

Digital culture – Digitalised culture and culture created on a digital platform

Author:

Árpád Rab

Budapest, July 2007.

Publication of this coursebook is supported by:



Education and Culture

Leonardo da Vinci



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Contents

Introduction	4
Information literacy	6
1. A brief history of information literacy	6
2. The concept and models of information literacy	7
3. Levels of information literacy and related skills	7
The digitalisation of the cultural heritage and its role in the information society of the European Union	9
1. Culture, heritage, digitalisation.....	9
2. Objects, digitalised objects and digitalisation.....	10
3. Challenges and impacts of digitalisation – the European Union.....	12
Digital culture	14
1. The nature of digital culture.....	14
Key terms	22
Bibliography.....	23
1. Key bibliography	24
2. Optional bibliography	24

Introduction

The word **culture** originates from the Latin verb *colere*, which means “to cultivate”. It was first used by Cato¹ to refer to the cultivation of land (vineyards, gardens, etc.). Thus, *cultura agri* meant looking after, nurturing, changing and improving the “raw” nature that surrounded man. It was a statement made by Cicero² in his work *Tusculanae Disputationes* that brought about a significant change in the meaning of the word, which was the first important step towards the formation of its present usage: “*cultura animi ... philosophia est*” (Kondor, 2001), i.e. philosophy is the cultivation of the soul. Man is a biological and social being at the same time. It is culture – instruments, tools, clothing, ornaments, customs, institutions, beliefs, rites, games, works of art, etc, and even language – which enable man to become a social being. Leslie A. White, an acclaimed cultural anthropologist, defined man as *one possessing the ability to create symbols and thus culture* (White, 1942). Culture has numerous definitions.³ This chapter will look at culture as a survival strategy and as a sum of all non-inherited information.⁴ The holistic approach to culture has recently been summed up in anthropological scholarly literature by Clifford Geertz (1973).

It can be seen from the above that culture is a highly complex concept undergoing changes era by era and understood differently by social groups. *Digital culture can be regarded as a growing part of “traditional” culture which cannot be interpreted or even exist on its own.* Digital culture is part of culture, and can be seen as a sum of all cultural objects (and the meanings conveyed by them) that exist on a digital platform, whether they have been *created digitally* or *digitalised*. Digital culture is a complex area including the following major sub-areas:

- The technical equipment necessary to access digital culture; their development, changes and the new opportunities they open up, etc. This area includes all kinds of equipment through which the elements and phenomena of digital culture can be accessed (for example, computers, mobile phones, PDA, digital cameras, modern televisions, etc.).
- The capability of value creation through the ability to use of digital culture, i.e. information literacy. Just as the overwhelming majority of society was excluded from certain types of dialogue, rights and services in the early part of the modern age because they did not read and know how to use Latin, so the inability to create value through the use of digital culture can exclude a great part of the world’s population from the information society.
- Digitalisation.
- Cultural elements created digitally or on a digital platform.

In a simplified way, digital culture can have *two sources*: the *digitalisation* of already existing cultural objects, and the *digital creation* of cultural elements. Both these areas are extremely multifarious and exciting, and thanks to today’s revolution in regard to *online* content and users, digital creation has attained a predominant role with digitalisation – which seemed to be a key task just years ago – having faded into the background.

This chapter, devoted to digital culture, will begin with the explanation of the following terms: *information literacy*, i.e. the ability to access and understand information, *digital cultural heritage*, i.e. saving and preserving in digital form those cultural achievements that have been deemed important so far. Finally *digital culture* will be

¹ 234-149 BC

² 106-43 BC

³ Alfred Kroeber and Clyde Kluckhohn collected 160 definitions of culture in 1952, and since then this number of definitions has multiplied.

⁴ For some definitions of culture accessible *online* see: <http://www.tamu.edu/classes/cosc/choudhury/culture.html>.

explored. If looked at in the timeline of human culture, the computer only appeared moments ago. People's participation *en masse* in a digital environment, started by the mass proliferation of computers and digital equipments (e.g. digital cameras) and the growth of the Internet has literally been going on for only a few years. In 2006 one sixth of the world's population had Internet access and almost every second person used a mobile phone, even though the Internet only became accessible in the first half of the 1990s, which means that the digital revolution (or the revolution of devices) changed the world in the course of merely 15-20 years.

Information literacy

I. A brief history of information literacy

The term information literacy emerged as a result of the information technology revolution of the 1970s. In the past thirty years the usage of the term has significantly expanded, with new layers of meaning incorporated, but at the same time it has also become somewhat narrowed down (it is increasingly applied to computer and Internet usage). It is important to understand that information literacy is not the ability to handle certain devices and equipment but *the ability to access and use information*, which is going to become indispensable in the future for all citizens of the information society.

Most people identify information literacy with computer skills and the ability to deal with information gained from the Internet (i.e. with Internet literacy). The schools of anthropology, social science and philosophy exploring the changes in the basic structure of literacy and in a wider context written and verbal communication, did not focus their attention on information literacy as a narrative. In contrast, the Toronto School (Havelock and Goody-Watt as well as their followers and critics) created enough literature to fill an entire library; their key term “secondary verblity” focuses exactly on the impact of the recently changed electronic media environment on culture.

One of the earliest appearances of the expression “information literacy” dates back to around 1974 (Zurkowski, 1974), when the term was closely attached to educational reform (primarily that in the United States) and at the very outset it was related to the efficient use of information. In 1976 Buchinal defined information literacy as a *set of skills* which he divided into three levels: 1. abilities that help to find and use information; 2. using information in problem-solving and decision-making; 3. searching for and making use of information efficiently. *Those who created the later concepts of information literacy extended and refined this division according to their own insights.* In 1976 Owens (Behrens, 1994; Bawden, 2001) linked information literacy with democracy to underline the relationship between involvement in civic life and information literacy, the latter being seen as the ability of individuals to access and process news. It was Taylor who introduced the term information literacy into the scholarly literature of library science in 1979 in the columns of *Library Journal* (Taylor, 1979; Behrens, 1994; Spitzer et al, 1998). In the seventies the term was associated with services provided for citizens and it is clear that the “information explosion” that took place around that time greatly contributed to the emergence of the expression (Behrens, 1994; Spitzer et al, 1998). *In the eighties the term was given increasing emphasis in higher education in the United States.* Several essential works were published in this period⁵, which shared one characteristic, namely that information literacy was not defined as a set of abilities but rather as a tool or a method for learning.

Several new interpretations of information literacy emerged in addition to the scholarly literature of library science and the professional circles involved in educational reform. Some of these were the information skills model and the model of the information search process, as well as models focussing on perception or the

⁵ *Educating Students to Think: the Role of the School Library Media Program* was published in 1986 and Kulthau's *Information Skills for an Information Society: A Review of Research* in 1987. The division into six in *The Big Six Skills Approach*, published in 1998, is regarded to this day as the authoritative approach taken to information literacy (also Eisenberg, M. & Berkowitz, L. 1990).

behaviourist notions of extracting information. It can be stated that *by the late eighties the concept of information literacy became mature and widely used.*⁶

2. The concept and models of information literacy

The concept of information literacy is closely linked to network literacy, Internet literacy, multimedia literacy, and hypertext literacy. The reason why the umbrella term *e-literacy* did not become used is because it is pronounced the same as the word *illiteracy*. The expression “Internet literacy” has been used informally by many since 1995 but it can rarely be found in scholarly literature. “Hypertext literacy” refers to the ability to gain knowledge accessible from hypertexts (mainly html documents). From the 1990s “digital literacy” has been used to denote the ability to read and understand hypertext and multimedia messages (containing text, image and sound).

Thus, the improvement of information literacy does not refer to the ability to use technical equipment but rather to the development of a conscious method or way of thinking through which one can achieve one’s purpose. In other words, information literacy is the recognition of what information is missing, the search to find it, the actual finding it and finally processing the information found; therefore, the improvement of information literacy obviously entails the development of critical thinking.

Andretta grouped the skills necessary for information literacy according to three models (2005). The *behaviourist model* is based on behaviour that can be observed. It is criticised by many because it measures separate (partial) skills, such as the level of competence in using a browser, and the efficient use of search programmes, etc. *Constructivist models* place emphasis on critical thinking and independent learning. They are based on mental models and are related to the approach of “let’s learn how to learn”. The *relation model* complements the constructivist approach by emphasising the development of personal traits that give priority to the critical approach to using information.

Information literacy is the ability to access information and use it to create value and it can be said that *a person possessing information literacy* is one that recognises when he needs information. A person *possesses* information literacy if he has learnt how to learn.

3. Levels of information literacy and related skills

It can be seen that information literacy requires, or demands, several skills from the conscious citizens of the digital world. If the following skills are considered, it is easy to see how different people today are from the average citizen who lived in the early period of the modern age. These skills have never been expected of *all* people in any other previous period of history having been mainly in the domain of the intellectual elite. However, in *today’s world, defined by the availability or otherwise of information, its value, genuineness and speed of flow*, these skills have become important for everyone. Without them *individuals will be unable to assert their rights or exploit any opportunities* even in their everyday lives.

The following table shows a summary of information literacy skills.

⁶ It should be noted that the first personal computer came out in 1981, so the *development of the concept of information literacy predated the mass proliferation of PCs.* (The first home computer came out in around 1975 since it was in this year that a small, inexpensive computer for home use was launched on the market. It was called Altair 8800 and looked more like a toy. It was bought by engineers and people who dealt with electronic devices as a hobby.) IBM’s PC was launched on the market in 1981. It soon became a worldwide success, and in comparison, its predecessors could be regarded as being more like experiments.

1. Table: Information literacy skills

Defining tasks, identifying missing information	Defining tasks, identifying the information necessary to solve these tasks and understanding why that particular information is necessary and how important it is. This skill involves the formulation of the question of why the information needs to be obtained. The information being searched for can be accessed on more than one platform (in print, digitally, on other data carriers or on television) and it might even be obtainable from a friend. It must be decided how energy-intensive the acquisition of the information is and whether this is proportionate to the importance of the information.
Strategy for finding information	Available sources must be identified, where they are located, as well as how and when they can be accessed. This skill involves the ability to use various sources of information, i.e. the ability to decide when information should be searched for in printed materials and when they are more easily found in <i>online</i> databases.
Using information	Using information involves the skill to look for information efficiently and in the appropriate sources. The user must be able to recognise the information he has been searching for and he must know when the search can or should be ended. It is important that the user be able to assess the value (credibility, accuracy, etc.) of the information he has found. A critical assessment of information can prevent the user from going off track during his search and to ending up finding the wrong information.
Synthesising	This is the level of analysing the information obtained and working with it. Besides knowing how to analyse the information, the user must arrive at new knowledge and new understanding. He must be able to present the search results, which, on a practical level, mostly means the understanding of the information found, its comparison, combination, annotation and conscious use.
Evaluation	This is the highest-level skill, including the ability to store the obtained information and the processed knowledge as well as to ensure their retrievability and later use.

Source: Eisenberg, M. & Berkowitz, L., 1990

The above table sums up the levels and skills of information literacy. These levels are logically built on one another and entail the *skill to handle information and knowledge of how to learn*. Acquiring these information literacy skills requires a wide range of technical skills (e.g. knowing how to use library catalogues when looking for information or the skill to search *online* databases) at each level; however, the means should not be mistaken for the end, i.e. the skill to use various tools is not the same as that of processing information.

The following sections will be devoted to the digitalisation of the cultural heritage. The first sources of digital culture were created only in this way and the majority of digital objects are still created through digitalisation.

The digitalisation of the cultural heritage and its role in the information society of the European Union

I. Culture, heritage, digitalisation

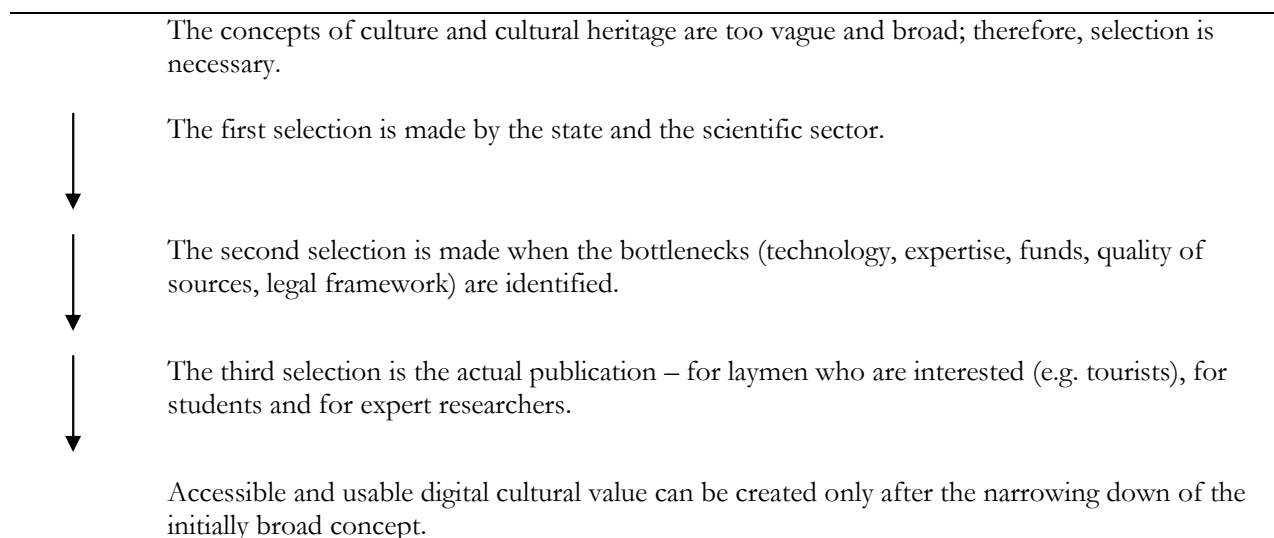
Humanity has always sought to show its treasures and preserve them for posterity. This is one of the most important tasks of culture. Of course, the preserved elements of culture not only fulfil an aesthetic function but also have practical value in the area of education for example, as well as theoretical and ideological value in other respects. Digitalised cultural heritage must fulfil the same role. *However, due to the technical nature of digital preservation, some functions might be lost, distorted or weakened.* Distortions due to technology not only result from problems arising during the digitalisation process but also from other technical imperfections when accessing the digitalised material. Distortions might also be a result of human errors (inadequate preparatory work, inconsistent or uneven digitalisation work). In this respect, the responsibility that needs to be assumed by the profession and the difficulties involved considerably outweigh technical challenges. *The technological level of software and hardware is far more advanced than the theoretical foundation.*

The demand for systematising, classifying and using humankind's preserved treasures is keeping pace with the development of science. It is well known that every civilisation has striven to preserve its cultural achievements. *So how can digitalisation be more than inscribing in stone, for instance,* if both of these preservation techniques are accepted as being efficient? Of course there is more than just a technical difference between these two methods: more important is the different *levels of interactivity.* *Digitalised material assumes genuine value if "intelligent" operations can be executed on a text.* The digitalisation of the cultural heritage poses practical, theoretical, technical and scientific problems alike. It requires the co-operation of at least two groups ("technicians" and scientists) as well as mediation carried out by a specially trained group with members who are able to do the job of the first two groups; for example, librarian-information science experts and information scientist-museologists. The partners in co-operation must be able to engage in a dialogue during which it is clearly understood what needs to be digitalised and how, and what can be carried out efficiently as far as the time and costs are concerned. Furthermore, the parties must agree on the acceptable size of value loss during digitalisation work.

There are a great many questions in regard to digitalising the cultural heritage. *What kind of culture should be digitalised?* According to the traditional ethnographical approach, culture is divided into folk, or popular, and elite culture. Culture should also be understood in a temporal context. Which culture should be digitalised? What is the aim of digitalisation: is it to record the present for the future or is it to protect humankind's cultural treasures from sinking into oblivion? Is the preservation of a given geographical region's past the task of the people living there? *Europe's history is extremely rich and diverse* and thinking about European culture immediately raises the possibility of co-operation extending to many countries. All these questions seem to have a simple answer: yes, everything should be digitalised since all elements of culture are important. However, *it is impossible to carry out this formidable task, and perhaps it would not make much sense to do so,* even though it has never, since the beginning of human civilisation, seemed as easy as it is now.

The digitalisation of the cultural heritage must be carried out selectively. In order to provide a sound foundation for this, value research projects must be conducted on the entire cultural heritage (including today's culture). Such research can also contribute to feasibility studies related to globalisation.

2. Table: The selection process of digitalising the cultural heritage



Digital archives are based on collections of objects but during digitalisation the result becomes distant from its source. Compared with traditional archives, the value of objects is approached differently in digital archives, creating a great amount of added value. While the task of traditional museums is to collect, display and preserve actual objects that represent cultural values or other information, digital archives collect and store only *the information conveyed* by the objects. With the exception of those media that are built on information flow taking place on a digital platform, digital databases cannot exist without traditional collections.

Digitalisation is a process during which works (texts, /moving/ images, and sounds) originally published non-digitally are converted into an encoded form readable by computers. When texts are digitalised each character (letter, punctuation mark, etc.) is given a separate code; this is often complemented by commands about how the text is to be displayed. During the digitalisation of images the light sensor unit of a page reader device (scanner) scans each dot of the image to be digitalised. The computer stores the information which has been collected about every tiny dot and transmitted through the scanner, and reconstructs the image based on this information when it is retrieved from memory. Printed text pages can also be digitalised as images; however, in this case the text itself cannot be retrieved because the characters are not made readable for the computer. When sound is digitalised, a special tool (e.g. a sound card) is used to convert analogue signals into numbers. When the sound recording is played, the digitally stored sound data, stored on the computer in an encoded form, is converted back into analogue signals.

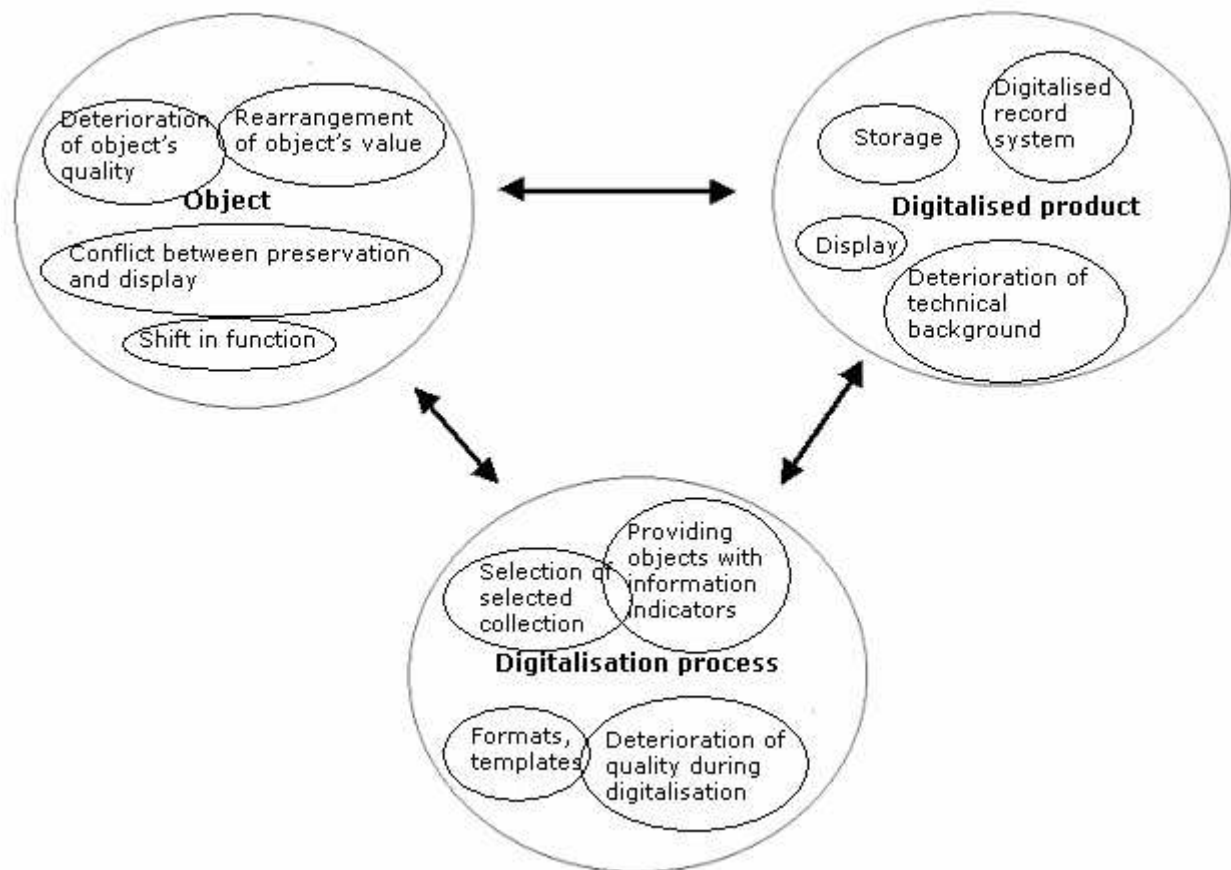
2. Objects, digitalised objects and digitalisation

Objects, digitalised objects and digitalisation together enable the creation of a new, higher level of quality. It would be a grave mistake to assume, however, that digital collections make traditional collections redundant. The two kinds of archives or museums are not interchangeable and one cannot substitute the other. The role played by traditional museums has nevertheless changed: they have been mostly relieved of the burdens and “harmful effects” that accompany publication and display and their most important tasks remain collection, storage and

the digitalisation of their material. *It is important not to assume a liberal technocratic evolutionary approach and interpret this change as a definitely one-way process of development from traditional museums to virtual archives.*

The situation can be better *illustrated with the co-ordination of three elements* which exist and will continue to exist complementing each other, with certain changes in their functions.

1. Figure: Problem map of object, digitalised product, and information conveyed



Source: Rab, 2005

The main problems relating to the given sets are indicated in the figure. The section below contains additional comments on each set.

First set: objects

There are major tensions between the preservation and display of objects in traditional museums: the display, the presentation (even if it is for only a select few) inevitably includes the risk of damage and therefore the preservation of displayed objects incurs significant extra costs. In fact, the majority of objects preserved in collections cannot be displayed, and it is no exaggeration to say that the public does not have access to about 90 percent of most collections. There are often many other reasons for this: not all objects meet the requirements of display, e.g. they are not documented properly or are not of adequate quality, etc. Displaying digitalised collections electronically resolves this conflict since it is not the physical objects but their digitalised form, i.e. the information they convey, that is presented. Objects of digitalised collections are not damaged by being displayed and viewed. In addition, the objects in museums will have a different function: the most important thing will be the value conveyed by the object and not the physical object itself.

Second set: the digitalisation process

Practically speaking, digitalisation is the re-selection of an already selected reality in a way that is affected by technical and cost-effectiveness parameters. When we speak about digitalisation, we come up against a number of questions: what is culture, what is heritage, what materials should be preserved and used digitally? From a functional point of view, culture can be seen as the sum of all non-genetically inherited information, as well as the survival strategy of smaller or bigger and organised or less organised groups of people. Of course this definition is too broad to work with. That is why digitalisation must be preceded by the previously outlined cultural selection process.

Third set: digitalised products

Archives of digital products are not only suitable for salvaging information; their real value is manifested in their interactive, *online* use. The “realism” of the hardware and software systems carrying information is important from a practical point of view but it is unimportant on a theoretical level.

3. Challenges and impacts of digitalisation – the European Union

Currently, the libraries of the European Union hold more than 2.5 billion different volumes and periodicals. Due to the deterioration of the technical environment and its obsolescence, tens of thousands of hours’ material is lost every year from the oldest collections of the European audiovisual archives. The only way to repair this loss is through (re)digitalisation. Seventy percent of the material is in danger because the data media are perishable, vulnerable or become outdated: many of the objects are either original or are in analogue form.

From the very start the EU’s aspirations in regard to the information society identified the use of the cultural heritage of Europe as an important force in economic and cultural competitiveness, defining strategies relating to the information society in many ways. In order for these plans to be implemented, a quantitative leap must take place in digitalisation and making digital culture accessible. The objective is to make two million books, films, photographs and other cultural objects digitally accessible by 2008. According to plans, this figure must increase to six million by 2010. This quantum leap is expected to be achieved if all European museums, libraries and collections are able to contribute their own digital collections to the European archive.⁷

The main *technical challenge* is to improve digitalisation technology in order to ensure more efficient and affordable digitalisation in the case of audiovisual materials and books. The mass digitalisation of written texts requires more advanced automatic book- and document uploading device and *higher capacity optical and intelligent character recognition systems, especially to digitalise non-English texts*. The English language optical character recognition (OCR) systems have been tested. They have been used successfully for most printed fonts for about ten to fifteen years and are enhanced with semi-automatic spelling correction algorithms. Similar systems used for other languages are less developed, which means higher costs and results of poorer quality.

Currently, only a small part of European collections are digitalised. Digitalisation is conducted in all EU member states; however these activities are not systematised and their progression is relatively slow. This was taken into consideration when *Google* launched its initiative aimed at digitalising the altogether 15 million books held in four libraries in the United States and one major library in Europe. If this plan is implemented, *Google’s* initiative

⁷ Digital cultural heritage now has a European portal, called *European Library* at <http://www.theeuropeanlibrary.org/portal/>, which was created as a response to *Google’s* digitalisation programme. It provides *online* access to an immense amount of Europe’s digital treasure. It is well worth a visit, even more so because the number of accessible collections and searchable libraries is increasing by the day.

will considerably surpass any other efforts made on a national level by EU member states. Digitalisation has swung into motion in other parts of the world, too. For example, large-scale plans are on the agenda in India and China to digitalise materials written in various languages. *Digitalisation is a labour-intensive and costly process.* It requires significant investment in advance, often exceeding the funds available at the institutions which are in possession of the information to be digitalised. Digitalising all the relevant sources would be an unfeasible task, therefore decisions must be made in regard to what materials should be digitalised and when.

The objective of the "Digital Libraries" initiative is to make access to Europe's information sources easier and more interesting, in an online environment. The initiative is based on Europe's rich heritage and aims to couple this culturally and linguistically diverse environment with the latest technological achievements and business management solutions. Digital libraries are systematically organised collections of digital content made accessible for the general public. They may comprise *digitalised materials*, such as digital copies of books or other 'physical' products found in libraries and archives, as well as *information sources originally created in digital form*. The latter form is becoming increasingly typical in today's scientific-information world, where digital publications and an immense quantity of information are stored on digital storage spaces. The Digital Libraries initiative is aimed at the digitalisation of both digitalised and digitally created materials. Three main considerations must be kept in mind when identifying the opportunities inherent in digital technologies which ensure a wide-ranging and easy access to information:

- Providing online access in order to ensure maximum benefits which citizens, researchers and economic players can gain from information.
- Digitalising analogue collections in order to ensure a wider-range use of sources in the information society.
- Preservation and storage in order to ensure access to digitalised materials for future generations and to prevent loss of valuable content.

In the European Union the digitalisation of the cultural heritage has an equally cultural, social and economic impact. Europe's libraries and archives hold a vast quantity of materials (including books, periodicals, films, photographs and maps, among other things) attesting to the wealth of European history as well as Europe's cultural and linguistic diversity. *Online access to these materials of many cultures and languages will facilitate the easier understanding of people's own cultural heritage and their appreciation of the heritage of other European nations.* Furthermore, it will provide sources that can be used in learning, work and recreation. *Libraries and archives are also a significant sector in regard to investment and employment.* In 2001 a total of 336,673 full-time employees worked in European libraries and the number of registered users was over 138 million. Thus, *their overall impact on the economy can be regarded as significant, and this could be further enhanced by the digitalisation of their sources.* A digitalised European cultural heritage might also boost network traffic. If preserved properly, this material can be reused a great many times. Digitalisation will also contribute to significantly increasing the profit made by businesses involved in developing new technologies.

Digital culture

The second original and exciting area of digital culture is the understanding of how cultural objects created on a digital platform actually operate. This chapter describes the novel “nature” of digital culture, answering questions such as how the elements of digital culture differ and why they transform our world.

I. The nature of digital culture

In the world of digital culture – to use Nicholas Negroponte’s expression – only bits (and not atoms) travel (Negroponte, 1995). *The real world and the virtual environment are linked at many points; however, the mediating digital platform itself is immaterial.* This fundamental aspect defines many features of digital culture.

Contemporary culture is basically characterised (among other things) by *instancy, the local interpretation of globalised (and uniform) content*, as well as the worldwide presence of symbols and icons of mass culture. Features in addition to the aforementioned ones are detailed below. Digital elements are created in many ways: primarily with the help of computers, but digital cameras have pushed traditional devices into the background, our telephones are suitable for recording (moving) images and sound, and there is a digital switchover in television and radio broadcasting. Computers are no longer used only as tools to provide us with information digitally in our private lives but they also determine our public lives through e-government, e-health, etc. Furthermore, every “atom” of virtual worlds, which will play an increasingly important role in the future, is digital.

The computer, digital objects, the Internet, and later broadband created new culture-shocks, and all within the last twenty years. *Never before has humankind* – due to the impact of globalisation we can talk about the whole of humankind and not only some nations – *experienced so many and such profound changes in such a short period.*

When Johannes Gutenberg printed the Bible in 1454, he *actually started a communication revolution.* Seventy years later over one thousand printing presses were operating in Europe. The printed word spread at lightning speed, and it can be claimed that *it gained dominance in culture in the subsequent centuries.* Written texts – in contrast to oral ones – were a rational, easily understandable and reliable channel of communication.⁸ Communication via printed texts revealed a more analytical, more rational and more organised world. *The predominance of the printed word was dealt the first blow in the 1950s, when television appeared and started spreading.* The proliferation of digital culture and within that especially that of digital media brought the 450-year dominance of the written word to an irreversible end: written digital texts and digital culture in general require new skills, a new approach and a new understanding.

Digital written communication is much closer to the oral communication that predated the proliferation of printing. Digital media combine texts, images, sounds and data and we, the recipients, perceive these complex messages in a more *complex* way – multi-media reception via multi-channel networks. In a digital environment information spreads at a breathtaking speed and news about a terror attack or about the outburst of an epidemic travels the entire globe within minutes. Due to digital culture, our general knowledge is transformed into the sum of interactive, global and multimedia-type experiences accessible any time and anywhere.

⁸ The relationship between oral and written communication is a far more complex issue. See e.g. Ruth, 1997.

The digital world has many new features, which will be examined below. It is important to note that *none of these features are determined by technology* since all of them are a result of changes in culture. However, we can see a two-way process here: changes in culture induce technological changes, which then also have an effect on culture.

Interactivity

The digital environment creates the opportunity to increase interactions. In a digital environment it feels natural that an image or a piece of music is modified or entirely changed. *There is a trend for our online environment to become more personalised* with modules which we are interested in appearing on our homepages and the same information (e.g. a news item) reaching us in different forms (we can read it *online*, it can come in a newsletter, we can receive it in an *SMS* or read it via an RSS channel), depending on our choice. Targeted advertising appears more frequently: companies want to get their message across to us in as targeted a way as possible by using various automatic techniques. Games are becoming increasingly interactive with the simple choices of the past having been replaced by today's entirely interactive environments – we are given a ready-made dynamic world. In *MMO* games⁹, which can only be played *online*, the environment is not generated in advance but is built together by thousands of players. Digital television moves even this “classic” channel towards interactivity.

Interconnectivity

The electronic devices of the information society give us the feeling of constantly being connected. We can be reached on our mobile phones at any time; when we are sitting in front of our computers working *online*, searching for some information or perhaps enjoying some form of entertainment. We can contact our friends who are *online* either by speaking (*Skype*, etc.) or writing (*email*) to them, whichever we prefer. Moreover, because of the convergence of devices and technologies, mobile phones, computers and the Internet are beginning to merge into one unit, a means of providing a permanent interactive connection. The possibility of permanent availability and connection change many traditional cultural patterns ranging from how we use our personal space to how we do our work.

Complexity

Complexity is present at every system level: complex systems can have complex impacts. Devices we use every day are capable of carrying out complex processes at the touch of a button; the speech of a high-ranking politician might make an impact in a stock market at the other end of the world within minutes.

The merging of oral and written communication

Written records form an integral part of most cultures and are generally one of the basic means of preserving and disseminating information. It can be seen that in a digital environment written communication has some characteristics of oral communication as distinct from those of written records, as we understand them in a classic sense. *Chatting*, exchanging electronic messages and various digital objects (e.g. images, series of images, sound and video documents) formally take place in writing; however, these forms of communication and their features appear closer to oral communication. Oral and written communication is merged in a digital environment, harking back to the early centuries of the Gutenberg Galaxy, when similar oscillations could be seen on the borderlines of oral and written cultures.

⁹ Massively Multiplayer Online games.

Speed

All new technology is designed to enhance speed. The first important trend was to increase the speed of changing locations, while today the main aim is to increase the speed of information exchange. This acceleration can be felt in our everyday lives, too: letters no longer take weeks or days to reach their destination but only a few minutes. If someone wants to find a photograph taken of a South American city, he/she no longer has to go to a library and spend hours searching since now it is a routine task that can be done in just a few minutes. With the help of mobile phones we can reach anyone anywhere since we don't have to wait until the person we want to contact gets home. Furthermore, administrative and business information spreads extremely fast and the stock markets of the world have an almost instant connection with each other. This stepped up speed has a depressing effect on a lot of people, who feel it to be one of the drawbacks, and a kind of pressure, characteristic of our modern era.

Intangibility

In a digital environment we are distant from the actual source of information and objects. There is a greater distance between us and the tangible world, and thus *the importance of trust and reliability has increased*. Perhaps one of the greatest cultural shifts has taken place in regard to how we feel about “real” and intangible cultural objects. In other words, is something that is not physically tangible regarded as valuable by the members of a given culture? The seemingly(!) intangible nature of digital cultural objects and patterns can easily lead to loss of substance. However, in the coming decades people will most probably come to accept that *digital actions, digital words and digital objects are real actions, real words and real objects in every sense*.

Convergence

In the context of the information society the strict, originally mathematical sense of **convergence** is interpreted in two senses: on the one hand, it means the ability of various network platforms to provide basically similar services, and on the other hand, it is used to refer to the unification of consumer goods such as the telephone, the television and the personal computer. Convergence is a multifaceted phenomenon and besides information society it is used in politics, in regulation, in the area of services and markets, as well as in intersectoral associations and fusions. Convergence actually refers to a kind of merging together of areas, channels, solutions and products that were previously distinct from one another.

It is the changes resulting from technological convergence that are the most perceptible. Now we can use the Internet when using digital television or we can have a telephone conversation via *PDA* and *Wi-Fi* connections, which is realised through operating several technologies in tandem. The platform neutrality of the Internet protocol plays a crucial role in such fusions. The convergence of technical devices serves the purposes of an increasing concentration of services (“I have one device in my hand which I can use for phoning, taking photos and connecting to the Internet”) and miniaturisation: devices with an increasing number of functions take up ever-smaller space. Technological convergence results in telecommunication, informatics and media approaching each other and merging together.

Unpredictability

We live in a world full of uncertainties. In the early stages of computer development we were certain that this device would always be confined to laboratories. Before the Internet spread worldwide we thought that this channel of communication would never become widely popular. Now, only a few decades later, these devices and the opportunities they offer have a profound impact on our lives.

Multitasking

In practice, **multitasking** means that we can do many things simultaneously. It is highly characteristic of media consumption, for example. The trend of secondary media consumption could be seen after the appearance of traditional electronic devices – this mostly meant background listening to the radio - but more recently television is also often used in this way. Intertwined and simultaneously running activities can dissipate our attention and push some elements into the background. Permanent online presence enables interactions in several communication spaces running in parallel, leading to the almost inevitable “fusion” of personal, group and mass communication. Similarly to background media consumption, background communication is also emerging, which – due to permanent broadband connection - means a simultaneous presence in more than one communication space.

2. The environment of digital culture

Digital culture affects many elements of our lives that seemed to be firm and constant. Concepts such as community, publicity, personal rights, ownership and value are beginning to be renewed and changed. The natural environment has always been a key factor in the development and shaping of communities - this solid foundation seems to be disappearing into a digital environment. Opportunities for self-expression have suddenly increased due to digital platforms: *the democratic nature of technology makes it possible for any individual and community to have access to a wide range of publicity on the net.* For example, an artist can now address the entire world (it is another issue whether two-way communication actually takes place or not), and a typical feature of online religion is that the online appearance of a small church can be as impressive, comprehensive and interactive as that of a historical church, despite the fact there is a vast difference in scale when it comes to the actual number of the respective congregations.

Digital information can be detached from its original source and the spreading of digital information is therefore a source of anxiety and doubt for many, owing to its potential for abuse – at first glance we cannot be sure if the information content of a text, a picture or a film excerpt is credible or not. *The critical approach taken to the source of information in our everyday lives takes us back to the concept of information literacy.* Assessing the value of specific information is a central issue in information literacy. Users must be aware of the reliability of digital information and its usability for a particular purpose at all times. However, this approach is at great variance with how the average citizen of previous cultures viewed and handled information.

Another interesting feature of digital information is permanence. Anything we do in a digital environment leaves a trace. The time of opening a document to read is recorded just like the time when it was typed in, and when we view a typical homepage the same amount of information leaves our computer and arrives. The vast information flow makes it difficult to trace all this information but the principle of “all actions being recorded in one way or another” is applicable to every single object of digital culture. *Digital information is easy to copy.* Moreover, if data carriers containing digital content (primarily our PCs) are connected to the network (i.e. connected to the Internet), the possibility for reproducing information further increases. István Szakadát (Szakadát, no date) pointed out that in the “traditional” world the dissemination of information (books, films or any other cultural objects) follows an *ex post* logic: a traditional work is first multiplied and only distributed - thus made available for consumption - subsequently. In contrast, digital information spreads in exactly the other way, *ex ante*.¹⁰ It is enough to create one prototype without multiplying it since those interested (the consumers) will copy it themselves - reproduction technologies include recording the information on any data carrier or even forwarding the given object to someone else.

¹⁰ Check the chapter on law for the meaning of the expressions *ex post* and *ex ante*.

There is not enough space in this chapter to review the history of the World Wide Web but one thing must be highlighted: the creators' objective was to design a system which can operate without central control, which they successfully met. If we consider the reproducibility of digital information and the possibility of “linking” onto the World Wide Web, it can be seen that *any blocking of digital information and the regulation of the flow of information come up against immense difficulties which are virtually impossible to overcome.*

The freedom of digital information has a significant impact on many areas (e.g. politics, media, business, e-democracy, etc.) of culture in a traditional sense. That's why issues pertaining to the freedom and the controllability of the Internet are of such vital importance today.

3. Digital culture and the Internet

Digitally created cultural elements mostly include creations made on computers (texts, images and audio) and their “consumption”. The growing popularity of digital cameras and camcorders generated a further large-scale increase of digital data. The appearance and growth of the Internet, which became the most representative area of the information society inducing the most spectacular changes, also resulted in a sudden proliferation of digital culture. The spreading of broadband introduced a new level into this network reality, namely that of interconnectivity and online communities, which is developing before our eyes and which is referred to with a fashionable umbrella term as the “Web 2.0 revolution”.

More than one billion Internet users were registered at the end of 2006 worldwide, and the number of Internet users increases by about one hundred million every year. Currently, nearly one sixth of the world's population uses the Internet. The number of broadband users is also growing, with their proportion approaching five percent of the world's population, which means that about one-twentieth of the world's inhabitants use this technology to access the Internet. An increasing number of people spend ever-more time *online*.

The once elite communication channel which was used only by a narrow layer of researchers and educators in the sixties developed into a channel available for masses of people from the mid-nineties. The Internet had the same impact on electronic business that Henry Ford had on the car manufacturing industry: it turned a luxury product accessible for a select few into a relatively simple tool available for many. *This new medium unites the speed and immediacy afforded by the television and the telephone with the depth and thoroughness provided by paper-based communication.*

The turning point in the development of the Internet came when the results of the research and development work conducted by Tim Berners-Lee and his team in the Swiss CERN research institute of physics came to light between 1989 and 1991. This team needed relatively easy access to data, figures and other information stored on other computers to be able to do their research work. For this reason, they developed a network solution, which was made public knowledge in 1991. The *online* society “jumped at the opportunity” and that is how the glitzy-shiny-jingling *World Wide Web* was born – the multimedia applications and user friendliness of which made it into a suitable medium even in the business world. A great advantage of the *Web* is that *information can be presented attractively through graphic representation.*

There were 19 thousand homepages on the Internet in 1995, which grew to 50 million by 2004. Between 2004 and 2006 the “size” of the Internet doubled and *at the end of 2006 the number of individual WebPages exceeded 100 million*, which is an almost unbelievable rate of development.

The number of photographs in *Flickr* photo sharing website increased to over 100 million in February 2006, and 100 million downloads take place daily on *YouTube*. In 2006 almost half of *online* “video consumption” came from clips uploaded by Internet users. Wikipedia, perhaps the most well-known community encyclo-

paedia *online*, contains almost five million entries in more than one hundred languages. By 2010 the number of downloads and visits to providers like *YouTube* and *MySpace* will exceed 65 billion. The income of the most popular website operators may be more than 900 billion dollars already, and 44 billion *videostreams*¹¹ will be accessible on the Internet in 2010. The *online* buzz brought on by broadband has reached incredible proportions - users can virtually luxuriate in *online* cultural items, in each other's company in the amazing number of *online* communities and communication games. *It is only the lack of the previously detailed information literacy that can limit the exploitation of online culture.*

Digital culture is more than the computer and the Internet. The speed of *mobile communication* had already introduced fundamental changes into patterns of social behaviour, relationships and other cultural habits and opportunities. *Digital television broadcasting* extended the services provided by analogue television - the media channel that enjoyed the greatest popularity before the appearance of the Internet - by introducing many new technological innovations. The digital platform brought about new opportunities in *radio broadcasting* as well. Furthermore, today's digital citizen is able to "consume" these channels simultaneously, i.e. he can listen, watch and participate in various interactions at the same time, so we could say that in a way *multitasking* prolongs our days.

The elements of digital culture differ from those of "traditional" culture in many ways: they are easy to copy and modify, easy to manipulate and can quickly be shared with others via the Internet. We can find a virtually infinite amount of information on the network, which is why information literacy, which helps us to find our way in this endless jungle, is so crucial. Many people are discouraged by the vast quantity of information and the difficulty of finding their way in it, while others - both individuals and organisations - try to protect themselves by resorting to prohibitions or installing filters. *This mass of information should not be feared but people should learn how to use it.*

Digital objects and the Internet have changed our lives in many ways: not only are they convenient communication channels but they also provide us with online access to a great number of services: we can do our shopping, study, use administrative services, exercise our rights, use entertainment facilities and many other things online. Not only our everyday lives are affected by the digital world but society and the economy as well: many business and cultural models are restructured or disappear and are replaced by new ones. At certain levels, our approach to private property is also changing, exactly because of the above-mentioned features.

In the early stage of its development it was often feared that the Internet would make people lonely, and destroy relationships as well as mental and biological health. Such opinions have died down and almost disappeared due to the community revolution that has become apparent in recent years. It is now clear that *the Internet can truly manifest itself through the unlimited network of broadband connections.* As the number of people connected by the Internet reaches a critical mass and increases even further, entertainment, social relationships and communities come to the foreground. It seems that the negative phenomena associated with the Internet was a result of technical limitations and today's unlimited freedom brings out the genuine power of the Internet - *what we have is not booked up computers and dead information but the huge, innovative and dynamic network of living people and information they can convert into knowledge.*

¹¹ A series of moving images sent/disseminated on the Internet in compressed format. E.g. *YouTube* operates according to this principle.

Summary

This chapter was devoted to digitalised and digitally created culture. Special attention was paid to information literacy, which is a skill essential for the goal-oriented citizens of the information society to sustain a standard of living they expect now and in the future, and the ability to manage information enabling them to access the objects of digital culture.

Digital culture cannot be understood and cannot exist without traditional culture. It is being gradually integrated into “traditional” culture and represents an increasing part of it. Digital culture has two basic sources: digitalised cultural objects and cultural elements created on a digital platform. During digitalisation cultural objects are converted into a coded format readable by computers. The primary value of digitalisation is preservation (although this aspect has been increasingly criticised) and a further important feature is that digital “materials” enable us to use it in interactive ways. Interactivity appears in research, entertainment and activities carried out in the home. The largest-scale digitalisation is realised in state projects, which are aimed at placing onto a digital platform those important elements of the cultural heritage which, among other things, can enhance competitiveness.

As digital devices become increasingly popular, so digitally created elements play an ever-increasing role in our everyday lives. The mass proliferation of digital cameras, computers, mobile phones, digital television, etc. has generated many new cultural trends. The most important medium of the sudden growth of digitally created culture is the broadband Internet. It must be stressed again that culture created on a digital platform can only be interpreted in the context of traditional culture; however, it is going to represent an ever-greater part of it in the course of the coming years and decades. Digital culture also creates inequalities in our society that did not exist before.

Revision questions

1. To what extent is the skill of information literacy more than just the ability to handle information devices?
2. How does digitalisation differ from other earlier archiving strategies used by humanity? What is a good digital archive like?
3. In what areas of life does digital culture play a part?
4. List some of the characteristic features of digital culture.
5. Think about the extent to which the following permeate an average day in your life: instancy, interaction, interconnectivity and convergence.

Key terms

Convergence: In the context of the information society the strict, originally mathematical sense of convergence is interpreted in two ways: on the one hand, it means the ability of various network platforms to provide basically similar services, and on the other hand, it is used to refer to the unification of consumer goods such as the telephone, the television and the personal computer. Convergence is a multifaceted phenomenon and besides information society it is used in politics, in regulation, in the area of services and markets, as well as in intersectoral associations and fusions.

Culture: The human race is unique in that it has culture. According to the most general and concise definitions, culture is a sum of all non-inherited information, and the sum of mankind's survival strategies.

Digitalisation: The process during which works (texts, images, and sounds) originally published non-digitally are converted into an encoded form readable by computers. When texts are digitalised each character (letter, punctuation mark, etc.) is given a separate code; this is often complemented by commands about how the text is to be displayed.

Information literacy: The ability to access information and use it to create value. Someone can be regarded as information literate if he recognises when he needs information, and if he has learnt how to learn.

Multitasking: In computing this term is used when a computer seemingly runs several programs and tasks simultaneously. "Media-multitasking" is the simultaneous use of more than one communication channel, e.g. if someone uses the Internet while watching television or listening to the radio. Human multitasking involves a person simultaneously carrying out more than one activity.

Bibliography

- Andretta, Susie (2005): *Information literacy: a practitioner's guide* (Chandos Publishing, Oxford)
- Bawden, Daniel (2001): Information and digital literacies: a review of concepts (in: *Journal of Documentation* 57(2): 218-259)
- Bawden, Daniel (2001): Information and digital literacies: a review of concepts (in: *Journal of Documentation* vol. 57, no. 2, March 2001, 218-259)
- Behrens, S. J. (1994): A conceptual analysis and historical overview of information literacy (in: *College and Research Libraries* 55(4), 309-322)
- Bruce, C. S. (1997): *The seven faces of information literacy* (Auslib Press, Adelaide)
- Eisenberg, M. – Berkowitz, L. (1990): *Information problem-solving* (Ablex, New Jersey)
- Eliot, T. S. (1949): *Notes Towards the Definition of Culture* (Harcourt, Brace, New York)
- Finnegan, Ruth (1977): *Oral Poetry* (Cambridge University Press, Cambridge)
- Geertz, Clifford (1973): *The Interpretation of Cultures* (Basic Books, New York)
- Kondor, Zsuzsanna (without year): *A kultúra fogalmának és tartalmának változása Cicerótól Carey-ig* (<http://www.phil-inst.hu/uniworld/kkk/crosscul/kondor/1.htm>, accessed 4 June 2007)
- L. Kroeber – Kluckhohn, Clyde (1963): *Culture, a critical review of concepts and definitions* (Alfred A. Knopf, Inc. and Random House, Inc., New York)
- Kuhlthau, C. (1987): *Information skills for an information society: a review of research* (ERIC Clearinghouse on Information Resources, Syracuse, New York)
- Kuhlthau, C. (1993): *Seeking meaning: a process approach to library and information services* (Ablex, Greenwich CT)
- Miller, Rex M. (2004): *The Millenium Matrix* (Jossey-Bass, San Francisco)
- Negroponte, Nicholas (1995): *Being Digital* (Knopf, New York)
- Rab, Árpád (2005): Néprajz az információs társadalomban (in: *Mindenes Gyűjtemény II. Artes Populares* 22. Budapest 357-371)
- Spitzer, K. et al (1998): *Information literacy: essential skills for the information age* (ERIC Clearinghouse on Information and Technology, Syracuse, New York)
- Szakadát, István (without year): *A digitális kultúra és világháló mint alternatív nyilvánosság* (http://mokk.bme.hu/archive/nyilvanossag_2001/pdf/data/at_download, accessed 3 June 2007)
- Taylor, R. S. (1979): Reminiscing about the future (in: *Library Journal* 104: 1871-1875)

White, Leslie A. (1949): *The Science of Culture: A study of man and civilization* (Farrar, Straus and Giroux, New York)

Zurkowski, Paul G. (1974): *The Information Service Environment: Relationships and Priorities* (National Commission on Libraries and Information Science, Washington, D.C.)

1. Key bibliography

Bruce, C. S. (1997): *The Seven Faces of Information Literacy* (Auslib Press, Adelaide)

Gere, Charlie (2004): *Digital Culture* (Reaktion Books, London)

Negroponte, Nicholas (1995): *Being Digital* (Knopf, New York)

Taylor, P. A.: (2005): *Digital Matters: The Theory and Culture of the Matrix* (Routledge, London)

2. Optional bibliography

Geertz, Clifford (1973): *The Interpretation of Culture* (Basic Books, New York)

Marsh, Jackie (2005): *Popular Culture, New Media and Digital Literacy in Early Childhood* (RoutledgeFalmer, London)

Miller, Rex M. (2004): *The Millenium Matrix* (Jossey-Bass, San Francisco)

Trend, David (2001): *Reading Digital Culture* (Blackwell, Oxford)