

**ANALYSIS OF THE STATE OF INFORMATION HYGIENE ISSUES  
AMONG STUDENTS IN UKRAINE:  
THEORETICAL AND PRACTICAL ASPECTS**

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**INTRODUCTION**

The beginning of the third millennium is characterized by an unprecedented rapid development of digital technologies and the exponential growth of information flows. According to the British Encyclopedia, in the last 30 years, humanity has produced more new information than in the previous 5000 years. The production and use of information have become the most important type of activity, with digital technologies serving as the foundation for human functioning in the digital environment.

Naturally, digital transformations in society cause significant shifts in human life. Progressive changes positively impact cultural, economic, political, educational, and military-strategic aspects of society, becoming a key factor in ensuring and supporting sustainable development. Simultaneously, social information threats have emerged, associated with destructive manipulative influences on consciousness, values, and moral-ethical norms. Information activities, emotional and mental health, as well as the security and privacy of personal data, are under threat.

The problem of information and hybrid warfare has become more acute, posing a real threat to every individual, social communities, and the entire society. Catastrophic issues of information and hybrid warfare, threats to national security, have become particularly relevant for Ukraine. Information threats are evolving to new levels every day, with informational attacks becoming more complex and psychologically sophisticated.

Information threats have the potential to influence the development of an information society at various levels. From economic losses and the loss of data confidentiality to threats to national security, they require careful consideration and countermeasures. Effective protection against information threats becomes a key aspect of information society development, demanding joint efforts from individuals, organizations, and states.

The powerful role of information, its representation, and utilization in a favorable perspective were understood even in the last century. Today, considering the global information realities, media literacy is given significant attention by both domestic and foreign scholars. Theoretical aspects of media literacy are explored in works by Buckingham D., Chomsky N., Dorr A.,

Schilder E., Grigorova Z., Matviychuk O. Psychological and pedagogical research on information hygiene is presented in the works of Halamendyk, V., Koval Z., Loukas G., Murugesan S., Andriole S. Components of media literacy and criteria for their measurement are elucidated by authors Lisovsky P., Nicholas G., Obar J., Wildman S. The significance of information hygiene and qualitative changes in its formation are determined by Ukrainian scientists Rudenko Yu., Drushlyak M., Shamonia V., Ostroha M., Semenikhina O.

Effective protection against information threats becomes a key aspect of information society development, requiring joint efforts from governmental institutions and society members. Therefore, the issue of compliance with information hygiene in society is becoming more relevant, especially in the context of students' educational outcomes in higher education institutions.

The aim of the research is to highlight theoretical aspects of the essence of information hygiene, analyze the current state of its components among youth to determine the main opportunities and prospects for its formation as a priority educational direction.

### **1. The theoretical foundation of a comprehensive approach to understanding the essence of information hygiene and related terms**

In contemporary scientific discourse, the term "information hygiene" has been relatively recently introduced and is used restrictively. More often, concepts closely related to it, with similar characteristics in terms of subject and object of influence, are used. However, these concepts do not encompass all aspects of information threats, the specifics of resistance mechanisms, health-preserving behavioral practices in the digital space, as well as the modern trends in societal development. These terms include derivatives of the word "media" such as media threats, media literacy, media behavior, media ecology, info-media literacy, media competence, media technologies, media education, and others. The emergence and relevance of related terms are associated with the development and spread of IT and the inevitable transformation of digital technologies in mass communication. For a comprehensive understanding of the essence of information hygiene, it is important to examine these terms and determine the degree of diffusion or complementarity. Let's focus on the analysis of the main ones.

The term "media" is derived from the Latin word "medium" (intermediary) and literally means a mediator between the sender of information and its recipient. The need to study and understand the media was first realized by M. McLuhan. He noted that the media are a message ("medium is the message") and contributed to the understanding that the information medium itself is a participant in communication. He proposed four conceptual ideas – the "media tetrad," which allows for a better analysis of the impact of the

media on society, culture, and personality. These concepts include Interaction (media enhances human experience or knowledge), Reversal (media can make existing technologies, culture, or social structure obsolete), Retrieval (media can restore values, traditions, and ways of thinking), and Transformation (media can lead to unexpected changes in traditional norms and conventions). Considering these features, M. McLuhan defines media as a "form of communication" and "an extension of human capabilities".<sup>1</sup>

Theoretical analysis of the works of modern scholars studying media forms allows them to be classified into two groups – proponents of the technical aspect (considering media as a means of communication or technologies for the transmission and dissemination of information) and advocates of the socio-cultural aspect (viewing media from the perspective of socio-cultural influence, emphasizing the social and cultural role of the media in society). L. Lundmark, C. Oh., J. Verhaal, describing media as a set of technical and information systems that interact depending on usage needs, provide a comprehensive characterization of the technical aspect of the essence of media.<sup>2</sup>

J. Obar and S. Wildman examine media as a set of integrated technologies aimed at interaction, creation, information exchange, and communication.<sup>3</sup> Z. Grigorova, a Ukrainian researcher, presents a modern view, interpreting media as "a set of internet services and platforms for consuming, creating, disseminating content, and communication."<sup>4</sup> P. Savaryn strongly asserts a technical composition of media, stating that media and media technologies are synonymous. According to him, media comprises objects, equipment, and carriers transmitting data through words, images, and sounds, allowing processing, storage, and transmission.<sup>5</sup>]

In the normative context of the Law of Ukraine "On Media," the terms "media" and "mass media" are used interchangeably. Media is defined as the "means of disseminating mass information in any form periodically or

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<sup>1</sup> Marshall and Eric McLuhan *Laws of Media: The New Science*, Marshall and Eric McLuhan, University of Toronto Press, 1988 [https://monoskop.org/images/e/ec/McLuhan\\_Marshall\\_Laws\\_of\\_Media\\_The\\_New\\_Science.pdf](https://monoskop.org/images/e/ec/McLuhan_Marshall_Laws_of_Media_The_New_Science.pdf)

<sup>2</sup> Lundmark L. W., Oh C., Verhaal J. C. A little Birdie told me: Social media, organizational legitimacy, and underpricing in initial public offerings. *Information Systems Frontiers*. 2017. Vol. 19. № 6. P. 1407–1422.

<sup>3</sup> Obar J. A., Wildman S. S. Social media definition and the governance challenge: An introduction to the special issue. *Telecommunications policy*. 2015. Vol. 39. №. 9. P. 745–750.

<sup>4</sup> Grigorova Z. V. New media, social media, social networks – the hierarchy of the information space / Z. V. Grigorova // *Printing technology and technique: a collection of scientific papers*. – 2017. – Issue 3(57). – pp. 93–100. [https://doi.org/10.20535/2077-7264.3\(57\).2017.115905](https://doi.org/10.20535/2077-7264.3(57).2017.115905)

<sup>5</sup> Scientific and theoretical prerequisites for the use of media technologies in the training of technical professionals / P. V. Savaryn // *Computer in school and family*. – 2016. – No. 4. – P. 4-7. – Access mode: [http://nbuv.gov.ua/UJRN/komp\\_2016\\_4\\_3](http://nbuv.gov.ua/UJRN/komp_2016_4_3)

regularly published under editorial control and a constant name as an individualizing feature."<sup>6</sup>

H. Innis focuses on the social and economic impacts of media, describing them as "means of information fixation influencing societal stability."<sup>7</sup> D. Croteau and W. Hoynes provide an overview of the entire media process, defining conceptual tools to understand the role of media in contemporary society and addressing how media influences social life.<sup>8</sup>

In the normative context of the Law of Ukraine "On Media," the terms "media" and "mass media" are used interchangeably. Media is defined as the "means of disseminating mass information in any form periodically or regularly published under editorial control and a constant name as an individualizing feature."<sup>9</sup>

In the focus of our research, the established classification of media into "old" media (print, television, radio) and "new" media (internet, digital technologies) is significant. The distinctive features that fundamentally differentiate "new" from "old" media include interactivity, accessibility, convergence, user-generated content, and the "many-to-many" communication scheme.<sup>10</sup>

Considering the approaches and characteristics of "media" in our study, we view media as new technical means for transmitting and disseminating information (mass media) capable of influencing societal and individual consciousness. The richness and significance of the term "media" explain its widespread use in various spheres of application. Recently, terms with the root "media" have become prevalent, such as *media resources*, *media information*, *media texts*, *media messages*, *media tools*, *media resources*, and others. As we represent "media" as mass communication tools, the concept of "media" expands based on the content of the combined word, specifying the form of information transmission (media text, media sound, media data) or specifying (expanding) information carriers (media resources, media technologies).

The swift development and proliferation of "new" media have captured the attention of educators as a promising and effective comprehensive tool for educational activities. The positive impacts (educational functions,

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<sup>6</sup> Social visualization and media visuality: a tutorial. / Bataeva K.V. – Kyiv: Condor Publishing House, 2016. – 344 p.

<sup>7</sup> Harold Adams Innis: The Bias of Communications & Monopolies of Power. www.media-studies.ca. <https://www.media-studies.ca/articles/innis.htm>

<sup>8</sup> Media/Society: Industries, Images, and Audiences. Front Cover. David Croteau, William Hoynes. Pine Forge Press, 2003 – Social Science – 409 p.

<sup>9</sup> 121. Про медіа : Закон України від 13.12.2022 р. № 2849-IX : станом на 1 січ. 2024 р. URL: <https://zakon.rada.gov.ua/laws/show/2849-20#Text>

<sup>10</sup> B. Ya. Vakhula. Social Internet networks, their functions and role in the formation of civil society / B. Ya. Vakhula // Visnyk of Lviv University. The series is sociological. – 2012. – Issue 6. – P. 311-319. – Access mode: [http://nbuv.gov.ua/UJRN/Vlnu\\_sociology\\_2012\\_6\\_36](http://nbuv.gov.ua/UJRN/Vlnu_sociology_2012_6_36).

broadening horizons, etc.) and negative influences (racism, violence, cyber threats, etc.) of media have given rise to a new direction in education – *Media Education*.

In our research, we will rely on the definition of education found in the Encyclopedia of Education: "Education is the process and result of an individual mastering a specific system of scientific knowledge, practical skills, and associated development of cognitive and creative activities, as well as moral-aesthetic culture."<sup>11</sup> The first person to emphasize the need to develop skills in working with electronic and digital media was McLuhan. In the early 1960s, while studying the potential impact of audiovisual images on audience consciousness, he emphasized the necessity for their thorough study. He developed the concept of "visual literacy," which later became the starting point for the development of the media education movement.<sup>12</sup> Today, the issue of media education is discussed in scientific sources from the perspectives of information technologies, pedagogy, social sciences, communication theory, library science, and health care, explaining the partial unity and partial inconsistency in understanding this phenomenon.

The term "media education" was officially formulated and presented as the teaching of the theory and practice of using media as technical means to study other subjects in 1973 at the UNESCO International Conference.<sup>13</sup> Over time, the essence of the concept has changed and been refined multiple times along with the transformation of IT and the reconsideration of the role of media. From perceiving media education as the process of teaching technical means for communication, social sciences, journalism, science, and technology (UNESCO, 1973) to "media education – part of the fundamental right of every citizen of any country to freedom of expression and access to information" (UNESCO, 2002).

N. Prykhodkina rightly outlines a logical chain of media education development over the last 50 years: the process of teaching technical means – the formation of critical thinking – an integral component of civic education.<sup>14</sup>

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<sup>11</sup> Encyclopedia of education / Acad. ped. of Sciences of Ukraine, chief editor. V. G. Kremen. – K.: Yurinkom Inter, 2008. P.440 p.

<sup>12</sup> McLuhan: Hot & Cool. – Signet Books. – NY : The New American Library Inc, 1967. – C. 286.

<sup>13</sup> UNESCO. Media studies in education. Reports and Papers on Mass Communication. 1977. 92 p. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000023803>.

<sup>14</sup> Prykhodkina N. O. Media education of students in schools in English-speaking countries: monograph. Kyiv ; Krok, 2020. 412 p. <https://lib.iitta.gov.ua/727838/1>

In the Oxford Encyclopedia (2001), media education is defined as "the study of media that differs from teaching through media." <sup>15</sup>. In the 21st century, media education is associated with understanding how media messages are created and disseminated and the development of critical thinking to interpret and evaluate their content. A similar definition is presented in the Ukrainian Pedagogical Dictionary by S Honcharenko, where media education is described as "a direction in pedagogy whose representatives advocate for students to study the regularities of mass communication." The main tasks of media education are outlined there as well: preparing the younger generation for life in modern information conditions, perceiving and understanding media information, and realizing the consequences of its impact on personality.<sup>16</sup>

The continually growing conglomeration of approaches to media education broadens its essence in a general sense. J. Potter identifies critical, artistic, technical, defensive, ethical, and cultural approaches, explaining the emergence of diverse definitions of media education.<sup>17</sup>

N. Chomsky<sup>18</sup>, Ch. Salmon,<sup>19</sup> base their understanding of media education on their attitude towards the media. In their interpretation, the media negatively influences the individual (with the individual playing a passive role), and thus, they view media education as a tool for protection against the influence of mass media. Conversely, R. Hobbs emphasizes the positive qualities of the media, framing media education as a complement to knowledge and the enhancement of intellectual skills.<sup>20</sup>

In addition to its protective role, D. Buckingham sees significant potential in media education for developing the creative abilities of the younger generation in media creation <sup>21</sup>.

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<sup>15</sup> Dorr A. Media Literacy. International Encyclopedia of the Social & Behavioral Sciences. Vol. 14 / Eds. N. J. Smelser, P. B. Baltes. Oxford, 2001. URL: <https://www.sciencedirect.com/science/article/pii/B0080430767043540>

<sup>16</sup> Honcharenko S.U. Ukrainian pedagogical dictionary. K.: Lybid Publishing House, 1997. P. 203-207

<sup>17</sup> Potter, W. J. *Media Literacy*. 8<sup>th</sup> ed. 2016. Thousand Oaks, CA: Sage Publications. [https://www.researchgate.net/publication/305634938\\_Conceptual\\_Challenges\\_in\\_Designing\\_Measures\\_for\\_Media\\_Literacy\\_Studies](https://www.researchgate.net/publication/305634938_Conceptual_Challenges_in_Designing_Measures_for_Media_Literacy_Studies)

<sup>18</sup> 8. Chomsky Noam. Media control: The spectacular achievements of propaganda. Seven Stories Press, 2002. [https://library.uniteddiversity.coop/Media\\_and\\_Free\\_Culture/Media\\_Control-The\\_Spectacular\\_Achievements\\_of\\_Propaganda-Noam\\_Chomsky.pdf](https://library.uniteddiversity.coop/Media_and_Free_Culture/Media_Control-The_Spectacular_Achievements_of_Propaganda-Noam_Chomsky.pdf)

<sup>19</sup> Salmon, Ch.. *Storytelling: bewitching the modern mind*. Translated by D. Macey. Published by Verso, 2010, 266 p.

<sup>20</sup> Hobbs, R. (2010). *Digital and media literacy: a plan of action*. A White Paper on the Digital and Media Literacy. The Aspen Institute Communications and Society Program. The John S. and James L. Knight Foundation. 64 p.)

<sup>21</sup> Buckingham D. *Digital Culture, Media Education and the Place of Schooling*. *Grenzenlose Cyberwelt?*. Wiesbaden. P. 177–197. URL: [https://doi.org/10.1007/978-3-531-90519-8\\_10](https://doi.org/10.1007/978-3-531-90519-8_10)

Conceptually, media education is synthesized by B. McMahon, R. Quin, who assert that media education, in its enriched form, is an urgent need for society. In the era of wars and terrorism, a person in the 21st century must not only be a passive consumer of information but also a conscious, responsible, critically thinking individual.<sup>22</sup>

To explore the conceptual field of the definition of "media education" in the domestic context, it is advisable to refer to the new edition of the Concept for the Implementation of Media Education in Ukraine. This concept defines media education as a part of the educational process aimed at preparing individuals for safe and effective interaction with all types of media.

The analysis of the essence of the term will not be complete if we confine ourselves to the definition alone without revealing the outcomes of media education because education is not just a process but also a result. The results of media education are presented in numerous works by scholars, but mostly these are isolated skills logically structured according to the author's perspective, such as critical thinking and analytical abilities in assessing media,<sup>23</sup> technologies combating manipulations in the media space<sup>24</sup>, ethical and legal skills in creating and using media<sup>25</sup>, development of creative skills in media project creation, education in safety and information protection in the media space, formation of media-cultural personality, and media literacy.<sup>26</sup>

As for the interpretation of media literacy, there is some inconsistency: whether it is synonymous with media education often depends on national peculiarities and approaches. Some scholars and sources recognize media literacy as an integral component of media education or as a result of media education. For instance, after analyzing numerous scholarly sources,

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<sup>22</sup> McMahon B., Quin, R. Media Education or Celebration. *Telemidium. The Journal of Media Literacy*. 2000. Vol. 46. N1. P. 6–7

<sup>23</sup> Petrunko O. V. Children and media: socialization in an aggressive media environment: a monograph. Poltava: Ukrpromtorgservice, 2010. 480 p.

<sup>24</sup> Rekun, O. O. Media literacy in the system of higher education. *Bulletin of the Chernihiv Collegium National University named after T. G. Shevchenko*. Vol. 8 (164) / *Nat. Chern University collegium*" named after T. G. Shevchenko; chief ed. M. O. Nosko. Chernihiv: NUCHK, 2020. C. 41-44. (Series: Pedagogical Sciences). erpub.chnpu.edu.ua:8080/jspui/handle/123456789/7150

<sup>25</sup> Hameleers, M. Separating truth from lies: comparing the effects of news media literacy interventions and fact-checkers in response to political misinformation in the US and Netherlands (2022) *Information Communication and Society*, 25 (1), pp. 110-126. doi: 10.1080/1369118X.2020.1764603

<sup>26</sup> Semenog, O., Semenikhina, O., Oleshko, P., Prima, R., Varava, O. and Pykaliuk, R. Formation of Media Educational Skills of a Future Teacher in the Professional Training. *Revista Romaneasca Pentru Educatie Multidimensionala*. No 12(3), pp. 219-245, 2020. doi: 10.18662/rrem/12.3/319.

A. Arshad concludes that these terms, while expressing the same thing, do so in different ways and can be identical or complementary to each other.<sup>27</sup>

The National Association for Media Literacy Education proposes the following definition: "Media literacy is the ability to encode and decode symbols transmitted through media, to synthesize, analyze, and create messages." According to the association's mission, media literacy is interdisciplinary, necessary, and an inevitable response to communication processes and the complex, evolving digital environment<sup>28</sup>.

At the current stage of scientific development, the term media literacy or media and information literacy (MIL) has become widely used. The reason for this combination lies in the UNESCO strategy of 2013, which identifies the leading role of information and media, thus suggesting the combination of media literacy with information literacy. Regarding information literacy, in the same UNESCO strategy, it is defined as "the ability to identify and formulate one's own information needs, find access to information, possess skills in processing information using IT, and critically evaluate information."

Therefore, both concepts are equivalent but have different focuses: information literacy pertains to access and processing information, while media literacy involves the analysis and evaluation of media messages. This perspective is supported by M. Osyukhina, who believes that media and information literacy (MIL) is an umbrella term that combines features of both information and media literacy.

The definition proposed by M. Osyukhina is as follows: "Media and information literacy (MIL) is a set of skills, competencies, knowledge, and attitudes that enable gaining access to information and knowledge, analyzing, evaluating, using, creating, and disseminating them in accordance with legislative and ethical norms."<sup>29</sup> On a broader scale, O. Matviychuk interprets MIL. In her opinion, MIL is a set of competencies necessary for active and conscious participation in the life of a media society.<sup>30</sup>

G. Ptaszek, while investigating the issue of measuring an individual's media literacy level, identifies the following competencies: media

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<sup>27</sup> Arshad, A., Ghazal, S., Saleem, N., Hanan, M.A., Arshad, M.H. Revisiting media literacy measurement: Development and validation of 3-factor media literacy scale (2022) *Journal of Computer Assisted Learning*, 38 (5), pp. 1371-1378.

<sup>28</sup> NAMLE. Media Literacy Defined. 2020. URL: <https://namle.net/resources/media-literacy-defined/>

<sup>29</sup> Osyukhina M. Ways of developing media information literacy in Ukraine (on the example of the Sumdu School of Journalism: thesis. 2016. URL: <http://essuir.sumdu.edu.ua/handle/123456789/49138>

<sup>30</sup> Matviychuk O.. Infomedia literacy is an integral component of the educational process of a higher education institution. Resources of educational libraries of Ukraine on infomedia literacy p. 241 <https://lib.iitta.gov.ua/>



understanding, active media usage, communication through media, effective use of media to achieve set goals.<sup>31</sup>

In the new edition of the Concept of Media Education Implementation in Ukraine, there is an interpretation that essentially encompasses the detailed competencies in the scientific works of the mentioned researchers: "media competence is the level of media culture that ensures the individual's understanding of the socio-cultural, economic, and political context of media functioning, attests to its ability to be a carrier and transmitter of media-cultural values, tastes, and standards, interact effectively with the media space, and implement an active civic position."<sup>32</sup> Therefore, we can conclude that media competence consists of four key competencies of media literacy and essentially reflects their results.

Let's pay attention to the State Educational Standard, where the key competency of an individual is defined as information and communication, which involves confident, critical application of ICT, knowledge of basic programming principles, developed algorithmic thinking, Internet safety, and cybersecurity skills, understanding ethics and legal norms of working with information.<sup>33</sup>

In regulatory documents, there is a modern understanding of the role of information technologies (IT) and an attempt to bring educational processes as close as possible to the requirements of the present. Currently, scientific research on the impact of information on the global community and Ukrainians is of great relevance. In particular, studies focus on the information hygiene of Ukrainian Internet media<sup>34</sup>; various aspects of combating misinformation in Internet sources<sup>35</sup>; types of harmful effects of misinformation, and measures against its spread<sup>36</sup>.

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<sup>31</sup> G. Ptaszek. Media Literacy Outcomes, Measurement. AGH University of Science and Technology, Poland [https://www.researchgate.net/publication/332989528\\_Media\\_Literacy\\_Outcomes\\_Measurement](https://www.researchgate.net/publication/332989528_Media_Literacy_Outcomes_Measurement)

<sup>32</sup> Concept of implementation of media education in Ukraine (new edition) / edited by L. A. Naidyonova, M. M. Slyusarevskiy. – Kyiv, 2016. – 16 p. <https://mediaosvita.org.ua>

<sup>33</sup> State standard of basic and full general secondary education: Decree of the Cabinet of Ministers of Ukraine dated November 23, 2011 No. 1392. URL: <http://mon.gov.ua/ua/often-requested/state-standards/>.

<sup>34</sup> Varynskyi V., Varynska A., Kostytsky M., Kushakova-Kostytska N. Information security and information hygiene on internet media. *Nexo Revista Científica*, 2021. Is. 34 (01). pp. 120-128. <https://doi.org/10.5377/nexo.v34i01.11291>.

<sup>35</sup> Loukas G., Murugesan S., Andriole S. J. Information Hygiene: The Fight Against the Misinformation "Infodemic". *IT Professional*, 2022. Is. 24(2). pp. 16-18. <https://doi.org/10.1109/MITP.2022.3163007>.

<sup>36</sup> Grimes D. R. Health disinformation & social media The crucial role of information hygiene in mitigating conspiracy theory and infodemics. *EMBO REPORTS*, 2020. Is. 21. 11, pp. 5181. <https://doi.org/10.15252/embr.202051819>.

The development of information technologies has led to the emergence of the term "information hygiene," which has become widely used due to people's broad access to various types of information and virtually unrestricted presence in the media space. Naturally, in the context of constant powerful information flows, adhering to information hygiene has become an important condition for digital security and protecting individuals from the manipulation of information and its consequences.

The word "hygiene" comes from the Greek "hygieinos" – bringing health. Today, it is a science that studies the regularities of the impact of the environment on the human body and the health of society to justify hygienic norms, sanitary rules, and measures.<sup>37</sup> It is logical to consider that information hygiene is a system of knowledge about the regularities of the impact of information on the formation of human values, orientations, functioning, mental and physical health, and social well-being.

The problem of information hygiene in society began to be actively discussed at the beginning of the 21st century. The following concepts have emerged in this context:

- Prevention and preservation of human health, defining information life priorities, and efficient use of one's time as the most valuable resource in the present.<sup>38</sup>;
- Long-term vaccine against harmful information impact, promoting the development of critical thinking; avoiding or mitigating risks of misinformation and fake news.<sup>39</sup>;
- Cyber hygiene, involving the ability to protect one's information space.<sup>40</sup>;
- Preventive measures against cybercrime;<sup>41</sup>
- Information and digital literacy and culture;<sup>42</sup>

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<sup>37</sup> Nevedomska E.O., Marunenko I.M. Hygiene: educational method. manual on carrying out practical work [for students higher education closed.] / E. O. Nevedomska, I. M. Marunenko. – K.: Kyivsk. Borys Grinchenko University, 2013. – 34 p.

<sup>38</sup> Halamendyk, V. B. Information hygiene as a factor in preserving human mental health. *Humanitarian Bulletin of the Zaporizhzhya State Engineering Academy*, 2008. No. 35. P. 83-91.

<sup>39</sup> GRIMES, David Robert. Health disinformation & social media: The crucial role of information hygiene in mitigating conspiracy theory and infodemics. *EMBO reports*, 2020, 21.11: e51819. <https://www.embopress.org/doi/full/10.15252/embr.202051819>

<sup>40</sup> CAIN, Ashley A.; EDWARDS, Morgan E.; STILL, Jeremiah D. An exploratory study of cyber hygiene behaviors and knowledge. *Journal of information security and applications*, 2018, 42: 36-45. <https://doi.org/10.1016/j.jisa.2018.08.002>

<sup>41</sup> Dubrovyyk-Rokhova A. "What do you need to know about "fitting", "vishing" and "cache-trapping"? // Day. – No. 18– 19. – February 3-4, 2017. – P. 11.

<sup>42</sup> Lisovsky P. M. Manipulation of consciousness: essence, structure, mechanism in modern transformational society (social-philosophical analysis). K.: Ed.-vo Nats. ped. University named after M. P. Drahomanova, 2006. 200 p.

– A field of knowledge that explores the patterns of the impact of information flows reaching people on the human body and public health.<sup>43</sup>

– Information immunity as a means of ensuring information-psychological resilience.<sup>44</sup>

Various approaches to defining the goals and tasks of information hygiene, aimed at its formation, are observed.

G. Nicholas underscores the objective of information hygiene: the deliberate oversight of information habits and behavior.<sup>45</sup>

V. Halamendyk regards information hygiene as a crucial factor in safeguarding mental health against adverse media content. In his interpretation, information hygiene pertains to a healthful approach to engaging with information, ensuring effective perception, processing, and comprehension of informational sources. The objectives of cultivating information hygiene, according to the scholar, encompass averting the detrimental impact of information on the mental, physical, and social well-being of individuals, social groups, and entire populations, as well as preventing information-related ailments and enhancing the environment.<sup>46</sup>

Z. Koval envisions the purpose of information hygiene as the development of comprehensive mechanisms to foster a robust information immune system. He underscores the necessity for intricate mechanisms, warning that without them, nations risk compromising their information sovereignty, leaving their populace susceptible to deceptive and orchestrated information illusions from the distorted realm of the opposite side.<sup>47</sup>

A. Yanovskiy posits that the primary aim of information hygiene is the prevention of information-related ailments among the population and the enhancement of the information environment. He identifies the principal task

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<sup>43</sup> Gelyukh M. Information hygiene: why it is needed and how not to become a victim of fakes, 2020. URL: <https://ua.news.ua/technologies/informatsionnaya-gigiena-zachem-nuzhna-i-kak-ne-stat-zhertvami> – fejkov

<sup>44</sup> Koval Z. Introduction of complex mechanisms of information hygiene as a means of ensuring the informational and psychological stability of a person, society, and the state. Actual problems of state administration: coll. of science ORIDU Ave. / [head ed. M.M. Izha]. Vol. 2(70). – Odesa: ORIDU NADU, 2017. – P. 62-68.

<sup>45</sup> Nicholas G. Carr, *The Shallows: What the Internet Is Doing to Our Brains*, W. W. Norton & Company, 2010, 280 c.

<sup>46</sup> Halamendyk, V. B. Information hygiene as a factor in preserving human mental health. Humanitarian Bulletin of the Zaporizhzhya State Engineering Academy, 2008. No. 35. P. 83-91.

<sup>47</sup> Koval Z. Introduction of complex mechanisms of information hygiene as a means of ensuring the informational and psychological stability of a person, society, and the state. Actual problems of state administration: coll. of science ORIDU Ave. / [head ed. M.M. Izha]. Vol. 2(70). – Odesa: ORIDU NADU, 2017. – P. 62-68.

of information hygiene as laying the groundwork for ecological information behavior.<sup>48</sup>

We can argue that the absence of information immunity in individuals poses a complex and profound challenge, and addressing it requires two essential skills: the ability to filter, analyze, and assess information (media literacy, critical thinking) and an understanding of how crucial aspects of life operate in the digital realm (information behavior, cybersecurity, media ecology, and health-preserving technologies).

The concepts mentioned earlier, stemming from the term "media," share certain similarities with information hygiene, exhibiting features typical of the media space. While scholars may equate information hygiene with info-media literacy or similar terms, we adhere to a distinct viewpoint.

Media literacy, info-media literacy, media competence, and other related concepts do not encompass the issues of building information-psychological resilience in individuals, society, and the state. The disparity between these concepts deepens in the context of hybrid warfare. They also do not address the prevention of destructive media influences on mental health, the ecology of the info-media space, and strategies to mitigate or avoid information threats, such as information aggression, consciousness manipulation, cyber attacks, and cybercrime. Therefore, a unique extension of the chain of terms related to "media" is the term "information hygiene," which entails a set of measures and rules aimed at ensuring the rational, safe, and effective use of information technologies and resources. Additionally, it includes methods to prevent negative consequences arising from uncontrolled information consumption. The list of objects of information hygiene significantly expands to encompass information, the information environment, the regularities of information processes, individuals, social groups, the population of a country, along with associated health issues resulting from negative information influences and uncontrolled information behavior in the media space.

We believe that information hygiene is an interdisciplinary branch of science that has the right to independent development, as it is associated with various scientific fields such as computer science, social psychology, medicine, physiology, cybersecurity, sociology, political science, pedagogy, media communications, journalism, and others. An analysis of the aforementioned scientific sources and thoughtful conclusions allowed us to generalize the essence of information hygiene. It includes skills in media literacy, information habits and behavior; protection against cybercrime;

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<sup>48</sup> Yanovskiy A. Emotional and motivational content of the process of developing future teachers' culture of safe use of information environment. Scientific bulletin of South Ukrainian National Pedagogical University named after K. D. Ushynsky. 2019. Vol. 2019, no. 4 (129). P. 7–12. URL: <https://doi.org/10.24195/2617-6688-2019-4-1> (date of access: 20.01.2024).

safety in the information space; information-psychological resilience and skills to counteract negative influences of destructive media content; mental health; value orientations based on moral, ethical, and legal norms, as well as social well-being.

From the consideration of theoretical sources and the aforementioned conclusions, it follows that information hygiene is a personal formation in which an integrated set of competencies (knowledge, skills, relationships) of information media literacy is included; critical thinking in the analysis and evaluation of media content; value-based responsible attitude towards the consumption and dissemination of media content, manifested in information activity, media communication, and media behavior; formed moral, ethical, legal qualities ensuring harmonious interaction of the individual as a consumer and producer of media content; physical and mental health in the media space, as well as readiness and ability to use and transmit them in personal and future professional activities.



**Fig. 1.1. Components of Information Hygiene**

To effectively combat information threats, prevent negative impacts of information overload on public health, and promote harmonious existence in the digital space, adherence to information hygiene by every member of society is essential.

The formation of information hygiene skills in youth is a crucial aspect of developing a harmonious personality capable of confidently functioning in the digital world.

## 2. State of formation of information hygiene skills in youth

In the context of the aforementioned problem, which involves the growth of information threats and prolonged exposure to the information space, the task of forming information hygiene in all categories of Ukraine's population, particularly among the youth, becomes relevant.

To develop an effective strategy, it is crucial to analyze the current state of information hygiene among young people. Analytical studies presented in statistical and scientific sources allow us to evaluate key aspects of forming information hygiene skills in Ukrainian youth, such as media activity in the digital space, the level of critical thinking, media literacy, cybersecurity skills, and other components.

The results presented in analytical reports were subject to analysis:

1. Examination of the Infohygiene Level among Users of Ukrainian Social Media. Sample Features: Volume – 15,000 users engaged with Ukrainian content on social media, Age – 18 to 35 years, Geographic distribution – encompassing all regions of Ukraine. "How Not to Become a Vegetable" Initiative 2020-2022, involving four waves of research.<sup>49</sup>

2. Media Literacy Index of Ukrainians 2020–2022. Sample Features: Volume – 1,200 respondents aged 18-25, Geographic distribution – covering all regions of Ukraine. Special project by the NGO "Detector Media," aiming to validate the media literacy index concept for the Ukrainian audience<sup>50</sup>

3. Ukrainian Media, Attitudes, and Trust in 2023. Sample Features: Volume – 21,000, Age – 18 to 35 years, Geographic distribution – spanning all regions of Ukraine. Conducted by the international organization Internews, as part of the "Media Program in Ukraine."<sup>51</sup>

4. Fakes and Facts. Can Ukrainian Youth Distinguish Between Them? Sample Features: Volume – 4,237 respondents aged 18–35, Geographic distribution – across all regions of Ukraine.<sup>52</sup>

5. Interim Report on the Awareness of Target Audiences Regarding Key Aspects of Cybersecurity. Sample Features: Volume – 1,244 respondents aged 17-25, Geographic distribution – encompassing all regions of Ukraine. Conducted by CRDF Global in collaboration with the National Cybersecurity

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<sup>49</sup> Research on the level of infohygiene of Ukrainian Facebook users (4th wave) <https://www.oksanamoroz.com/doslidzhennya>

<sup>50</sup> Public Association "Media Detector" Media Literacy Index of Ukrainians: 2020-2022 (full version) <http://surl.li/hknga>

<sup>51</sup> USAID-Internews survey on media consumption. Ukrainian media, attitude and trust in 2023 <http://surl.li/guqgc>

<sup>52</sup> UNICEF U-Report project [/http://surl.li/ksmlw](http://surl.li/ksmlw)

Cluster, supported by the U.S. Department of State Office of the U.S. Coordinator for Assistance to Europe and Eurasia.<sup>53</sup>

We will analyze the results dynamically as significant changes have occurred in the awareness and skills of Ukrainian youth over the past five years due to the COVID-19 pandemic and the Russo-Ukrainian War. From the aforementioned reports, we will analyze data related to the topic of our research.

Youth aged 18–25 have become the most intensive users of the Internet (99.5%). In 2023, nearly 97% of young people accessed the Internet almost every day, which is 18% more than in 2017. The purpose of Internet use includes information search, news consumption, social media interaction, video watching, online shopping, online payments, internet television, content creation, and learning.

The structure of media activity among youth has changed from 2017 to 2023. There is a systematic decrease in the consumption of television, radio, press, and websites, along with an increase in the use of social networks from 45% to 74%. The dynamics of these changes are illustrated in Table 2.1 during 2017–2023.

Table 2.1

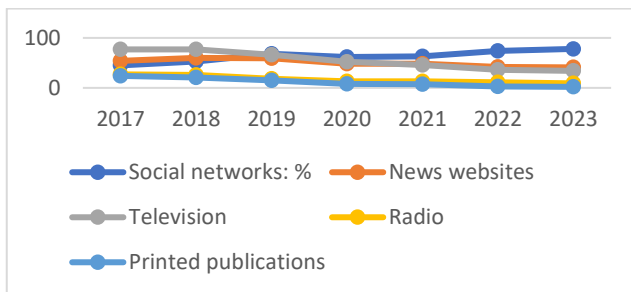
**Changes in the structure of media activity among youth during 2017–2023**

Media activity structure, %	2017	2018	2019	2020	2021	2022	2023
<b>Social networks:</b> %	45	53	68	62	63	74	78
<b>News websites</b>	54	60	59	48	48	42	41
<b>Television</b>	77	77	66	52	46	36	34
<b>Radio</b>	27	26	18	13	13	11	9
<b>Printed publications</b>	24	21	15	8	7	3	2

Comparison of media activity by years and categories is presented in Diagram 2.

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<sup>53</sup> Report on the interim study on the awareness of target audiences about the main aspects of cyber security file [https://www.sapiens.com.ua/publications/socpol-research/196/crdf\\_baseline\\_obiznanist-auditorii-pro-kiberbezpeku\\_ukr.pdf](https://www.sapiens.com.ua/publications/socpol-research/196/crdf_baseline_obiznanist-auditorii-pro-kiberbezpeku_ukr.pdf)



**Fig. 2.1. Comparison of youth media activity in 2017–2023**

As per the table, there is a gradual decline in the utilization of print media, radio, and television, while social networks consistently gain popularity each year. In 2023, Telegram emerged as the primary social network for both communication and news consumption.

Concurrent with the rise in media activity on social platforms, there is an observable increase in the creation and dissemination of harmful content. Publications that violate the principles of information hygiene, as defined by the research approach, include those containing links to clickbait websites, Facebook pages promoting misleading content, references to materials proven to be manipulative or false by fact-checking companies, quizzes, flash mobs, games, etc. These materials often require individuals to provide access to their data or serve as tools for data collection. In 2022, such publications were identified in 57% of cases among the youth, with the spread of harmful information reaching 49%.

Table 2.2

**Dynamics of information hygiene violations in publications during 2017–2022**

	2017	2018	2019	2020	2021	2022
<b>Posted posts with violations of info hygiene, %</b>	were not explored			45	46	57
<b>Published by IPSO, %</b>	were not explored			24	44	49

Despite the rising awareness of media manipulation possibilities, there exists a notable gap between self-perceived media literacy and the actual results among the youth. The comparative results are outlined in Table 2.3.

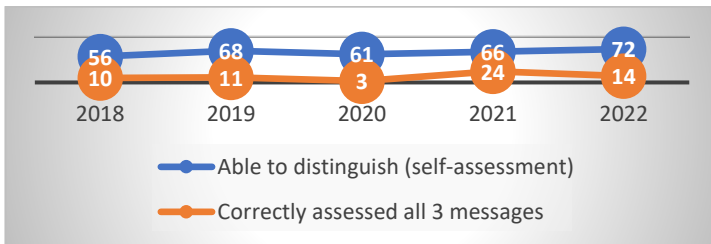


Table 2.3

**Shifts in the structure of media activity among young individuals  
from 2017 to 2022**

Indicator	2017	2018	2019	2020	2021	2022
Awareness of media manipulations, %	52	60	62	70	79	78
Able to distinguish (self-assessment), %	63	56	68	61	66	72
<b>Able to distinguish (actual assessment)</b>						
Correctly assessed all 3 messages, %	7	10	11	3	24	14
Correctly assessed all 3 messages, %			68	48	63	72

In 2022, the difference between self-assessment and the actual ability to distinguish fake information from reliable sources amounted to 58% (Fig. 2.2.).



**Fig. 2.2. Comparison of self-assessment and actual ability to distinguish fake information from reliable sources.**

When evaluating the media, respondents highlighted the following markers (ranked by the frequency of responses in descending order): common sense, intuition, checking primary sources, corroborating photos/videos, fact-checking. Moreover, the data from 2023 allows for a more detailed examination of the use of fact-checking (Table 2.4).

Table 2.4

**Structure of knowledge and use of fact-checking**

Fact-Checking	Yes, I know	No, I don't know	Hard to say
Awareness of fact-checking services, %	13	70	17
Utilization of fact-checking services, %	0	73	27

In the presented analytical reports, we analyzed the youth's attitude towards media literacy as a component of information hygiene and identified the increasing importance of it. In 2023, 69% of respondents considered the significance of media literacy relevant, compared to 57% in 2020.<sup>54</sup>

6. There has been an increase in experience dealing with cyber threats, including hacking of social media accounts (from 28% in 2021 to 41% in 2023) and breaches of gaming accounts in computer games (from 19% to 38%). General awareness of the concept of "cybersecurity" among young people has increased from 18% in 2021 to 29% in 2023. Knowledge and application of cyber hygiene rules, according to self-assessment, are noted in 63% of young people (2023) compared to 33% in 2021. Actual data on checking skills in applying cybersecurity rules in 2023 show that 49% of young people follow the rules of using two-factor authentication, and 34% can distinguish all types of cyber threats.<sup>55</sup>

7. The measurement of the media literacy index (conducted since 2020),<sup>56</sup> according to the research approach, included four sub-indices: understanding (indicators: understanding the role and impact of media on awareness and behavior, understanding media technologies), usage (indicators: reasons for internet use, number of devices for internet access), digital competence (indicators: practice of creating own content, adherence to digital security rules, competence in searching for necessary information), sensitivity to distorted content (indicators: vulnerability to manipulative techniques, disinformation, fake content) showed the following results (Table 2.5)

Table 2.5

**Distribution of media literacy indices among respondents aged 18–30 years**

levels	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
	Understanding			Utilization Digital			Competence			Sensitivity to distorted content		
<b>Low</b>	7	12	4	4	3	11	22	18	15	15	13	12
<b>Below average</b>	48	43	24	56	46	51	29	31	27	33	32	23
<b>Higher than average</b>	38	40	57	30	37	32	38	44	36	38	43	35
<b>High</b>	7	5	15	10	14	6	11	7	22	14	12	30

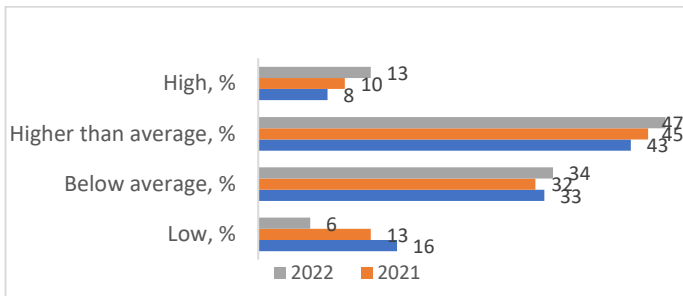
<sup>54</sup> UNICEF U-Report project /<http://surl.li/ksmlw>

<sup>55</sup> Report on the interim study on the awareness of target audiences about the main aspects of cyber security file [https://www.sapiens.com.ua/publications/socpol-research/196/crdf\\_baseline\\_obiznanist-auditorii-pro-kiberbezpeku\\_ukr.pdf](https://www.sapiens.com.ua/publications/socpol-research/196/crdf_baseline_obiznanist-auditorii-pro-kiberbezpeku_ukr.pdf)

<sup>56</sup> Public Association "Media Detector" Media Literacy Index of Ukrainians: 2020-2022 (full version) <http://surl.li/hknga>

There is an increase in the share of the audience with above-average level from 45% to 72% for the "Understanding" subindex; a decrease from 40% to 37% for the "Usage" subindex; an increase from 49% to 58% for the "Digital Competence" subindex; and an increase from 52% to 65% for the "Sensitivity to Distorted Content" subindex.

The overall media literacy index for the 18-25 age category is shown in the diagram. There is an increase in the percentage of those whose media literacy level is above average. The reason for this increase is considered to be the military aggression of the Russian Federation in the physical and informational space, and the associated acute need to focus efforts on the timely and targeted training of media literacy among Ukrainians. However, considering the advancements in digital technologies and methods of manipulation, the spread of cyber threats, and the excessive media activity of the youth, such results are deemed insufficient.



**Fig. 2.3. Dynamics of changes in the overall media literacy index 2020–2022**

Overall, the results of the analytical reports presented in official sources indicate that the younger generation, which grew up during the rapid development of digital technologies, almost 100% uses the internet daily, consumes media diversely, primarily from social networks, confidently possesses skills in using IT of any complexity, quickly learns and relearns, and is self-assured in their information hygiene, including digital literacy, media competence, and cybersecurity skills. However, self-assessments do not align with the actual results of measurements for many indicators (ability to distinguish fake from truth, identify real cyber threats), with an average difference of 40–60% in 2022. The overconfident attitude towards the digital space leads to almost audacious behavior in the information environment, manifested in ignoring information threats, unlimited consumption of information of questionable quality, lack of critical analysis and evaluation,

and a trusting attitude towards manipulative techniques and fake media content.

Therefore, based on the analysis of statistical analytical reports, we can assert that it is insufficient. The conducted analysis provides grounds to state that the formation of information hygiene in youth should be carried out from an early age throughout school and college education. It should be consistent, purposeful, logical, and in line with IT progress. We consider it appropriate to review and update educational programs at all levels, integrate information hygiene into related disciplines, theoretically substantiate and implement an improved pedagogical system for the formation of information hygiene for future computer science teachers in higher education institutions.

## **CONCLUSIONS**

The article covers theoretical and practical aspects of the interdisciplinary field of science that has gained particular relevance in the last decade – information hygiene. The essence, goals, and tasks of information hygiene, as well as related terms, were examined, encompassing phenomena or closely related to them. The historical origin, views, and approaches to the terms "media," "media education," "media literacy," "media competence," and "cyber hygiene" were explored.

The terminological analysis allowed establishing that information hygiene is a valuable personal formation, and instilling information hygiene skills in youth is a necessary aspect of developing a harmonious personality capable of confidently functioning in the digital world.

Considering the role and significance of information hygiene, its state among the youth was analyzed with the aim of further developing an effective strategy for its formation. The analysis was based on the results of statistical analytical reports presented in official sources. Key aspects of forming information hygiene skills in Ukrainian youth were analyzed, including media activity in the digital space, the level of critical thinking, the level of media literacy, cyber security skills, and other components.

The analysis results revealed that against the backdrop of almost 100% intense media activity, the number of information hygiene violations increases, associated with a low level of media literacy, a trusting attitude towards media content, a lack of knowledge of distribution rules and norms, and a lack of fact-checking skills. A low level of knowledge of cyber hygiene rules and cybersecurity skills was also identified. At the same time, there is a significant increase in understanding the role of information hygiene and the importance of its formation.

The conclusions of this analysis can serve as a basis for the development of effective programs and initiatives aimed at improving information hygiene

skills among youth and ensuring their successful functioning in a digital society.

## SUMMARY

The article encompasses theoretical and practical aspects of the interdisciplinary field of science that has gained particular relevance in the last decade – information hygiene. The significance of information hygiene for all categories of the population in Ukraine, particularly the youth, is substantiated. In the theoretical section, the essence and historical roots of the phenomenon, along with related definitions, are clarified.

The practical section investigates the state of information hygiene issues among the youth in Ukraine. The analysis is conducted based on indicators such as media activity, critical thinking, the level of media literacy, cybersecurity skills, and other components. A low level of information hygiene components among the youth is identified, leading to conclusions about the necessity of developing an effective strategy for its formation.

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