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Media Ecology - (Un)necessary Research Perspective in Communication and Media Studies

Abstract. The aim of this review and theoretical study is to determine the importance of media ecology theory for communication and media studies. Bearing in mind this research goal, the following research questions were asked: What is the media ecology theory? What approach to media and communication research does it represent? What research perspectives are proposed in the field of media ecology? What new can media ecology bring to communication and media studies? An additional objective of the article, and, at the same, time the intention of the authors, is to raise the interest of Polish researchers in the subject of media ecology and its various aspects, enriching research in the field of communication and media studies.

Keywords: media ecology; methodology; media nature; communication and media studies

Research methods

Communication and media studies, known as a scientific discipline integrating social, humanistic and technical studies (Jabłonowski, Gackowski 2012, p. 17) continue to evolve in their scientific identity. In this area, there are constant questions about

how to study media and social communication. All attempts to answer them make this discipline develop all the time, and the researcher's methodological workshop is still improving.

Communication and media studies are of interdisciplinary nature which, according to Marek Jabłonowski and Tomasz Gackowski, is its advantage. As a result of this interdisciplinary nature of communication and media studies, and, thus, their rich methodological workshop, more effective and reliable media and social communication research can be expected, and, thus, a greater understanding of media functionality, activities related to them, their impact on human life and learning about the phenomenon of social communication in the new media environment. In this context, the authors of this study set out to determine the significance and place of the theory of media ecology in communication and media studies. Bearing in mind this research goal, they ask the following specific questions: What is media ecology? How is it understood? What approach to media and communication research does it represent? What methodology does it use? What research perspectives are proposed as part of this theory? What new can media ecology bring to the scientific discipline called "communication and media studies"?

In order to achieve the research goals, the literature on the subject of history, research tradition and understanding of media ecology was collected at the first stage. The choice of literature was made on the basis of searching for the key research terms: the definition and basic principles of media ecology, the genesis of media ecology, the methodology of media ecology, research areas of media ecology, communication and media, methodology of communication and media studies. At this stage, the literature of media ecology researchers from the Media Ecology Association was taken into consideration. In order to determine the scientific identity of communication and media studies, publications of researchers from the following centres have been analysed: the University of Warsaw, Maria Curie-Skłodowska University, Jagiellonian University, Pontifical University of John Paul II in Kraków, University of Information Technology and Management in Rzeszów.

Careful and repeated reading of selected materials made it possible to make a secondary selection and, thus, to create a research sample. After this, at the next stage, it was possible to build key categories by determining the basic classification categories identified as the following concepts or topics in publications intended for analysis: the genesis of media ecology, understanding of media ecology, media ecology researchers, media ecology and its place in communication and media studies. At the next research stage, the research problem was clarified and the research questions were further elaborated. Finally, a synthesis was made while showing the research perspectives of media ecology in the area of communication and media studies.

At individual research stages, one of the most characteristic methods for social sciences was used, namely content analysis, allowing for "an objective, systematic and quantitative description of the explicit content of messages" (Lisowska-Magd-

ziarz 2004: 13). As the researchers point out, this method “is not, as it might seem, a simple reasoning of the researcher based on the research material being examined, to read the content contained by the author in the material and their interpretation” (Szczepianiak 2012, p. 86; Goban-Klas 2009). Therefore, the method applied in this article is of a qualitative and quantitative nature.

Media ecology – the genesis of the theory

The term “ecology” derives from the Greek language from the words *oikos* (οἶκος) – “family”, “house”, and *logia* (λογία) – “science”. So, ecology is a science of nature, its structure and functioning. It examines nature understood as a human home, human environment, as well as interactions between organisms, their mutual influence, and the environment. The basic concepts of ecology include: environment, habitat, limiting factors, population, ecosystem; the methods of cognition include: deduction, induction, observation, experiment (Mackenzie, Ball, Virdee 2007; Begon, Townsend, Harper 2006). As Kate Milberry points out, “media ecology focuses on media as environments, and environments as media, with an explicit concern for their evolution, effects, and forms. It comprises a theory about the complex interplay between humans, technology, media, and the environment, with the aim of increasing awareness of mutual effects” (Milberry 2012).

The theory of media ecology is almost 60 years old. It was created at the same time as the Internet and mobile phone. Television was then 30 years old, radio – about 50, and the press – over 200. It comes from the United States, although it has its source in the European scientific and research tradition as well. Even though it is over half a century old, it is still not a very widespread theory around the world. When explaining the understanding of media ecology, one goes back to the history of communication studies, and in fact – communication and media studies, referring to the leading research on social communication, media or technology of the following researchers (not only American ones): Harold Innis, Lewis Mumford, Elizabeth Eisenstein, Jacques Ellul, Walter Ong, Eric Alfred Havelock, Jack Goody, Marshall McLuhan and Neil Postman. In other words, media ecology is located in the multidisciplinary intellectual framework of these researchers – precursors of theoretical perspectives on understanding culture, technology, and communication¹.

¹ It is a good moment to pay some attention to Corey Anton’s article titled “On the Roots of Media Ecology: A Micro-History and Philosophical Clarification”, which sees the three main roots of the media ecology in the theory of three researchers: Marshall McLuhan, Walter J. Ong and Neil Postman. It was on these three researchers that the “roots” of theory grew into a tree of “media ecology”, which – as Anton writes – still derives life from “nutrients” of other studies of such thinkers as: Harold Innis, Lewis Mumford, Eric Havelock, Jack Goody, Susanne Langer, Edmund Carpenter, Elizabeth Eisenstein, Jacques Ellul. In contrast, the crown of this tree is made of researchers such as: Ludwig Bertalanffy,

Harold Innis (1894–1952) was an author of the so-called critical analysis of communication theory. He was interested in the social history of media, hence, he explored the subject of the media's influence in political and economic terms, but also in the anthropological one. In his scientific and research work, he empirically determined the media's influence on the shaping of social relations. This influence was demonstrated by reliable analysis of people's behaviour, while driving around Canada and performing thorough analysis, observations, and interviews (Wieczorek-Tomaszewska 2010).

When examining the media bias, its inclination towards a particular message, he first of all asked the following three questions: 1) How do specific communication technologies operate?; 2) What assumptions do they take from and contribute to society?; 3) What forms of power do they encourage? While exploring knowledge about media and social communication, he took into account social and cultural conditions. In his research, he showed that the stability or harmony of cultures depends on the balance and proportion of the media of these cultures. And each era can be described through the prism of its specific form of communication or specific means of communication. He stressed that the key to social change is the development of communication media. In their context, he emphasized that each media represents a specific nature, directions and attitudes, bias in the organization and control of information (Innis 1950, 1951; Christian 2015; Tremblay 2012). And the society is subject to, or almost depends on, technological change and technology. This theory of technological determinism, as well as the school reflecting the views of Innis (the so-called Toronto School), gained popularity thanks to his pupil, Marshall McLuhan, because Innis started to deal with communication at the end of his academic career (Wieczorek-Tomaszewska 2010). In conclusion, it can be pointed out that Innis' work is an example of the need to reference the sciences of communication to other social sciences, especially history, sociology, economics, and political science (Tremblay 2012; Innis 1923).

Another precursor to theoretical perspectives on the understanding of technology, media, and communication is Lewis Mumford (1895–1990) – the author of the theory of urban history and technology. In his research, he analysed and studied the subject of the impact of technology on social, political, economic and, thus, civilizational changes. In the book titled *Technics and Civilization* (1934), he “denied the then popular technological determinism, pointing to the role of social factors in historical processes, not technological artefacts” (Wasiak 2013).

Alfred Korzybski, Kenneth Boulding, Erving Goffman, Edward Hall, Dorothy Lee, Daniel Boorstin, Gregory Bateson, Paul Watzlawick, Tony Swartz, Susan Sontag, Denise Schmandt-Besserat, James Carey, David Olson, Leonard Shlain, Pierre Teilhard de Chardin and Julian Jaynes, as well as active members of the Media Ecology Association: Lance Strate, Thom Gencarelli, Janet Sternberg, Paul Levinson, Paul Soukup, Susan Barnes, Casey Lum, Paul Grosswiler, Sara van den Berg, Robert K. Logan, Brett Lunceford, Fernando Gutiérrez, Sheila Nayar, Ellen Rose, Brian Cogan, Phil Rose, Edward Tywoniak, Peter K. Fallon, Alex Kuskis, Steven Reagles, Valerie V. Peterson, Peter Zhang, Eric Jenkins, Robert MacDougall – see: Anton (2016, p. 127).

In his book titled *The Condition of Man* (1944), Mumford drew attention to the nature and condition of the human body. As he emphasized, it has many possibilities, but also many limitations. These limits of human possibilities are expressed by the term “organic humanism” (Mumford 1944). The term also expresses the fact that a person will develop well if their environment is healthy and natural, that is when there is clean air, high quality of food and water. Thus, organic humanism is a brake for those who want to violate in any way the nature of man and their surroundings. It was from this perspective (of organic humanism) that he evaluated technology and the engineering understood in broad terms. It was also from this point of view that he criticized the views of Marshall McLuhan, who claimed that technology, not the natural environment, would ultimately shape human nature. Mumford was convinced that what fundamentally defines humanity and, at the same time, differentiates people from other animals is not using tools (engineering, technology), but language. He believed that sharing information and ideas between the participants of primitive societies was completely natural to the early history of mankind, and it was the basis of a more developed society (Mumford 1934, 1944, 1956).

Elizabeth Eisenstein (1923–2016) is an author of the theory of the history of typography. In terms of science and research, she was primarily interested in the consequences of the transition between the era of manuscript and that of print. She treats the Gutenberg era as a time of epochal changes in the information flow. The invention of print, as Eisenstein notes, made it possible to significantly develop intellectual environments through better access to information and a more efficient exchange of ideas and communication between educated and scholarly Western Europe. The researcher also examines the results of the increase in information and accumulation of knowledge made thanks to technology which also allows it to be made available on a mass scale (Eisenstein 1979, 1983).

Jacques Ellul (1912–1994) drew from ecological terminology in relation to technology and politics (Ellul 1954, 1965, 1980, 1988). From the 1930s, he was involved in ecological activities. Apart from that, he was interested in politics and religion. He is described as a “colourful” thinker, not belonging to a specific philosophical or religious trend (Greenman, Schuchardt, Toly 2012). He was known for his technical criticism, among other things. He believed that “in the twentieth century, technology ceased to be limited to mere mechanization, it embraced all human consciousness and gained a certain »autonomy«. This way it began to go beyond human control and became a determining factor in our lives and actions. Technology achieved sacrum status in modern societies” (Skurczyński 2016; Greenman, Schuchardt, Toly 2012).

Walter Jackson Ong (1912–2003) – the author of the theory of orality and literacy, also in relation to technology (Ong 2002). His main interest in research was the impact of changing the oral tradition into the literal one on education, culture, society, politics, and economics. In his opinion, literacy is already a kind of “technology”, as well as a promise of development in this field, and orality is the original form of

communication (Ong 1971, 1977). When exploring the issue of orality and literacy, Ong also wrote about the electronic processing of thoughts and words with the help of radio and television. As he noted, it was only in the era of electronic media that the differences between orality and literacy could be clearly seen (Ong 1992). When writing about the new environment of human life (literacy), then “the technologizing of the word”, he avoided the term “media”. As he explained, it was due to the fact

(...) that the term can give a false impression of the nature of verbal communication, and of other human communication as well. Thinking of a “medium” of communication or of “media” of communication suggests that communication is a pipeline transfer of units of material called “information” from one place to another. My mind is a box. I take a unit of “information” out of it, encode the unit (that is, fit it to the size and shape of the pipe it will go through), and put it into one end of the pipe (the medium, something in the middle between two other things). From the one end of the pipe the “information” proceeds to the other end, where someone decodes it (restores its proper size and shape) and puts it in his or her own box-like container called a mind. This model obviously has something to do with human communication, but, on close inspection, very little, and it distorts the act of communication beyond recognition. Hence McLuhan’s wry book title: *The Medium is the Massage* (not quite the “message”) (Ong 1992, p. 23).

Eric Alfred Havelock (1903–1988) – a leading representative of the theory of literacy, writing about the consequences of the transition from the oral to the literal society. In his research, he often analysed the issue of Greek orality and literacy in the context of contemporary humanistic reflection, as well as history and culture of the 20th century (Havelock 1957, 1963, 1981, 1986). He was of the opinion that “the invention of the Greek alphabet, as opposed to all previous systems, including the Phoenician, constituted an event in the history of human culture, the importance of which has not as yet been fully grasped. Its appearance divides all pre-Greek civilizations from those that are post-Greek” (Havelock 1977).

Jack Goody (1919–2015) studied literacy in relation to social organizations. In his research work, he asked the question: “What kinds of thought can people have – both in the short term and in the long term – because of pen and paper?” (Anton 2016, p. 129; Goody 1987). He also asked about human skills: How much do they change under the influence of the development of communication forms? To what extent do other skills disappear in favour of the appearance of new ones? He provides an example of a phone with a cache containing a list of friends’ phone numbers. As a result, the user no longer needs to be able to memorize long numbers because – thanks to the technical device – they have already saved them (Anton 2016, p. 129). This question and similar ones, depicting Goody’s many years of research experience, are part of the questions about the new environment of human life, which is the media.

Herbert Marshall McLuhan (1911–1980) – one of the most significant thinkers in this field, who attracted the attention of both academia and popular circles. He gained popularity thanks to his multiple studies and pioneering thoughts. The most well-known includes the statement that electronic media have contributed to the fact that the world is a “global village”, and “the medium is the message”. He also believed that the era of electronic media is the time when humanity is entering into the “Information Age”. His intellectual creation, shaped, to a large extent, in Innis’ school (he was his student), is the beginning and foundation of the media ecology theory (Levinson 2017).

McLuhan’s research work was devoted primarily to the transformation of the media and the world, which was caused by the emergence of electronic media. Continuing with Innis’ research after his death, he expanded it even more, and especially the theory of media impact on human senses. He emphasized then that technologies are an extension and continuation of the body, mind and even consciousness. In his opinion, media and technologies are an extension of specific parts and elements of the human body, e.g. thoughts are extended in language, feet – in a wheel, eye – in a camera, and the nervous system – in a computer (McLuhan 1964). When writing about the influence of electronic media, he noticed the more limited significance of traditional media, e.g. printed media. As he noted, electronic media changed human perception, and, thus, human nature (McLuhan 1962a). The media, in his opinion, have a strong relationship with human nature and our living environment, because it is not so much a media or technical “environment” of life, but an integral element of life (McLuhan, Fiore 2001, p. 59; Marcyński 2016). This media environment has characteristic properties such as invisibility and imperceptibility, but – despite that – it attracts people’s attention. According to the researcher, the contemporary ecosystem consists of electronic media and its nature, hence, he called the new environment “neo-ecology” (Marchand 1998, p. 177; Płużański 1977, p. 356). When writing about the media as a new environment of life, he listed its consequences and civilization threats, but above all, the chances of development for human and humanity. He emphasized that electronic media could contribute to large-scale communication and, thus, to the rebuilding of societies based on relationships and being in communication that existed in primitive tribal communities (McLuhan 1962b). McLuhan’s research, along with the advancing “Information Age” and the development of technology, gained more and more importance, but also understanding, and continuation.

Neil Postman (1931–2003) proposed and inaugurated a curriculum in the field of media ecology at the Steinhardt School of Education at New York University in 1971. In his research work, he shared McLuhan’s view of technological determinism, however, Postman was characterized by greater pessimism when it comes to the social impact of media and technology². He believed that the message of electronic media largely supplanted real experiences, television images, including emotions

² The concept of technological determinism had many opponents, including Jonathan Miller.

presented, for example, on television, replacing authentic experiences. According to him, technology relieves man in basic life functions, for example, in thinking (Postman 1992). Besides, he believed that television diminishes the serious and political discourse, juxtaposing it with entertainment. Apart from that, when writing about television, he paid attention to its lack of interactivity, which means that it cannot fulfil the educational function well (Postman 1985).

To determine the impact of the media and its mutual interactions, he used terminology borrowed from natural sciences. When speaking about the media ecology then, he meant the communication and media environment of man. He believed that media are present in human life to such a degree that they have become their new environment of life (Postman 1985, 1992, 2000). The idea of media ecology was compared to a drop of red dye released into a glass of clean water. This drop does not float by itself in a glass of clean water, but colours it, evidently changing its shade (Postman 1992, 1998). Therefore, the basic task of media ecology is “the answer to such questions as: How does individual media influence the behaviour of the recipient? To what extent can it change their behaviour? What causes a given group of recipients to change their attitude towards certain people, ideas, values or the media themselves?” (Piasta 2001).

Postman and McLuhan have many continuators today, e.g. Paul Levinson from the Fordham University; Eric McLuhan from Canada; Robert K. Logan from the University of Toronto; Lance Strate from the Fordham University, a graduate in media ecology at New York University, one of the founders of the Media Ecology Association; Joshua Meyrowitz from the University of New Hampshire; Paul Soukup from the University of Santa Clara, Derrick de Kerckhove from the University of Toronto, in 1983–2008 – director of the McLuhan Program in Culture and Technology; Barry Wellman from the University of Toronto. In addition to the mentioned researchers connected with communication and media studies, communication studies, media sociology, it is worth noting that the theory of media ecology – as Casey Man Kong Lum writes – also derives from behavioural sciences (Watzlawick, Bavelas, Jackson 1967), structural anthropology (Levi-Strauss 1966), perceptual psychology (Cantril 1940), information systems theory (Shannon, Weaver 1964; Wiener 1948, 1950), general semantics (Hayakawa, Hayakawa 1990; Korzybski 1994), cultural anthropology (Hall 1959), non-verbal communication (Birdwhistell 1952, 1970), as well as physics and philosophy (Heisenberg 2007). Such a rich genesis of the discussed theory, its diverse intellectual framework and, thus, the interdisciplinary approach, largely affect its contemporary understanding.

The understanding of media ecology and new media ecology

According to McLuhan, the media is an environment that is different from the natural one, but, at the same time, having the power of influence and constituting an important and natural element of the modern world – just like the natural one

(Rotkiewicz 1983, p. 168). In this sense, the media ecology can be understood as the science of “the functioning of the media, the impact of media on the human being, dependencies between man and the new media environment” (Marcyński 2016, p. 7). McLuhan’s theory of the media ecology has its sources in the theory of systems and ecology, according to which, when “a new element is added to the old environment, one will not get an old environmental system plus a new element, but a new environment. The new environment is more than the sum of its parts” (Marcyński 2016, p. 36; Meyrowitz 1986, p. 19).

When discussing the understanding of media ecology, it is worth presenting them from Postman’s perspective, who so significantly contributed to its popularization. Postman believed that “a medium is a technology within which a culture grows; that is to say, it gives form to a culture’s politics, social organization and habitual ways of thinking”, and the word “ecology” suggests that “interaction between media and human beings gives a culture its character; and one might say, helps a culture to maintain symbolic balance” (Postman 2000). According to Postman, media ecology is “the study of media as environments”, meaning the study of media, technology and communication, and how they affect human life environments (Strate 1970, 2000; Meyrowitz 2001).

According to Lance Strate, media ecology consists of media logic, mediology, medium theory, that are focused on researching the media environment. His understanding of media ecology is based on the belief in technological determinism and technological evolution. Following his masters and predecessors, he believed that media and technology played a significant role in human life (Strate 1999, 2006; Postman, Nystrom, Strate 1987; Strate 2003, 2007; Strate, Lum 2000). In relation to the ecology theory of the media, he points out that “we live in a media environment that places a premium on images and immediacy, that floods us with entertainment and information that drowns us in distractions and diversions. Western culture, and the American experiment that it gave birth to, are products of an entirely different kind of media environment, one founded on alphabetic writing, and amplified by the printing press with movable type” (Strate 2018).

Christine Nystrom, involved in the creation of the media ecology program at New York University; the author of the first treatise on media ecology, a doctoral dissertation, entitled “Towards a Science of Media Ecology: The Formulation of Integrated Conceptual Paradigms for the Study of Human Communication Systems” (1973) emphasized in particular the value of interdisciplinary nature of media ecology research (Nystrom 1973). Although it is a branch of social sciences, it draws from the research tradition and methods of studying natural sciences and humanities. The main areas of research on media ecology, which the researcher most often mentioned, are: interaction of the media, technologies and communication processes with human experiences, feelings, thoughts and behaviour, media influence on perception, understanding and human feelings (Nystrom 1973).

In conclusion, the term “media ecology” has been used in various contexts. Nevertheless, as Lum notes, McLuhan used this term as a metaphor, and Postman made it a formal definition of media research, covering new areas of media research (Lum 2006). The tradition of media ecology theory – despite the fact that it is 60 years old – consists of a wealth of thought and research of various currents and schools, which is detailed in Lum’s book entitled *Perspectives on Culture, Technology and Communication: The Media Ecology* (2006). However, the common denominator of these diverse interpretations of media ecology is to understand it as a science in which we study “how the form and inherent biases of communication media help create the environment in which people symbolically construct the world they come to know and understand, as well as its social, economic, political, and cultural consequences” (Lum 2006, p. 3; Jakubowicz 2011, p. 152). According to the above, the theory of media ecology allows to understand the media and various other means and forms of communication as constituting a permanent, almost natural element of everyday human life. Therefore, researchers of media ecology determine the reasons for this situation, but also its consequences. By investigating the causes and results of the fact that the media is the environment of human life, they ask questions such as: How much time and space does it occupy in everyday life? How does it influence people’s decisions and actions? To what extent does it play the leading role, and to what extent is it a secondary (accompanying) role? What makes the media an increasingly common medium of information and a means of communication? These are, therefore, research questions about sources, ways of creating coverage of the media as a living environment. Besides, these are also questions about the possibilities and risks associated with it.

In the era of Big Data, the engineering of the large data basis, or the ever new and diverse forms of communication, one can ask an additional question – about the understanding of media ecology in their context. Lev Manovich used the expression “media after software” (Manovich 2013a) to describe the contemporary conditions of the media. In his opinion, this type of media are demanding a new stage of research on the theory of the media and after modern media ecologists can be said that also it is needed in the field of media ecology (Levinson 2012). An example of this type of work is the book entitled *Software Takes Command* written by Manovich which is the effect of his research in the area of new media ecology. In the context of the 20th-century theory of media ecology, he discusses “software” and on this basis, shows the proposal to understand the new media ecology. The new media ecology is a field of social sciences, in which, above all, the impact of new technologies and new forms of communication on society are examined. Within this framework, social media as a new environment of human life, among other things, is taken into account (Manovich 2013b)³.

³ Manovich, in the context of the new media ecology, points out that as social media users we are only testers of their software. Companies like Google or Facebook allow us to use free apps that have not yet been completed. We as testers of the Beta version of these media provide those companies with new information and help them improve it (Manovich 2013b).

Media ecology in communication and media studies – findings

Bearing in mind the understanding of media ecology, as well as its rich research and teaching tradition, it is safe to conclude that it can constitute a valuable contribution to communication and media studies. So what can researchers and didactics connected with the theory of media ecology propose to media researchers? According to the authors, media ecology has the following contribution to communication and media studies:

1. A new research area – the area of natural sciences, which include ecology. So far, we have determined that communication and media studies are a science of “borderland” and crossroads. They are an intersection of different research perspectives, as described by Marek Jabłonowski and Tomasz Gackowski. They are spread over three areas of social, humanistic, and technical sciences (Jabłonowski, Gackowski 2012). By introducing media ecology to communication and media studies, we introduce the fourth area: natural sciences and their methodology⁴. The word “ecology” suggests studying the environments – their structures, contents, and consequences they have for people. Media ecology researchers analyse our roles played in social interactions that are forced upon us by the media. They also investigate how the media represents the reality, how it evokes feelings and behaviours in us. They also study how it reconstructs our lives and survival.

2. A new research problem – the one that is characteristic for the theory of media ecology. Key research issues in media ecology consist of: media as a living environment; interactions between individual media (genres); media as species; media development as an evolution; media as an extension of human nature. Of course, it can be analysed in more detail. The above-mentioned ones are only a starting point for searching for a new derivative of research issues.

3. Paying attention to the nature of the media and its understanding – knowledge of the nature of the media is a source of greater awareness in their reception and message. Especially in the age of such scandals as the Cambridge Analytica scandal, it is important to understand the medium we use or communicate with. This understanding of the media, suggested by media ecology researchers, can be a valuable scientific and didactic supplement for those involved in media education. It can gain a lot by opening up to the theory of media ecology, including a new media education program for contemporary media audience, but also for broadcasters. The philosophy of the nature of the media in terms of media ecology focuses on showing the possibilities, but also on the constraints of a given medium, and hence, the transfer of knowledge

⁴ As Janusz Sztumski pointed out, “there is a possibility of transferring research methods from one science to another, i.e. from natural sciences to social sciences, but all activities in this field should take into account both what is common to all sciences and the distinctiveness of social sciences” (Sztumski 2010, p. 18).

to the audience and broadcasters on the subject of understanding the nature of the media in terms of media ecology, consequently results in the audience and broadcasters who are more media conscious. The nature of a specific medium – in terms of the theory of media ecology – is more important than its content (Gambino 1972; Burke, 1968); it determines the message, creates a specific environment of communication. The sender and the recipient, who are aware of this, know and understand the possibilities, but also the limitations of this medium. The possibilities of the radio, resulting from its nature, include: a rich repertoire of sound work, using the pause, expressing yourself and your message using words and music, holding an inspiring conversation, an interview, a radio drama. The limitations are: lack of visuals and, thus, no human body experience, the ability to see the speaker, what gestures they use, what their body language is.

4. A new direction of education – the theory of media ecology should be an important element of educating students of journalism in Poland. It can be treated as a single academic subject in the first year of studies (as a compulsory course) or the field of study – the way it looks in other countries, like the United States. This theory is very practical and, therefore, in the era of practical university education, it can easily be adopted in journalistic education. In what sense does it have a practical dimension? The knowledge of the theory enables a better understanding of the nature of particular media, leads to a detailed understanding of a specific medium (its uses, possibilities, and limitations in the field of creating a message for the needs of a given medium). Getting to know this nature is synonymous with a better, practical preparation for the profession of a journalist.

5. A different view on mediatization – taking into account the assumptions of the media ecology theory, one can propose that mediatization is simply a new edition of media ecology. Mediatization, as Gackowski points out, is

(...) the process of mediating the media in learning about the world by their audience. The media is not a “window on the world” that faithfully shows reality. (...) The media is more like a convention in which they present the world around us. You can say that the audience with their daily choices (watching TV programs, surfing specific websites or buying particular newspapers) agree to this convention, and place their expectations towards the media within its limits. This would mean that the audience, when using the media, agree to its limitations in presenting the world. The convention, in which the media function, enforces the abbreviation, simplifications, and often stereotyping, thus, flattening various phenomena, events or problems (Gackowski 2013, see also: Kopecka-Piech 2015).

This approach to mediatization helps to better understand the media ecology, as well as its new form of mediatization, and the issue of mediatization can be better studied, analysed and, thus, understood by using and learning about media ecology and its scientific roots.

Conclusions

The aim of this study was to answer the questions: What is media ecology? How is it understood? What approach to media and communication research does it represent? What research perspectives are proposed as part of this theory? What new things can media ecology bring to the scientific discipline called “communication and media studies”? These goals have been achieved, which resulted in a material that constitutes a contribution to further prospecting and didactic perspectives common to the media ecology and communication and media studies. The authors drew attention to the five proposals of the “contribution” of the media ecology theory to communication and media studies. However, each of them interpreted in a more detailed way brings other benefits and directions of research. This study, as intended by the authors, can be used for an environmental discussion on the roots, the present and the future of communication and media studies, especially in the field of methodology. Nevertheless, working on the implementation of research objectives made the authors realize once again that this new environment (the media and the increasingly complex world of social communication in which we came to live) demands research. Media ecology started not as an ideology, but as a research perspective, as a study of unknown environments, various communication media that form our world. In the centre of this perspective, there is a concept that we can better understand ourselves and our world, and maybe we can change our world by studying media as environments, because, paraphrasing Ludwig Wittgenstein, the limits of our media are the limits of our world.

References

- Anton C. (2016). On the Roots of Media Ecology: A Micro-History and Philosophical Clarification. *Philosophies*, Vol. 1, pp. 126–132.
- Begon M., Townsend C.R., Harper J.L. (2006). *Ecology. From Individuals to Ecosystems*. Blackwell Publishing: New Jersey.
- Birdwhistell R.L. (1952). *Introduction to Kinesics: An Annotation System for Analysis of Body Motion and Gesture*. University of Louisville: St. Louisville.
- Birdwhistell R.L. (1970). *Kinesics and Context: Essays on Body Motion Communication*. University of Pennsylvania Press: Philadelphia.
- Burke K. (1968). *Medium as message*. In: R. Rosenthal (Ed.), *McLuhan: Pro & Con*. Funk & Wagnalls: New York, pp. 165–177.
- Cantril H. (1940). *The Invasion from Mars: A Study in the Psychology of Panic*. Princeton University Press: Princeton.
- Christian W. (2015). *Harold Innis*. *Historica Canada*: Toronto, <http://www.thecanadianencyclopedia.ca/en/article/harold-innis/>, 1.05.2018.
- Eisenstein E. (1979). *The Printing Press as an Agent of Change. Communications and Cultural Transformations in Early Modern Europe* (2 Vols.). Cambridge University Press: New York.
- Eisenstein E. (1983). *The Printing Revolution in Early Modern Europe*. Cambridge University Press: New York.

- Ellul J. (1954). *La Technique ou l'Enjeu du siècle*. Economica: Paris.
- Ellul J. (1964). *The technological society*. Trans. J. Wilkinson. Vintage Books: New York.
- Ellul J. (1965). *L'Illusion politique*. La Table Ronde: Paris.
- Ellul J. (1980). *L'empire du non-sens: L'art et la société technicienne*. Presses Universitaires de France: Paris.
- Ellul J. (1988). *Le bluff technologique*. Hachette: Paris.
- Gackowski T. (2013). *Mediatyzacja polityki – rzecz o niesamowitości Internetu*, <http://www.medioznawca.com/blogi/blog-medialny/41-mediatyzacja-polityki-rzecz-o-niesamowitosci-internetu>, 11.06.2018.
- Gambino R. (1972). McLuhanism: A massage that muddles. *Midwest Quarterly*, Vol. 14(1), pp. 53–62.
- Goban-Klas T. (2009). *Media i komunikowanie masowe. Teorie i analizy prasy, radia, telewizji i Internetu*. Wydawnictwo Naukowe PWN: Warszawa.
- Goody J. (1987). *The Interface between the Written and the Oral*. Cambridge University Press: Cambridge.
- Greenman J.P., Schuchardt R.M., Toly N.J. (2012). *Understanding Jacques Ellul*. James Clarke & Co Ltd: Cambridge.
- Hall E.T. (1959). *The Silent Language*. Doubleday: Garden City.
- Havelock E.A. (1957). *The Liberal Temper in Greek Politics*. Yale University Press: New Haven.
- Havelock E.A. (1963). *Preface to Plato*. Harvard University Press: Cambridge.
- Havelock E.A. (1977). The Preliteracy of the Greeks. *New Literary History*, Vol. 8(3), p. 369.
- Havelock E.A. (1981). *The Literate Revolution in Greece and its Cultural Consequences*. Princeton University Press: Princeton.
- Havelock E.A. (1986). *The Muse Learns to Write: Reflections on Orality and Literacy from Antiquity to the Present*. Yale University Press: New Haven.
- Hayakawa S.I., Hayakawa A.R. (1990). *Language in Thought and Action*. Houghton Mifflin: Harcourt.
- Heisenberg W. (2007). *Physics and Philosophy: The Revolution in Modern Science*. Harper Perennial: New York.
- Innis H. (1923). *A History of the Canadian Pacific Railway*. Revised edition (1971). University of Toronto Press: Toronto.
- Innis H. (1950). *The Fur Trade in Canada. Empire and Communications*. Clarendon Press: Oxford.
- Innis H. (1951). *The Bias of Communication*. University of Toronto Press: Toronto.
- Jabłonowski M., Gackowski T. (2012). Tożsamość nauk o mediach. Obszary, perspektywy, postulaty. *Studia Medioznawcze*, Vol. 2(49), pp. 15–24.
- Jakubowicz K. (2011). *Nowa ekologia mediów*. Poltext: Warszawa.
- Kopecka-Piech K. (2015). Mediatyzacja przez aplikatyzację. Mobilna hybrydyzacja, wielozadaniowość i współdzielenie. *Zeszyty Prasoznawcze*, nr 1.
- Korzybski A. (1994). *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*. Institute of GS: New York.
- Levinson P. (2012). *New New Media*. Penguin: New York.
- Levi-Strauss C. (1966). *The Savage Mind*. Librairie Plon: Paris.
- Lum C.M.K. (2000). Introduction: The intellectual roots of media ecology. *New Jersey Journal of Communication*, Vol. 8(1), p. 3.
- Lum C.M.K. (2006). *Perspectives on Culture, Technology and Communication: The Media Ecology Tradition*. Hampton Press: Cresskill.
- Mackenzie A., Ball A.S., Virdee S.R. (2007). *Krótkie wykłady. Ekologia*. Tłum. K. Dmowski, A. Kozakiewicz, M. Kozakiewicz. Wydawnictwo Naukowe PWN: Warszawa.

- Magdziarz-Lisowska M. (2004). *Analiza zawartości mediów. Przewodnik dla studentów*. Wydawnictwo Uniwersytetu Jagiellońskiego: Kraków.
- Manovich L. (2013a). Media after software. *Journal of Visual Culture*, Vol. 1, pp. 30–37.
- Manovich L. (2013b). *Software Takes Command*. Bloomsbury Academic: New York.
- Marchand P. (1998). *Marshall McLuhan. The Medium and the Messenger*. MIT Press: Cambridge.
- Marcyński K. (2016). *Komunikacja religijna i media*. Petrus: Kraków.
- McLuhan M. (1962a). *Galaktyka Gutenberga*. Tłum. A. Wojtasik. Narodowe Centrum Kultury: Warszawa.
- McLuhan M. (1962b). *The Gutenberg Galaxy: The Making of Typographic Man*. University of Toronto Press: Toronto.
- McLuhan M. (1964). *Understanding Media*. Routledge: London.
- McLuhan M., Fiore Q. (2001). *War and Peace in the Global Village*. Gingko Press: Berkeley.
- Meyrowitz J. (1986). *Television and interpersonal behavior: Codes of perception and response*. In: G. Gumpert, R. Cathcart (Eds.), *Inter/media: Interpersonal Communication in a Media World*. Oxford University Press: New York, pp. 253–272.
- Meyrowitz J. (2001). Morphing McLuhan: Medium theory for a new millennium. *Proceedings of the Media Ecology Association*, Vol. 2, pp. 8–22.
- Milberry K. (2012). *Media Ecology*, <https://www.oxfordbibliographies.com/abstract/document/obo-9780199756841/obo-9780199756841-0054.xml?rskey=GxV4j2&result=109>, 18.05.2018.
- Mumford L. (1934). *Technics and Civilization*. Harcourt Brace and Company: New York.
- Mumford L. (1944). *The Condition of Man*. Harcourt. Brace and Company: New York.
- Mumford L. (1956). *The Transformations of Man*. Harper and Row: New York.
- Nystrom Ch. (1973). *Towards a Science of Media Ecology: The Formulation of Integrated Conceptual Paradigms for the Study of Human Communication Systems* (PhD diss.). New York University: New York.
- Ong W.J. (1971). *Rhetoric, Romance, and Technology*. Cornell University Press: Ithaca.
- Ong W.J. (1977). *Interfaces of the Word*. Cornell University Press: Ithaca.
- Ong W.J. (1992). *Wprowadzenie*. In: *Oralność i piśmienność. Słowo poddane technologii*, W.J. Ong. Tłum. J. Japola. Wydawnictwo KUL: Lublin.
- Ong W.J. (2002). *Orality and Literacy: The Technologizing of the Word*. Routledge: New York.
- Piasta K. (2001). Ekologia mediów – czyli człowiek w środowisku. *Brief*, Vol. 19, <https://opoka.org.pl/biblioteka/X/XB/ekologiamediow.html>, 1.05.2018.
- Płużański T. (1977). *Człowiek między ziemią a niebem*. Wiedza Powszechna: Warszawa.
- Postman N. (1985). *Amusing Ourselves to Death. Public Discourse in the Age of Show Business*. Viking: New York.
- Postman N. (1992). *Technopoly. The Surrender of Culture to Technology*. Knopf: New York.
- Postman N. (1998). *Five things we need to know about technological change* (Denver 27 March 1998), http://www.newtech.org/address10_en.htm, 13.11.2017.
- Postman N. (2000). The humanism of media ecology. *Proceedings of the Media Ecology Association*, Vol. 1, pp. 10–16.
- Postman N., Nystrom Ch., Strate L., Weingartner Ch. (1987). *Myths, Men, and Beer: An Analysis of Beer Commercials on Broadcast Television*. American Automobile Association Foundation for Traffic Safety: Falls Church.
- Rotkiewicz H. (1983). *Pedagogiczne aspekty teorii środków masowego przekazu*. Ossolineum: Wrocław.
- Shannon C.E., Weaver W. (1964). *The Mathematical Theory of Communication*. University of Illinois Press: Chicago.

- Skurczyński Ł. (2016). Życie znaczy stawiać opór. Ellul dla początkujących. *Miesięcznik Ewangelicki*, Vol. 2-3(34-35).
- Stearns S.C., Hoekstra R.F. (2000). *Evolution: An Introduction*. Oxford University Press: Oxford.
- Strate L. (1970). *The reformed English curriculum*. In: A.C. Eurich (Ed.), *High School 1980: The Shape of the Future in American Secondary Education*. Pitman: New York, pp. 160-168.
- Strate L. (1999). Understanding MEA. *Medias Res*, Vol. 1, nr 1; http://www.media-ecology.org/publications/In_Medias_Res/imrv1n1.html, 12.06.2018.
- Strate L. (2000). The humanism of media ecology. *Proceedings of the Media Ecology Association*, Vol. 1, pp. 10-16.
- Strate L. (2003). The cell phone as environment. *Explorations in Media Ecology*, Vol. 2(1), pp. 19-24.
- Strate L. (2006). *Echoes and Reflections: On Media Ecology as a Field of Study*. Hampton University Press: Cresskill.
- Strate L. (2007). Understanding a man in time: James W. Carey and the media ecology intellectual tradition. *Critical Studies in Media Communication*, Vol. 24(2), pp. 177-180.
- Strate L. (2018). *Amusing, Informing, and Amazing Ourselves to Death: Contemplating the Technological Tempest of the Time*, <https://york.psu.edu/story/3280/2018/03/09/lance-strate-share-thoughts-media-ecology-and-its-impact-world>, 1.09.2019.
- Strate L., Lum C.M.K. (2000). Lewis Mumford and the ecology of technics. *New Jersey Journal of Communication*, Vol. 8(1), pp. 56-78.
- Szczepaniak K. (2012). Zastosowanie analizy treści w badaniach artykułów prasowych – refleksje metodologiczne. *Acta Universitatis Lodzianis. Folia Sociologica*. Vol. 42, pp. 83-112.
- Sztumski J. (2010). *Wstęp do metod i technik badań społecznych*. Wydawnictwo Naukowe „Śląsk”: Katowice.
- Tremblay G. (2012). From Marshall McLuhan to Harold Innis, or From the Global Village to the World Empire. *Canadian Journal of Communication*, Vol. 37, pp. 561-575.
- Wasiak P. (2013, 19 marca). Megamaszyna i Zeitgeist lat 60. O „Micie maszyny” Lewisa Mumforda. *Kultura Liberalna*, <https://kulturaliberalna.pl/2013/03/19/wasiak-megamaszyna-i-zeitgeist-lat-60-o-micie-maszyny-lewisa-mumforda/>, 1.05.2018.
- Watzlawick P., Bavelas J.B., Jackson D.D. (1967). *Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies, and Paradoxes*. W.W. Norton & Company: New York.
- Wieczorek-Tomaszewska M. (2010). *Szkoła Toronto dawniej i dziś. Studium z historii mediów*, <http://edu-mwt.manifo.com/teoriamediiow/get/0036386729d9f7419eb619ce525505c>, 01.05.2018.
- Wiener N. (1948). *Cybernetics*. MIT Press: Cambridge.
- Wiener N. (1950). *The Human Use of Human Beings: Cybernetics and Society*. Houghton Mifflin: Boston.