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# THE GUTENBERG GALAXY AND ITS "TWILIGHT" IN THE CONTEXT OF CONTEMPORARY ELECTRONIC MEDIA

SLAVOMÍR GÁLIK & SABÍNA GÁLIKOVÁ TOLNAIOVÁ

**Abstract:** In this article, the authors are concerned with the question of the nature of print and the impact print has on shaping the collective mentality, especially in the context of the electronic media "boom". Based on their analysis, they state that print has, since its creation, promoted a subject–object dualism, the development of abstract, linear thinking and the shaping of a collective mentality. Print is currently already under the strong, paradigmatic influence of electronic media resulting in a qualitatively new kind of "reading". That is to say that the electronic media cyberspace encourages the "hyper-textual" interlinking of different kinds of information in our learning or thinking, which can be referred to as "rhizomorphic". This kind of process is bound up with non-linear "reading", where the image dominates the word in cyberspace. The electronic media cyberspace thus dominates and shapes the contemporary collective mentality in our culture, including its approach to print.

**Key words:** writing; print; electronic media; cyberspace; collective mentality.

## Introduction

Marshall McLuhan did not hesitate to call Gutenberg's invention of the printing press "galactic", since a new culture was indeed born through it—firstly in Europe and then in the rest of the world. As McLuhan stated (2011, p. 32) each new media introduces changes into culture. Of course, the changes predominantly affect culture itself—a new extension of the body is created, but there are also changes in the sense in which it is perceived: "the effects of technologies do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance".

Print, like writing, fostered or developed visual perception. Moreover, it had a unique, global impact on society and culture. It was able to shape and homogenise thinking in the large social space and therefore played an important role in shaping mass culture and society. Its influence on culture and society culminated in the 19th and early 20th centuries. The second half of the 20th century saw the arrival of new visual media—the television—and then in the early 1990s—the Internet. Both these media appear to have overshadowed the hegemony of print.

However, print or the Gutenberg Galaxy, still exists, either independently, or more commonly, as part of the electronic media. This may suggest that nothing has changed, except perhaps for the fact that we can read information in both print and the electronic media. Yet, is the Gutenberg Galaxy the same galaxy it used to be? We believe that in the context of the electronic media, print is very different, and is read in a very different way. In this article, we will attempt to focus on this in relation to the technological nature of print and the electronic media. We will investigate the impact print has had on the collective mentality and organisation of society and then explore print in the context of the new electronic media.

**The Gutenberg Galaxy – formation and evolution**

To some extent, the arrival of the Renaissance in Europe corresponds to Gutenberg's invention of the printing press around the year 1445. The concept of the printing press had, however, already been developed, but Gutenberg further improved it, making print the most important medium in Europe. There are two aspects of printing that interest us: 1. What is the technological nature of print? 2. What does this technology foster in the collective mentality? By collective mentality we mean a set of collective visions, ideas, or as J. Lohisse puts it (2003, p. 9), the spirit of the time. Firstly, we will explore the nature of writing and how it differs from speech, since the phenomenon of print is directly linked to writing.

Writing and the impact it has on thinking and the collective mentality generally can be contrasted with speech and the impact of speech. As McLuhan states (2008, p. 146), the acoustic environment brings us together in unity and depth, whilst writing favours distance and perspective (2008, p. 142). Unlike speech, writing exists outside the individual and externalises ideas. Consequently, communication is indirect. In post-hieroglyphic phonemic writing, the characters are typically linearly distributed, flowing from right to left, in the oldest types of writing, and from left to right in the more modern ones. The individual's thinking thus had to adapt in order to be able to read and write the characters, and this affected the "mind discipline"—the mind had to concentrate on the progressive, linear development of the idea.

Since writing, unlike speech, lies outside the individual, it helps create distance between the mind and the subject of investigation, which can be generalized. Consequently there are various models of cognition. In the first case, speech concerns holistic recognition and thinking, which dominates, for example, in cultural form of religion. In the second case, writing concerns abstract recognition, or thinking, and is typically found in scientific rationality, that is, it prevails in cultural form of science.

Owing to its technological structure, writing can be considered to have gradually created both the specific collective mentality and the typical organisational structure of the society that is based on it. In the Middle Ages, writing introduced significantly more discipline into thinking. It is no coincidence that at that time logic and philosophy were developing rapidly. In the Middle Ages rationality was so strong it was important to limit it in relation to theology and religion (Gálik & Cenká, 2013, p. 228). At the same time, as J. Lohisse explains (2003, p. 88), at its peak, the Middle Ages was a period of writing, despite the fact that the majority of people were illiterate. Nonetheless, writing entered all spheres of life and became more important than the spoken word.

Writing fostered the idea of linear time in the collective mentality and the notion of individualism in the structure of society. "Silent reading" was introduced in Benedictine monasteries (in Ancient times this would have been odd, since not reading a text aloud would have been considered similar to reading music with no musical accompaniment), encouraging the autonomy of the individual. The individual, however, was not fully emancipated from the unity of society; this came later in the Middle Ages. The unit was still more important than its parts, and this principle also explained the hierarchical nature of society. Communication mediated through writing directly promoted a society organized according to authority and hierarchical power.

As we have already mentioned, the era of writing, or handwriting, and reading was followed by the era of print. We need to add that although this was a continual process, print also significantly transformed handwriting. Print, unlike handwriting, relied on the new technology for reproducing characters that were standardised and independent of the author. Print had a great impact on the subject–object aspect of cognition: Just as print was developed and spread independently of the author, so too did knowledge spread. Knowledge then sought to gain independence from the individual and thus become objective. Objective knowledge was supposed to be "mechanical" and calculated mathematically. This belief was bolstered by the invention of the watch, for example, which externalised and mechanized time. Time was no longer just linear, but also mechanical. It is no coincidence that it was at this time that the Dutch lawyer Hugo Grotius came up with the idea that "being timely is a virtue" (Eriksen, 2009, p. 45).

Print also meant that large numbers of identical copies could be produced quickly, which had a *homogenising effect* on culture. One could say that printed publications, including reformist ones or mother tongue versions of the Bible, promoted individualism and subjectivism to an even greater extent than had writing or handwriting before them. Consequently, in the Middle Ages, the person was born as an autonomous being largely independent of society. However, homologous ideas, referred to as public opinion, also began to emerge as a consequence of printing. For instance, in his time, M. Luther, unlike Gutenberg, quite clearly understood the potential of print, especially in influencing public opinion—between 1518 and 1525, Luther's books represented more than a third of all the printed publications in Germany.

However, the spread of print *was dependent on literacy*. In towns, the literacy rate was higher among the aristocracy, the clergy and the emerging middle class; however, in the countryside illiteracy was widespread. The literature in the countryside was therefore replete with drawings and read to country folk by colporteurs. Yet, this literature could not compete with the printed material in the towns, nor could it greatly affect public opinion. The rapid reproduction and distribution of large quantities of identical, printed documents ultimately led to the creation of mass humankind or mass society.

Mass humankind, in the true sense of the word, did not emerge before the 19th century. The rise of man as a mass entity began with the help of print, which accelerated with the publication of daily newspapers with large circulations. Advertising meant that newspapers were cheap and accessible to labourers too, not only the upper classes. The human consciousness of a vast section of society could be shaped through the information published in newspapers and so mass society was created. The mass phenomenon continued

to strengthen in the 20th century with scientific and technological developments, material advances and the increased flow of information in the new "galaxy"—the electronic media "galaxy".

**The new electronic media galaxy**

In the second half of the 20th century, western culture and society changed significantly, mainly as a consequence of the scientific and technological revolution, in which a new kind of information media—electronic media—had an important role to play. The arrival of the new information media and the speed at which it developed were indeed revolutionary. It must be realised that ENIAC, the first electro-mechanical computer, developed in 1946, took up an area measuring 170 square meters, and its mass was 30 tonnes and it contained18 thousand electron tubes, whilst the microprocessor computer produced by Ted Hoff in 1969 was 10-times smaller than a post stamp and still as powerful as the 23-year-old ENIAC. The new information technologies were typically miniature size was and operated at increasingly rapid speeds, which were accompanied by increasing digitalisation and expanding networks. The unprecedented expansion saw the Internet spread throughout the world in the early 90s. Size has continued to decrease reaching microscopic dimensions, while speed advanced at the speed of light. Digitalisation became evident with the conversion of all semiotic characters into numeric codes of 0 and 1. The Internet, as J. Lohisse states (2003, p. 167) became the media of the information period, and has no connections with mass media such as radio or television. T. H. Eriksen (2009, p. 17) similarly states that the Internet is an exceptional medium and its birth was the moment the 21st century began. We can use the Internet to communicate both acoustically and visually (using Skype, for example). The Internet is a medium the individual can actively connect up with and communicate with.

Communication via the Internet occurs in what is known as cyber-space, which can paradoxically be characterised as a space-less room, as there is no three-dimensional physical space. We consider it as a space in the visual, or visual and auditory sense of the word. This new technological space is founded within the individual, in the mental space in which we think and retain images. The difference is that a person's mental space is natural and biological, while cyberspace is technological. We do, however, agree with D. Clark's idea (2010, p. 2) that the concept of cyberspace stretches back as far the invention of the telegraph. Nevertheless, a more advanced kind of cyberspace develops with modern media.

Cyberspace has no fixed structures but is unstable (and must be constantly updated), fluid and flexible. S. Harnad (cf. Šušol, 2009, p. 15) aptly compared it to "the sky" and communication to "electronic skywriting". Hypertextuality is characteristic of "skywriting" within electronic media cyberspace, yet we should not see it as merely constituting hyperlinks to text-based information, but also as being composed of images and other kinds of information. The term rhizome, a botanical term (a horizontal stem that sends out roots), is used to refer to the network of information. In the communication in cyberspace we can thus find rhizomorphic knowledge based on the individual selections made within the network of (hypertext) information available on the Internet as a kind of "mutual electronic intelligence", such as Wikipedia for example. This kind of communication, as E. Višňovský (2009, p. 211)

states, disrupts subject-object (interpersonal) communication and, we might add, the subject-object knowledge generated by writing and print.

Another important fact is that in the electronic media, especially TV and the Internet, the image and visual perception dominate, which lends itself more to entertainment and less to abstract thinking. G. Sartori even claims that a new kind of human being is being created—*homo videns*—whose perception and cognition is considerably influenced by media images. He believes that in the transition from conceptual speech or writing to media images, the art of abstract thinking is being lost. Images do not require thought; they simply need to be seen. Sartori says: "Television causes metamorphosis, which affects the very nature of human beings. It is not only a means of communication, but it is also an anthropogenetic means of creating a new kind of human existence" (1997, p. 40). The point Sartori makes about television is even truer of the Internet, where we more actively seek out visual information.

Furthermore, our ideas of time and space collapse in Internet communication (in cyberspace). In the information era, linear and progressive time lose significance as communication approaches the speed of light. Time is seen as present (simultaneous) and immediate. In Internet communication, three-dimensional space is disrupted and all that is left is a pure visual and auditory space called cyberspace. Cyberspace is becoming our new home or technological park—*Technopolis*.

Another interesting aspect is the speed of communication which is basically instant, meaning the average user does not have to wait. In addition, there are no physical points in cyberspace that could be used to count events, vital for measuring time. When we are submerged in cyberspace, we cannot measure time without re-emerging. Events occurring in cyberspace are quite similar to dreams to the extent that time cannot be measured in them either. Both these examples are similar in that there are no firmly established points which could be counted nor is there any distance between the observer and the events.

As mentioned, electronic media, like other forms of media, affect the way we think, our imagination and the way we understand the world (Tökölyová & Modrzejewski, 2013, p. 39). Communication in the electronic media cyberspace will encourage rhizomorphic knowledge dependent on hypertext network of information. When we use the Internet, our thinking adapts to the rhiozomatic flow of information in communication and changes without context, when browsing the Internet for example, weakening what we call linear code, concrete linear thinking. Thinking then becomes truncated, disconnected and no longer seeks to develop information and logical reasoning.

The collective mentality of the information era also creates a new social organisation, which J. Lohisse (2003, p. 179) calls *cellular*. A cellular society is a group of physically isolated people who communicate, work, shop and entertain themselves in cyberspace. These communication cells, as can now be seen on Facebook for example, may gather creating larger groups that share certain ideas and values. However, individualisation (Pravdová, Habiňáková, & Hudíková, 2014, p. 192) also means that there are restrictions and limitations, and members are expelled. According to J. Lohisse, a new model of authority emerges—*cellular authority.* Those who can keep up with the new technologies will climb the social ladder, while those who cannot will fall down it.

**Twilight of "The Gutenberg Galaxy" in contemporary electronic media**

We can now ask ourselves once more the question posed in the introduction of this paper: does print have as great an influence as it did in the era of the printing press, or has anything changed fundamentally since then? We have stated that print exists in two different forms—either independently, or in the electronic media cyberspace, where it can be accessed *online,* in document form, such as pdf files, and where we can search for new information in via hypertext.

1. In the first case, we stated that independent, physical print is not the predominant media; the new, electronic media have taken over. From this quantitative perspective, as we might call it, we could say that everything is as it was, but to a lesser extent. Nonetheless, we think that print is now "read" differently in qualitative terms from the way in which it was read during the era of the printing press.

That is to say that "reading" is largely influenced by the collective mentality, which, as we state above, does not encourage concentrated thought, abstraction and the continual evolution of ideas. In this context, the general public takes less of an interest in the specialist or popular science literature than in the more entertaining tabloids which can be understood with less effort.

When discussing television, N. Postman (2010, pp. 62-66) compares the era of print with that of the new media. He gives an example from the 19th century when politicians Lincoln and Douglas engaged in eight-hour long public debates employing logical reasoning and a number of rhetorical tools such as sarcasm, irony, paradox, metaphors and the like. Modern television debates tend to contain short dialogues, logical argument and emotional framing, and may include a direct verbal attack by the competing politician. In the first case, the emphasis is on the linear segmentation of symbols and thinking and in the second, it is on the non-linear and discontinuous nature of the symbols and thinking. The features that apply to television are doubly applicable to the Internet. The Internet, like television, is an image-based medium, but it also provides far greater opportunities to combine and browse.

The collective mentality is affected by the non-linear communication in the electronic media cyberspace and tends to encourage communication on new information, which can be seen in the lack of interest the younger generation shows in history and its choice of literature. M. Bauerlein raises the alarm believing that the younger generation is not only losing its sense of the past, but is also lacking important information and this could be dangerous for the future of the country. M. Bauerlein (2010, p. 19) claims:

> Young people have never been so intensely mindful of and present to one another, so enabled in adolescent contact. Teen images and songs, hot gossip and games, and youth-to-youth communications, no longer limited by time or space, wrap them up in a generational cocoon reaching all the way into their bedrooms. The autonomy has a cost: the more they attend to themselves, the less they remember the past and envision a future.

According to Bauerlein, young people constantly communicate via social networks and quality information on history, civic education or religion does not reach them. Rankov (2006, p. 27), inspired by P. Lévy, aptly notes that time (along with tradition and culture) disintegrates into hypertext that is not read linearly but simultaneously.

Another issue related to communication in cyberspace is the increased speed of communication (Gáliková Tolnaiová, 2013, p. 40), resulting in the more rapid processing of information that then penetrates into all spheres of life, such as work, shopping, entertainment, and also education. This very rapid pace of life is to be contrasted with the books or newspapers that we no longer have enough time to read, far less think about. The rapid speed of the Information Age simply does not encourage people to read traditional print which requires "slow time"; instead, it encourages the compilation of atomised information. This trend is generally seen not only in attitudes to information that is quantified by the electronic media, but also in the way in which education is limited to life-long education with short job-skills courses.

2. In the second case, print has penetrated electronic media cyberspace, where it faces the same conditions as other kinds of information. Printed information is acquiring a rhizomatic structure, hyperlinked to other information. What was said above about the impact of the collective mentality on reading print applies doubly here. There is great temptation to click on a link to different, perhaps more entertaining, sites or current world news pages. We might also not be patient enough to read print in the electronic media cyberspace, or we simply lack time. Moreover, readers differ. If the culturally illiterate access the electronic media cyberspace, they only select the things they are interested in, namely entertainment. The new media affect traditional texts such that they are read differently, resulting in rhizomorphal knowledge, which is heterogeneous and vague. This is why media education and developing critical thinking, in particular, are pressing issues in media education (Petranová, 2011, p. 68).

Furthermore, the communication that takes place in the electronic media cyberspace, especially on social networks, may lead to the emergence of mass phenomena as occurred in the era of the printing press. The only difference is that these phenomena will not be society-wide, but will occur in small communities that share the same or similar ideas. In this case, we cannot fully agree with J. Lohisse (2003, p. 167) who does not consider the internet and the emerging cellular society to be a mass media with the mass organisation of society. Mass phenomena, albeit based on different principles, are emerging here as well.

The specialist information to be found in books or newspapers (perhaps slightly political or amusing) is not usually found in the communication on social networks, and if it is, it can easily become the target of demagogy or malicious attack from other users. Specialist information is not welcome since it requires forethought and generally spoils the fun. For young people social networks are often the only acceptable source of information.

Both the first and second cases show that print is no longer the same as it was, since the arrival of the electronic media has been accompanied by a change in the collective mentality and this has subsequently affected print. Print has not disappeared, but the way in which it is "read" has changed so that it is now done in a hypertextual, non-linear, image-based fashion and a new *sub specie ludi* is developing. We can therefore refer to the twilight of "The Gutenberg galaxy" in the context of modern electronic media.

## Conclusion

Media and culture are intertwined because what is communicated is at the same time part of living culture and, vice-versa, what is present in culture is communicated. J. Lohisse

shifts this internal link connecting it with the organization of society, which is something we have only hinted at in this paper. In the print era, society was a mass society and, in the information era, society is a cellular society. Despite the "cellular" nature of society, mass phenomena may also emerge as they did in the print era, but this time through the electronic media, especially social networks. Each new media is accompanied by a new cultural paradigm that then retrospectively impacts on the preceding media. Print was followed by the electronic media, especially the Internet, which revolutionised human thinking and knowledge and which has greatly influenced the way we approach the press or "read" books and newspapers. Despite the fact that print continues to exist, we believe that the impact it has on culture differs to the impact it had in the print era of the 19th and early 20th centuries. The way we "read" print, that is the way we perceive and understand it, and the way we generally approach it, is filtered through the lens of the new media and the accompanying cultural changes. It is above all a turn towards entertaining and up-to-date information, with a loss of interest in the past, but also in the future, and the emergence of "rapid reading", which is associated with a degree of impatience and unwillingness to concentrate and develop ideas, but also quite simply with the lack of time. It is in this context that we see twilight of "The Gutenberg galaxy."

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Faculty of Mass Media Communication,
University of Ss. Cyril and Methodius in Trnava,
J. Herdu 2,
917 01 Trnava,
Slovakia
E-mail: s_galik@yahoo.com

Faculty of Arts,
Constantine the Philosopher University in Nitra,
Štefánikova 67,
949 74 Nitra,
Slovakia
E-mail: sgalikovatolnaiova@ukf.sk