true spiritual wealth, which included works whose fame earned the fighting with time and have survived against the specific ignorance of the human nature.

A legend tells us that in this shelter of knowledge, Ptolemy, enshrined in the position of a "manager" was constantly concerned with the issue of identifying a particular parchment in the multitude of works gathered along the time.

But the fire ruthlessly destroyed the entire collection of ancient works of literature, and a new library replaced it. As protection against the hate for the culture and civilization it no longer has a material form but it is designed to be universal and eternal.

History repeats itself and there is nothing new under the sun. Another way of putting it, but the same dilemma. More than 6 billion Web pages now gathering the knowledge of all areas written by people from all around the world, have been moved from Alexandria in a new virtual office. It seems that Ptolemy has left a wealthy legacy for his successors, and Google can handle successfully the inherited function.

The amazing dynamic of information and communication technology accelerated under the strict eyes of different generations.

Gutenberg's invention announced itself loud and clear on the stage of passionate reading. The rapid evolution of printing in Europe is the explanation of the very acute need for access to information. Until the invention of printing, copying books lasted for two years, and now all the writers can be part of everyone's knowledge. Although its inventor didn't create a purpose in this invention, he managed to reinvent the world.

History repeats itself and there is nothing new under the sun. The books were printed in hundreds and thousands of copies and have spread in all directions leaving the publishers a difficult task . To filter the thoughts that would l be collected in a book and placed on a library shelf. Having the role of both a hero and an enemy, the publisher was the one who divided the world into the rich and the poor, the famous and the anonymous by his decision to invest or not in the effort of the writers' mind product in question. Different times, different careers, the same essence.

Today, any author can fight against anonymity through his writings. In fact anyone can write, and the publisher does not find his way into this landscape dominated by the tools of modern technology. What obviously resides in this context is that both the publishers and the authors of the books lost control of their works , available to the willing ones. The surfers are now those who master the helm of the knowledge process. Everyone can choose what they want , when they want and how they want to read. The books are no longer the leaders in the knowledge storage, they only offer the opportunity to listen to the gathered thoughts one more time.

Whoever generates information and releases it in the virtual universe no longer has control of the receiving process. At any time, by clicking the mouse, the reader can sail freely among the vast collections of virtual libraries.

The virtual hopes do not end here. In the virtual universe we tell stories and fight, change opinions and we engage in discussions on various topics, we flirt and fall in love, seek friends and lose them and all this through empty words that should "wag their tails" in order to be heard because they are prisoners of the computer screen and we forget about our bodies.

So what? We can easily ignore this issue. Eventually our body is the one that apparently keeps us behind, it gets tired , it gets older, falls ill and dies in the end. So , is de-bodying welcome? There have been written more on this issue and everything is deja vu but I believe that the internet users do not realize the effects of this split.

All aboard!!!!!

I invite you on a virtual trip along the Amazon region of the Ucayali Pucallpa River. We stop in the middle of the ancient shipido tribe[1] where our ears are charmed by the a saman song (Moray). The

[1] *www.nierka.ro/blogs/?p=15*.

members of this community live in a magical world conquered by psychological and social harmony. A full balance of the senses results from the addiction of the mind, spirit and body. Any imbalance can be cured by the curative power of energy produced by a series of sounds given by the icaros (song). The audio-tactile[2] man lived dependent on the spoken word loaded with emotion above those that are written. It will convey through intonation, emotion, joy, anger, sadness, fear. On the other hand, there is the visual man that creates a highly fragmented, individualistic (...) and detached environment. The visual space is uniform, successive and continuous unlike the boundless acoustic space that is simultaneous, organic and integrated.

The modern man is placed in a highly visual space.

The eyes are the mirror of the soul, according to an old saying. Moreover, we can say that what we see is reflected in our soul.

The image makes us believe in the existence of what it shows us, through its strong capacity of penetrating reality in our hearts. The effect of real given in the virtual world by the explosion of pictures explains the attractiveness to transfer activities from our everyday life behind the monitors. The receiver is invited to be active in seeking information, photos, a few lines from an e-book.

The main means of communication is speaking, but in the virtual world interactivity is viewed as a means of mass communication and requires the duplicate role of information transmitter and receiver. An attraction towards the freedom and power challenges you to create your own collection of information, create your own publishing, your own library.

To put it straight, we can say that a picture makes more than one hundred words. Whatever artistry and dedication were involved in writing, they will not enclose those engines that can move our inner world: our feelings.

The Little Prince teaches us that what is essential is invisible to our eyes and only the heart can see the reality. The heart is missing in the virtual world.

The virtual world is still a world of letters from which feelings can not escape because they are trapped in messages and commands. It is an abstract and poor world!

Returning to the biblical references, along with enjoying the fruit of knowledge and falling into sin, man has dropped out of his communion with God and the others and was limited to his knowledge and the world in which he lives. The man gave up immortality and gained physical infirmities. His fall into sin was followed by being trapped in the body prison, from which now he wants to escape through the virtual universe.

Using the sources of information, communication and entertainment www we can observe exactly the lack of activity of our bodies. The only effort we make when "browsing" a book is a mouse click. The lack of activity weakens the body and makes it increasingly powerless.

What do you think would be the things that frightened the ancients the most? Of course there were many things running trough your mind: disease, hunger, savagery, death, but most of all , man feared distances.

Regarding the virtual aspects, the distance, is overwhelmed in time as well as in space. The physical distances are cancelled by means of the strong sensation of outrunning the body's limits.

The virtual reality gives the intranauts[3] the feeling of neighbouring (adjoining) with an embarrassing and useless body that needs to be fed, looked after, supported, where as life could be much happier without those fears and worries.

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[2] *Marchall McLuhan, „Mass media sau mediul invizibil", interviu in Playboy.*
[3] *David Le Breton, L' adieu au corps, p.190., p.73-74.*

Since his early beginnings, man has been trying to improve his life. He is blinded by the convenience of technological benefits and, it is very difficult to observe the evil effects.

A simple mind and spiritual exercise of trying to detach from a certain technological instrument is illuminating regarding the influence upon us.

Man surfs the Web waves as a ship floating on a stormy sea. The storm approaches. The clouded sky makes it impossible to see any clues, in order to identify the cardinal points. In order to find out a land plot where to dock, the ship is obliged to cut its way through the foamy waves and the rocky cliffs, and also to face powerful winds, making it unstable. In such a hostile time, the ship must survive and lead its crew for fulfilling their mission.

Any web surfer is placed into an environment filled with opportunities and threats as well. In order to be able to sail over the virtual universe, man needs his own GPS (Global Position System) capable to identify the above mentioned opportunities and threats.

Therefore, I started to think about what happens with me, the very moment I lie down in my comfortable chair in front of the PC, and start "sailing" on different Internet sites; I have just realised that everything begins with a simple innocent act: sitting. Surfing from one web page to another provides you the opportunity to relax; sitting on the throne of your virtual world also makes you feel like its real, unique master. The chair is invented by man as well, in order to ease his existence and who would imagine that a lot of the owner's sufferings would be charged on.

Wayne Constantine studied closely our dealings with the chair. He notifies the sort of numbness, anesthesia of the human body. Going forward in his study he compares the anesthetic effect of the dentist chair. The anesthetic administration is local but the effect is spreading into the whole body.

So the effect of seating in a chair is characterized by numbness, sleepiness of the whole body only that this time the anesthetic is administered behind the screen . The entire sensory system is affected by the sitting position that promotes the activity of the head. Located in front of the monitor, man is forced to focus on what he sees.

The body is desensitized because of the information that will be perceived magnified since it requires only the sight.

Eyes will become the main source of perception. And if we think that we have just mentioned that man lives in a world created in the image then we can have an idea about which are the weapons that we have against the negative effects of the abusive access in the virtual world.

One of our writers warns us that the glass eye has to be watched and completed, because it hides, removes, looks, kills, sentences to invisibility or not, excludes at the same time as it shows.

Sensations are produced by the reaction to the stimulus produced by things that we perceive and are communicated to our soul. It is a complex sensory process with implications upon intelligence, memory and imagination all of them contributing to the knowledge process.

The windows of the soul are required to come up to the expectations and get tired being unable to filter enough and guard our senses.

The lack of organization in the sensory system by a single overdraft feel to the total expense of the others will produce a state of numbness transforming it into an obstacle in the awareness of the psychological and social effects of the new technology.

How could man defend himself against the effects of the abusive access to the virtual world if he was not aware of them at all?

When technology is being invented and advantages one of our senses, the whole relationship within the senses is altered. This case is very much alike that of a harp whose strings are used excessively; it will not produce the desired tone and the overall harmony of the song will be destroyed.

The effects of the information and communication techniques are passed on perceptions by which man comes to know the world, so on our sensory system.

Man is deceived by the content that such technology offers. Just like you would lure a ferocious animal by throwing it a copious prey and so you will distract it from guarding its own minds. Let' s remember the unity and harmony of the senses in which the man of the shipido tribe lived.

Here is the menace for man , one according to which man is liable to lose his creative identity in relation to the virtual world.

In order to get to the shore safe and sound, it is necessary for the ship that once came off shore, to strategy to path by taking into account a proper reporting to the virtual world.

So using the renewable technology is not indifferent to man as a moral being due to the effects it has on man in the permanent interaction identified by his deeds and the things which dominate him .

The virtual world has been created alike the real world but we must be aware that not all things can be done equally in the virtual world while others cannot be reproduced at all in the virtual world.

Since the early basis in terms of evolution of computers, scientists have tried to use the information technology to improve learning. One of the main effects is the expansion of access to learning.

Nothing is easier than pitting history against the technology evolution. So if you look back in the past to access information it is necessary to have a direct contact with the source. If this was not possible then you must know the conditions necessary to reach the source. So that way had to be found , even if the source was located at distances of either time or space . Finally, what's information if you do not know what to do with it? It's like someone would get books but wouldn't know to read or would know to read but wouldn't have books at hand. In order to support these situations ,the medieval universities , together with their libraries were able to provide information for as many users could access it whenever needed without having a direct and immediate contact with its source. Now another issue is being raised concerning the free access to information.

What was the use of it if the access to information was restricted for the most potential users. In the feudal times , watching other information area was restricted and only the privileged ones had access to information.

History repeats itself and there is nothing new under the sun. In what way is the situation different today? Conditions have changed the shape but it's essentially the same situation and the effects that occur in this process are painful.

The gap between the rich and the poor will be deeper. Only if we think of those 0.1 percents of GDP given in Bangladesh to technology and equipment compared to the 10 percents that the Americans, the Germans or the Japanese are using for the development of technology, and we could find an inequity that affects the access to information and gives rise to an unfortunate and regrettable instability.

When only 2 percents of the homes from South Africa have a phone and the West already communicates wireless. The effectiveness of using modern technology makes it attractive for wealthier nations and so destructive at the same time, ironically by its absence for the poor ones. This critical gap must be a fire alarm and we must ensure that technology is not allowed to dominate. The winning bid at stake for access to information is extremely important and is no longer a novelty that a very important thing is to ensure the necessary education and training devices for all and not just for the privileged ones. This is the true challenge.

No doubt that the virtual world has found applications in terms of entertainment, medicine, education and other services. But still when you watch a play and it is a good one, it raises

emotional interactions with laughter, tears and a sense of empathy with the actors' feelings. Even if technology is so advanced, it can move beyond the emotions arising from a theater performance.

It is enough to take a look at the virtual world and we will realize that it has conquered more territory from the real world. Information has a special place in this world.

Conclusion

In conclusion, the main consequence of getting contaminated with technology is the syndrome of false reporting in the real world. Let's search for an obvious reference to the technology we enjoy by taking advantage of the positive effects and keep us far from the negative ones. Don't let us be taken away by the idea that if we know we became strong, because we choose to feed the struggle to possess and engage ourselves into the crazy run for things that we like.

If the real world can be recreated by a binary combination at random will this include the full depth? In the end everything comes down to just two figures zero and one?

The things I wrote about aren't so important and some of them are quite ordinary. It's not hard to imagine that many of you have read these already. This is the new world in which we must live, so what we only have to do is to adapt ourselves and to choose between being a prince or a beggar.

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