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INFORMATION NOISE IN MODERN SOCIETY: MAIN TRENDS AND THREATS

Abstract

The article provides a comprehensive analysis of the phenomenon of information noise in the modern digital space. The study is aimed at summarizing the latest theoretical approaches to understanding information noise and identifying the main factors contributing to its emergence and intensification in the modern information space. The article analyzes the influence of information noise on social processes, personality behavior and decision-making processes.

In addition, the article focuses on the need to develop strategies for managing information overload, misinformation, as well as information flow, and focuses on the challenges facing society in the context of information noise.

The purpose of the article is to provide a deep understanding of the essence of information noise, to determine its impact on society and to identify strategies for rational management of the information space in the era of excessive information dissemination.

Keywords: information, information noise, information culture, fake information, personality impact, information attack.

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ҚАЗІРГІ ҚОҒАМДАҒЫ АҚПАРАТТЫҚ ШУ: НЕГІЗГІ ТРЕНДТЕР МЕН ҚАТЕРЛЕР

Аңдатпа

Мақалада қазіргі цифрлық кеңістіктегі ақпараттық шу құбылысына жан-жақты талдау жасалған. Зерттеу ақпараттық шуды түсінудің соңғы теориялық тәсілдерін жинақтап, оның қазіргі ақпараттық кеңістікте пайда болуына және күшеюіне ықпал ететін негізгі факторларды анықтауға бағытталған. Мақалада ақпараттық шудың әлеуметтік процестерге, тұлғаның мінез-құлқына және шешім қабылдау процестеріне әсері талданған.

Сонымен қатар, мақалада ақпараттың шамадан тыс таралуын, жалған ақпаратты, сондай-ақ ақпарат ағынын басқару стратегияларын әзірлеу қажеттілігіне тоқталып, ақпараттық шу жағдайында қоғам алдында тұрған сын-қатерлерге назар аударылған.

Мақаланың мақсаты – ақпараттық шудың мәні туралы терең түсінік беру, оның қоғамға әсерін анықтау және ақпараттың шамадан тыс таралу дәуірінде ақпараттық кеңістікті ұтымды басқару стратегияларын анықтау болып табылады.

Түйін сөздер: ақпарат, ақпараттық шу, ақпараттық мәдениет, фейк ақпараттар, тұлғалық әсер, ақпараттық шабуыл.

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ИНФОРМАЦИОННЫЙ ШУМ В СОВРЕМЕННОМ ОБЩЕСТВЕ: ОСНОВНЫЕ ТЕНДЕНЦИИ И УГРОЗЫ

Аннотация

В статье подробно проанализировано явление информационного шума в современном цифровом пространстве. Исследование направлено на обобщение последних теоретических подходов к пониманию информационного шума и выявление основных факторов, способствующих его возникновению и усилению в современном информационном пространстве. В статье анализируется влияние информационного шума на социальные процессы, поведение личности и процессы принятия решений.

Кроме того, в статье акцентируется внимание на необходимости разработки стратегий управления чрезмерным распространением информации, дезинформацией, а также информационными потоками, а также на вызовах, стоящих перед обществом в условиях информационного шума.

Цель статьи – дать глубокое понимание сущности информационного шума, выявить его влияние на общество и определить стратегии рационального управления информационным пространством в эпоху чрезмерного распространения информации.

Ключевые слова: информация, информационный шум, информационная культура, фейковая информация, личностное воздействие, информационная атака.

MAIN PART

The study addresses the contemporary phenomenon of information noise in the context of digital progress, explaining its emergence and impact on society and individual decision-making processes.

The purpose of the article is to conduct a comprehensive analysis of information noise, identify its latest theoretical foundations, and pinpoint the main factors contributing to its spread. Additionally, it aims to explore the consequences of information noise on social dynamics, individual behavior, and decision-making mechanisms. The main task is to systematize the latest theoretical approaches to understanding information noise and identify key factors contributing to its occurrence and intensification.

In light of the increasing information overload in today's digital environment, the study highlights the urgency of developing strategies to effectively manage the information deluge, combat disinformation, and streamline the flow of information. Considering information noise as a multifaceted challenge in the digital era, the article emphasizes the importance of understanding its nature and consequences to develop proactive measures to navigate the information space amid the flow of data.

The study draws on a variety of theoretical perspectives, including those of eminent scholars such as J. Lacan, J. Habermas, and C. E. Shannon, among others. It integrates ideas from mathematical models and sociological analyses to comprehensively understand the complexities of information noise.

Moreover, the study explores the psychological aspects of information noise, as supported by research conducted by D. Kahneman and A. Tversky, clarifying its impact on cognitive biases and decision-making processes. Sociological perspectives, as formulated by scholars such as W. Eco and J. Bordillard, shed light on the cultural consequences and formation of public opinion in the context of information noise.

A significant contribution to the discourse on information noise is made by A. Ursula's classification, which distinguishes between elements of noise that arise from an overload of unnecessary data and those that result from an excessive accumulation of repetitive but necessary information.

In the era of digital progress, information has become a key component of modern society, penetrating various areas of everyday life. However, with the increase in the availability of information and its volume, the problem arises of separating essential data from information "noise" - an unnecessary and disturbing flow. This phenomenon disrupts the perception and understanding of relevant information and can seriously impede the process of making informed decisions.

The study will also consider the impact of information noise on social processes, individual behavior, and decision-making mechanisms. Particular attention will be paid to the need to develop strategies for effectively managing the information flow, combating disinformation, and rational control over the information space.

INTRODUCTION

In the era of digital progress, information has become an integral part of society, everyday life. However, as sources become more accessible and the amount of information increases, it becomes more

and more difficult to sort out the necessary information from a large stream, to distinguish useful and reliable information.

The increase in the flow of information in the modern world requires from people constant accuracy, the ability to process information qualitatively and promptly and make decisions in the shortest possible time. Together with important information, other information flows are distributed to a person, which interfere with the person's conscious decision-making, this phenomenon is called information noise. Information noise is mainly associated with the concept of an excess of information that interferes with the effective perception and understanding of the necessary information.

The aim of this article is to conduct a comprehensive analysis of the phenomenon of information noise in the modern digital space. Our objective is to systematize recent theoretical approaches to understanding information noise and identify key factors contributing to its emergence and intensification. Within the scope of this article, we will also explore the impact of information noise on social processes, individual behavior, and decision-making mechanisms. Special attention will be given to the necessity of developing strategies for effective management of information overload, combating misinformation, and rational control of the information flow.

In the rapidly evolving landscape of the digital age, information has become both a valuable asset and a vulnerable target. Information threats, encompassing a range of malicious activities targeting data integrity, availability, and confidentiality, have emerged as significant challenges in today's interconnected world. These threats pose risks to individuals, organizations, and even entire societies, highlighting the importance of understanding, mitigating, and proactively addressing such risks.

We believe that a profound understanding of the essence of information noise and its impact on society is a crucial element in developing effective strategies for managing the information space amidst a constant influx of data and information noise.

The study of information noise is based on various theoretical approaches presented in modern literature. One of the main aspects of this phenomenon is understanding the essence of information noise. According to the works of authors such as J. Lacan [1] and Y. Habermas [2], information noise is interpreted as the dissemination of excessive amounts of information that interfere with adequate perception and processing of data.

The concept (or scientific metaphor) of information noise was introduced by the American researcher K.E. Shannon in the framework of the theory he developed back in 1949. The mathematical model presented by the scientist explains the process of the communicative act. The model includes five elements: an information source, a transmitter, a transmission channel, a receiver and an end goal. Along with these elements, K. Shannon introduces such a component of this process as "noise", indicating that the entire process of transporting a message from the communicator to the recipient takes place against the background of these interferences, which make it difficult to transmit information. Later, Shannon's interference in communication began to be associated with the concepts of entropy and negentropy. Thus, the noise phenomenon was divided into two components: entropy – external factors that distort the message, violate its integrity and the possibility of perception by the recipient and negentropy – those cases when a distorted message still reaches the recipient, due to the latter's ability to recognize information, however, the meaning of the data changes significantly and represents false or incomplete information.

In addition, research by D. Kahneman and A. Tversky shows that information noise and can affect the perception of information by a person, decision-making. They highlight various effects associated with psychological biases and distortions in decision-making under the influence of excess information [3].

The study of the sociological aspects of information noise is reflected in the works of U. Eco and J.Bordiyar, which analyze the influence on cultural processes and the formation of public opinion.

The emphasis on the nature of the occurrence of information noise in his classification is made by A. Ursul. He subdivides noise elements into those that arise as a result of information overload of the recipient with irrelevant information and into noise elements that arise as a result of excessive accumulation of necessary, but repetitive information.

RESEARCH METHODOLOGY

To achieve the goals and objectives of this article, the following methods of data analysis and collection were applied. Theoretical analysis: The study included a thorough theoretical analysis of existing approaches to understanding information noise. The analysis was based on the works of authors, who provided an important theoretical framework for interpreting information noise. Literary review: An extensive literary review of modern scientific publications, articles and research related to information noise was conducted. This method helped to identify key trends and threats, as well as to formulate the general context of the problem. Empirical research: Analysis of the impact on social processes and personal behavior. To assess the impact of information noise on social processes and personal behavior, the results of already conducted research and analyses of qualitative and quantitative data were used, allowing to identify the main trends and the impact of information noise on decision-making. The results of these analysis methods made it possible to develop strategies for effective management of the information space, as well as to identify the challenges facing society in conditions of excessive dissemination of information.

DISCUSSIONS AND RESULTS

In 2018, Cambridge Analytica used Facebook data to create personalized advertising campaigns in order to manipulate public opinion and influence the results of political elections, demonstrating the public's vulnerability to mass manipulation through information channels.

On the internet, you don't know much about the political ads you're shown. You often don't know who is creating them, since the disclaimers are so small, if they exist at all. You also don't really know who else is seeing them. Sure, you can share a political ad – thus fulfilling the advertiser's hopes – and then at least some other people you know will have witnessed the same ad. But you don't really know if your neighbor has seen it, let alone someone else across the state or the country. In addition, digital advertising companies distribute ads based on how likely you are to interact with them. This most often means that they send you ads they think you are likeliest to engage with. They don't determine what the nature of that engaging content might be – but they know (just as all advertisers do) that content works well if it makes you very emotional. An ad like that doesn't make you contemplative or curious, it makes you elated, excited, sad or angry [4].

In addition, various studies show that fake news affects the emotional state of people, changes their attitude to politics and society, as a result of which misconceptions and beliefs appear. For example, various socio-political conflicts, the transformation of negative positions into the norm, the emergence of religious, interethnic, etc.conflicts directly depend on the context of information.

Now let's analyze the factors that contribute to the appearance of information noise [5]:

- Excess information. With the constant expansion of the digital space, we are faced with a huge flow of information. Excess of the required data consumption can lead to people having difficulty processing, analyzing and filtering information, making it difficult to distinguish between important and non-essential data. Therefore, knowing a lot of information is not useful in all cases.

- Social media and digital platforms. The growth of social media and digital platforms allows millions of users to create and distribute information without proper control or confirmation. This contributes to the mass dissemination of unfiltered and untrue information. Currently, the main source of information dissemination is moving to social media tools. A large flow of information compensates for the information needs of a person, but does not provide information that is necessary and useful for a person's life. Hence the information noise.

- Algorithms and individual news channels. Currently, the use of algorithms in all social networks and other platforms is aimed at bringing information in line with the interests of the user. For example, according to the algorithm of the social network TikTok, within 3 seconds it detects the user's interest and begins to offer information of similar media content. This can lead to increased bias and a lack of a comprehensive approach to events, that is, a network that has quickly identified the need for a network user creates information noise through information of similar content to him.

- False information and fake news. The deliberate or accidental dissemination of false information and fake news is an important and dangerous factor that brings confusion and uncertainty to the

information space. Especially in times of socio-political instability, it is very easy to cause interpersonal, interethnic, religious, political protests and divisions through fake information.

- Fast speed of information transmission. The speed of the internet and social media allows information to spread faster. However, fast data transmission without complete verification, filtering increases the risk of information noise. In this regard, traditional media, which are official broadcast channels, should increase the speed of broadcasting.

The factors analyzed above play an important role in the formation of information noise in the digital age, complicating the processes of sorting, perceiving and interpreting information.

Information noise can also change the dynamics of public debates and political processes, influencing decisions made by individuals and organizations. The continuous flow of information and excessive dissemination of news can confuse the individual and make it difficult for him to make the right decisions. Unconfirmed information threatens the stability and effectiveness of such processes, provided that it is the basis for developing political strategies or making important decisions in society.

Distorted or false information affects both personal and professional decisions of individuals. To give a simple example, it is quite possible that a patient trusts unverified information about his illness on the internet, resorts to medical measures that have not been scientifically tested, and can harm his health.

Above, we analyzed the threats from information noise, which means that next we need to focus on systematic approaches to managing information in the modern digital environment. The first and most effective means of protection against Information noise is related to improving the information literacy of individuals. If a person knows what information he needs, and he can analyze from the point of view of sin, where to look for information, what sources of information it is right to consume, information noise does not pose any danger. In addition, it is necessary to increase the level of Information Culture and media culture of the population. This is because it can be said that mastering Information Culture is a tool that helps a person to know himself and understand his place and role in society. The role of social institutions, especially the education system, the media, is considered important in the formation of Information Culture. It contributes to the identification of important information in the information community, the assessment of the value of information, the acquisition of skills in processing information and the ability to use it. Information Culture provides opportunities for the formation in a person of knowledge, abilities, values about the laws of the functioning of the information environment, making important decisions [6].

The next means of protection against Information noise is information sorting. The creation and development of tools that contribute to the sorting of information will help reduce unverified and unnecessary data in the digital space. Information can be sorted by each individual by resorting to technological algorithms or simple approaches. For example, write down the information you have consumed in the last 15 days and try to find its source. The source of information is very important, whether it is an official source, or the author is unknown, and there may even be dubious publications, next you need to pay attention to the date of publication of information. Some information that is too old and not relevant is being redistributed in a distorted state. So, after making sure that the information is true or not, it is necessary to determine whether the information consumed is useful or not.

In modern conditions of information flow, we are increasingly perceiving unnecessary information against our will. The means of disseminating information, social networks are updating their algorithms every day, thereby increasing the dependence on information in accordance with its purpose in the most anonymous way. This creates a trend of mass consumption of "unnecessary" information. Some sources even say that only 1/3 of the knowledge accumulated by a person throughout his life is suitable for what he needs, the rest is simply useless, unused information. As proof of this, when analyzing information in the format of a video that collects a lot of views in the media space, many netizens often find critical comments in the comments: "I looked to the end as if I needed it", "after all, this information will never be needed in my life" or "I spent 2 minutes of my life on unnecessary information again". Therefore, it is necessary to study this phenomenon, which people themselves do not understand very much, but are dangerous to their lives, to make clear recommendations on its solutions, tools.

The next important tool is the development of a fact-checking system. The term "fact-checking" originated in the twentieth century as source science, a discipline that checks the authenticity of historical information. Currently, Kazakhstan is engaged in verifying the authenticity of information

factcheck.kz, stopfake.kz the service is provided by independent organizations such as. Fact-checking helps society verify the accuracy of information and maintain high standards of information quality.

The Bureau of Express monitoring of public opinion DEMOSCOPE in 2022 conducted a survey of citizens on the topic "Reception and dissemination of false information in Kazakhstan's media and social networks" [7]. In the course of the study, it was important to determine whether the respondents knew what Fact-Checking was and could choose the right option. The study concluded that young repondents between the ages of 18 and 24 prefer to double-check information than others and can easily identify a fake.

However, in general, 51% of citizens admitted that it is very difficult to distinguish reliable information from a fake: 33% said that they could not always detect a fake, and 18% said that they could not detect false information more often. And 41% are sure that they can easily identify a fake. Also, as part of the survey, participants were asked how they identify false information. In total, 52% of citizens do not check the news, of which 44% do not check the information at all, and 8% prefer to trust selected sources. 6% of citizens clarify the news from acquaintances and consider them a reliable source. And 5% found it difficult to answer this question. At the same time, more than a third of respondents (37%) assure that they double-check the information for authenticity: 27% compare the information with other media and official sources, 10% seek confirmation from Google or Yandex.

17% of respondents are faced with misinformation almost every day, 54% are faced with misinformation from time to time, and 23% are convinced that they are not actually faced with misinformation.

Currently, citizens between the ages of 18 and 35 receive information, news mainly from internet publications and YouTube channels. It is known that respondents aged 18-24 years are much smaller than those who watch TV. Young people of this age prefer to consume content from social networks, including Instagram, TikTok and Telegram. Consequently, it is necessary to integrate official information channels into social media channels. This is due to the fact that, unfortunately, today traditional sources are less competitive in terms of the speed of information transmission.

In addition, it is necessary to establish ethical standards for information platforms and web portals, which will help prevent the spread of misinformation and ensure transparency in the publication of information. It is also possible to combat information noise through the cooperation of public and private structures, this communication helps to develop an integrated approach to managing the information space [8].

As our reliance on digital platforms and interconnected systems grows, so does the prevalence and sophistication of information threats. In this dynamic landscape, individuals, businesses, and governments face a myriad of challenges in safeguarding sensitive information from malicious actors seeking to exploit vulnerabilities. Understanding the diverse nature of information threats is crucial for developing effective strategies to protect against, detect, and respond to these evolving risks.

An information security threat (information threat) is an action or event that can lead to the destruction, distortion or unauthorized use of information resources, including stored, transmitted and processed information, as well as software and hardware. If the value of information is lost during its storage and/or dissemination, then the threat of violating the confidentiality of information is realized. If information is changed or destroyed with the loss of its value, then a threat to the integrity of the information is realized. If the information is not received by the legal user in time, then the value [9].

Information threats can be caused by: natural factors (natural disasters – fire, flood, hurricane, lightning and other causes); human factors.

The latter, in turn, are divided into:

• threats of an accidental, unintentional nature. These are threats related to errors in the process of preparing, processing and transmitting information (scientific, technical, commercial, monetary and financial documentation); with an unintended "brain drain", knowledge, information (for example, in connection with population migration, travel to other countries, for family reunification, etc.) These are threats related to errors in the design, development and manufacture of systems and their components (buildings, structures, premises, computers, communications, operating systems, application programs, etc.) with errors in the operation of equipment due to poor-quality manufacturing; errors in the process of preparing and processing information (errors by programmers and users due to insufficient

qualifications and poor-quality maintenance, operator errors in the preparation, input and output of data, correction and processing of information);

• threats caused by deliberate, deliberate actions of people [10].

These are threats related to the transfer, distortion and destruction of scientific discoveries, inventions, production secrets, new technologies for selfish and other antisocial reasons (documentation, drawings, descriptions of discoveries and inventions and other materials); eavesdropping and transmission of official and other scientific, technical and commercial conversations; with a purposeful "brain drain", knowledge of information (for example, in connection with obtaining another citizenship for selfish reasons) [11]. These are threats related to unauthorized access to the resources of an automated information system (making technical changes to computer equipment and communications, connecting to computer equipment and communication channels, theft of information media: floppy disks, descriptions, printouts, etc.). Intentional threats are aimed at harming AIS users and, in turn, are divided into active and passive. Passive threats, as a rule, are aimed at unauthorized use of information resources, without affecting their functioning. A passive threat is, for example, an attempt to obtain information circulating in communication channels by listening to them.

Active threats are aimed at disrupting the normal functioning of the system by purposefully affecting hardware, software and information resources. Active threats include, for example, the destruction or electronic suppression of communication lines, the failure of a PC or its operating system, the distortion of information in databases or in system information, etc. The sources of active threats can be the direct actions of intruders, software viruses, etc. Intentional threats are divided into internal, arising within a managed organization, and external. Internal threats are most often determined by social tension and a difficult moral climate. External threats can be determined by malicious actions of competitors, economic conditions, and other causes (for example, natural disasters). According to foreign sources, industrial espionage has become widespread - it is damaging to the owner of a trade secret, illegal collection, appropriation and transfer of information constituting a trade secret by a person not authorized to do so by its owner.

CONCLUSION

Thus, Information noise is a phenomenon that defines the modern Information Society. In the age of digital and the internet, we are faced with an abundance of information, which often interferes with the targeted perception, sorting of data. This phenomenon has a significant impact on our behavior, decision-making and the formation of public opinion.

Understanding the importance of information noise and developing methods for its management are key factors in the development of an information literate society during the digital revolution.

Currently, the widespread use of Information Communication Technologies in the social sphere creates the need for a transition to the information society. The importance of the function of information in the information society is emphasized by the formation of human values of vision and the increasing role of the media and the development of information communication tools. In general, information refers to the process by which people transmit or receive information with each other orally, in writing and in any other way. Currently, the concept of information is considered from different angles. Scientists, based on their discussions about the concept of information, have formed concepts in several directions that have their own characteristics. This determines the important role of information in the life of humanity and society. The role of information in society, ensuring the needs of people in the social system, implements social communication and, with the help of communication tools, contributes to various trends in development in society. From an early age, humanity understood the importance of information in its life and paid attention to the disclosure of the laws, functioning and essence of information. The need for information about the surrounding reality is formed in the process of Social Development. Initially, the need for information was associated with ensuring security and obtaining information on monitoring the external environment. Constant communication allowed people to exchange information with each other, agree on common goals, and understand each other. The level of information culture occupies an important place in the general cultural structure of the personality. The level of information culture reflects the level of Personality Development, which is determined by a combination of various necessary knowledge.

Various foreign media distributed in Kazakhstan require strict control. The problems of information security include insufficient information, distortion of information, the occurrence of false information that does not fully correspond. The solution of these problems is carried out as a result of the study of the formation of an Information Culture. Improving the national system of protection of information, including state information resources, requires effective protection of the information environment and information space, eliminating threats to national security in Information Systems. In order to preserve the information security of the individual in the current globalization process, it is necessary to ensure the implementation of Information Policy and make the right decisions on the part of the state and society.

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