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## Integrating Media Literacy into Contemporary Education: A Fundamental Element of the Modern Curriculum

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### Abstract

*The growing use of information technology in various fields has created challenges associated with new risks, which has led to an increase in the role of media education in society. Media literacy is an important component of the educational environment, as it provides skills for searching and analysing scientific information. Our study aimed to identify the problems students face when searching for information on the Internet and to determine the impact of media literacy on student learning. The methods used in the study were analysis, synthesis, induction, deduction, survey, statistical comparison, trend method, Student's t-test for independent samples, and one-factor analysis of variance ANOVA. A survey and testing of 679 students of the 1st, 2nd, 3rd and 4th years of study were conducted. The results of the study showed that the problems of information search by students were dominated by restrictions on access to scientific and metric databases, complexity of search methods, a large number of databases and unreliability of information. Moreover, senior students consider unreliable data an important problem in searching for information on the Internet, related to developing students' critical thinking in the learning process. Instead, students who had not studied the basics of media literacy considered the complexity of search methods and the large number of scientific and metric databases the main problems. The test results showed better results in understanding media data content among senior students due to the combination of media education and critical thinking skills.*

**Keywords:** *critical thinking, search skills, media education, critical analysis of media materials.*

### Introduction

In recent years, modern education has been significantly influenced by digitalisation. Information has become more accessible, and thanks to the Internet, the exchange of scientific achievements and innovative research results is not limited by borders or linguistic differences. Thus, opportunities for education and science have taken on new dimensions, which has contributed to the globalisation of the educational and research environment (Belvončíková & Čiderová, 2022). However, the negative consequences of such an unlimited resource and flow of information are the large amount of data and the lack of possibility to fully control the quality of information (Tekoniemi et al., 2021). Despite the existence of authoritative scientific and metric databases, it is impossible to ensure adequate information search without media literacy. Thus, media literacy is a necessary component of the education pathway (Baker et al., 2021).

Our study aimed to identify the problems that higher education students face when searching for

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information on the Internet and to determine the impact of students' media literacy on their academic performance.

## Literature Review

Media literacy is an important component of social activity, as it enables people to participate in cultural and social programmes, communicate and express themselves by creating their own media products or becoming part of other online communities (Valdmane & Zariņa, 2022). The role of media literacy has increased with the proliferation of Internet technologies, which are widely used in various fields and are almost impossible to avoid in modern life. The importance of media literacy has grown in parallel with the challenges and risks accompanying the introduction of innovative technologies. In particular, spreading false, manipulative information and cybersecurity issues have become threatening consequences (Csutak, 2022; Rodrigues et al., 2021).

Media literacy plays an important role in social media, as people, regardless of their social and cultural status, actively use social media, which, on the one hand, expands communication opportunities and, on the other hand, carries risks of exposure to disinformation (Aimeur et al., 2023). Critical thinking, socio-emotional and technical competences are important for media literacy on social media, which reduce the risks of the negative impact of social media on public sentiment (Polanco-Levicán & Salvo-Garrido, 2022). Moreover, the socio-emotional factor plays a key role, as social media can affect users' mental and physical health by forming ideal images. After all, on social media, people present their vision of life through a picture that does not always correspond to reality but encourages others to follow this lifestyle (Gordon et al., 2020). An equally important skill is the critical thinking of users, which is the ability to analyse, interpret, and evaluate information, taking into account the purpose, reality, and reliability of the data (Schreurs & Vanden Bosch, 2021).

As media literacy is essential for almost every user of media resources, media education starts with the school curriculum and plays a key role in higher education (Cannon et al., 2020; Farias-Gaytan et al., 2022). However, there is a question of whether the current state of media education meets the needs of citizens and has practical application. School education is important in developing media literacy, as children are more susceptible to negative media influences and able to trust and disseminate information without prior analysis (Mesquita-Romero et al., 2022). Initial media education skills are formed by parents and teachers (Lee & Kwon, 2024). At the same time, children usually quickly master the technical aspects of digitalisation while paying less attention to evaluating the content of media materials. The low awareness of students about the threats posed by the media is explained by the parent's and teachers' lack of attention to media education. After all, a significant number of teachers with conservative views do not perceive media literacy as a necessary component of the curriculum, as they make limited use of innovative opportunities (Valdmane & Zariņa, 2022). On the contrary, teachers with a high media culture contribute to developing media literacy competences, as they are familiar with the media environment and use the associated opportunities (Bessarab et al., 2022). Therefore, teacher training in media literacy should be included in all higher education institutions and as part of continuing professional development, which will help increase the media literacy level among students (McNelly & Harvey, 2021).

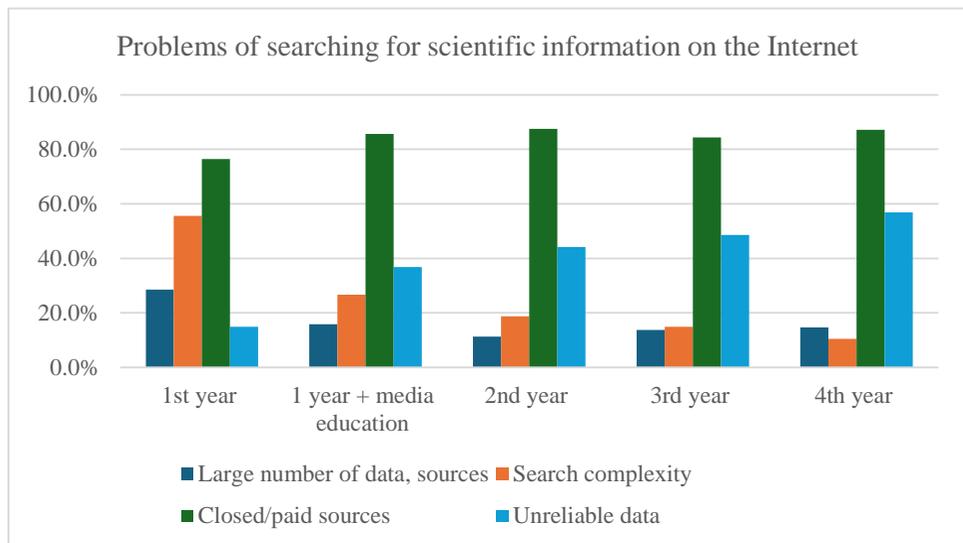
Higher education institutions should ensure quality media education among students, as media literacy is the basis of lifelong learning competence, ensuring the search for quality educational material and analysis of information received (Farias-Gaytan et al., 2023). Although researchers often focus on digital literacy, media literacy cannot be ignored, as it is responsible for the quality of digital technology use and information analysis. At the same time, media education is important for employers looking for professionals who can effectively use the latest technologies. To understand the basics of media education, it is important to identify its components, including media awareness, media competence, knowledge of access and control equipment, critical thinking, communication, engagement, responsibility, and rights (Park et al., 2021; Kim et al., 2019). At the same time, critical thinking is considered the main factor of media literacy. Even though higher education institutions should serve as the basis for developing media literacy in society, the literature search revealed a lack of research on media education in higher education curricula. Our study focused on determining the effectiveness of media literacy training for university students.

## **Materials and Methods**

The study used analysis, synthesis, induction, and deduction methods. An offline survey and testing of 679 students of the 1st, 2nd, 3rd and 4th years of Lviv Polytechnic National University was conducted. The average age of the respondents was  $19.3 + 2.1$ , with 389 women (57.3%) and 290 men (42.7%) from November-December 2024. Students were divided into groups depending on their course of study and media education. There are 5 groups among the respondents: 1st-year students who have not studied the course “Fundamentals of Media Literacy” ( $n = 221$ ), 1st-year students who have studied the course “Fundamentals of Media Literacy” for 4.5 months ( $n = 212$ ), 2nd-year students ( $n = 215$ ), 3rd-year students ( $n = 213$ ) and 4th-year students ( $n = 218$ ). All 2nd, 3rd and 4th-year students studied the basics of media literacy in their 1st year. The results of the survey are presented in the form of graphs. We have identified a trend of changing views on the problems of searching for scientific information depending on the media education received and the course of study. All students were tested to determine their media literacy level, which included 50 tasks of varying difficulty levels related to understanding the content of media files, identifying disinformation, and searching for information according to requests. The test results were compared quantitatively using Student’s t-test for independent samples and one-way ANOVA. Statistical calculations were performed in Microsoft Excel. The results were presented graphically and in tables.

## **Results**

To identify the main areas of media education that need improvement, we surveyed 4th-year students about the problems they face when searching for information for their studies on the Internet. The most popular responses were a large amount of information, difficulty searching, lack of access to closed or paid sources, and unreliable data. The answers differed among students of different years of study. There were two groups of first-year students. Group 1 did not study media literacy, while group 2 of 1st year students studied the “Fundamentals of Media Literacy” course, which lasted 4.5 months. Students of the 2nd, 3rd and 4th year studied the basics of media literacy during the first year of study, which lasted 4.5 months. The results of the survey are shown in Figure 1.

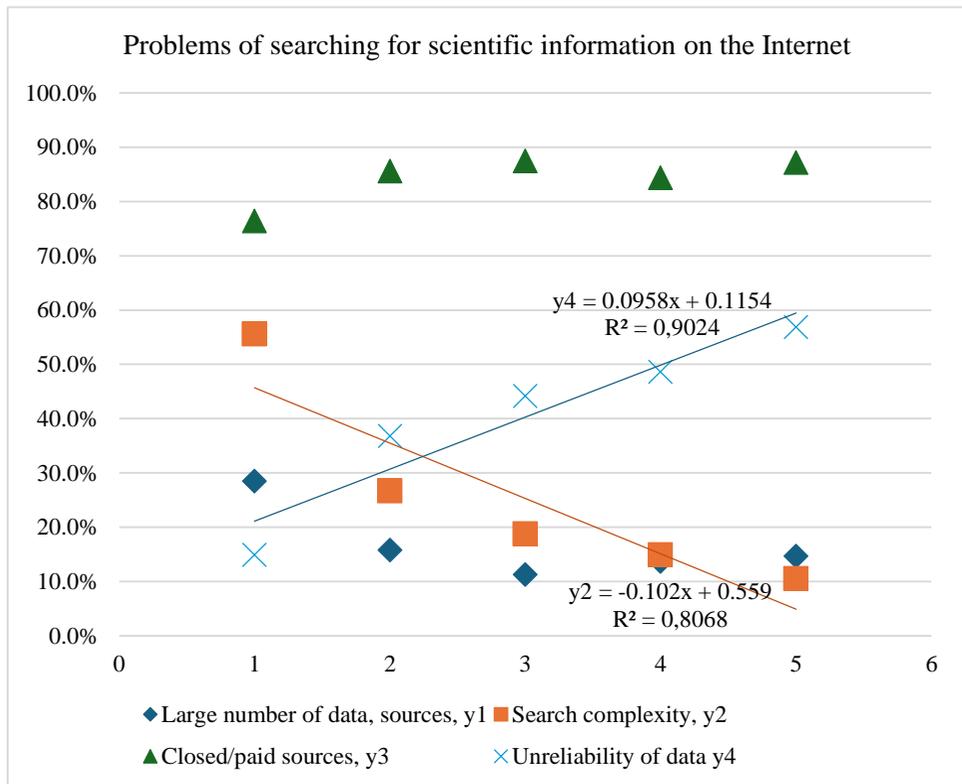


**Figure 1. Problems of finding information for learning on the Internet**

Source: Created by the author based on a survey of 1st, 2nd, 3rd and 4th year students

As the survey shows, the biggest problem for students was closed sources that require either payment for viewing an article, a subscription for access to the resource, or registration with special access. Closed access was considered an obstacle to the search for scientific information by more than 76% of students of all courses. The highest dissatisfaction with this parameter was expressed by 2nd and 4th-year students, and the lowest was by first-year students who had not taken the “Fundamentals of Media Literacy” course. Solving the problem of closed sources of scientific information requires the intervention of higher education institutions, which, through cooperation with specialised journals and databases, can access quality information materials and provide access to their students.

At the same time, among the 1st-year students who had not received media literacy training, 55.6% of respondents had difficulties searching for the necessary information, which indicates low awareness of the methodology of searching in scientometric databases. After completing the media education course, students in the 1st, 2nd, 3rd, and 4th years of study were less likely to consider the difficulty of finding information a problem. Having drawn a trend line for positive responses among students of different courses, we found a tendency to reduce the problematic nature of finding scientific information depending on the course of study (Figure 2). Thus, the least difficulties in finding information were experienced by 4th-year students and the most by 1st-year students. At the same time, with the increase of the course of study, problems in finding scientific information decreased with a probability  $R^2 = 0.8068$ . Given that 2nd, 3rd and 4th year students, after studying the basics of media literacy in the first year of study, did not study this discipline in the following years of study, the growth of information search skills on the Internet was explained by the inclusion of media literacy training in the curriculum of other disciplines.



**Figure 2. Analysis of trends in media literacy issues based on a survey of students of 1-4 years of study**

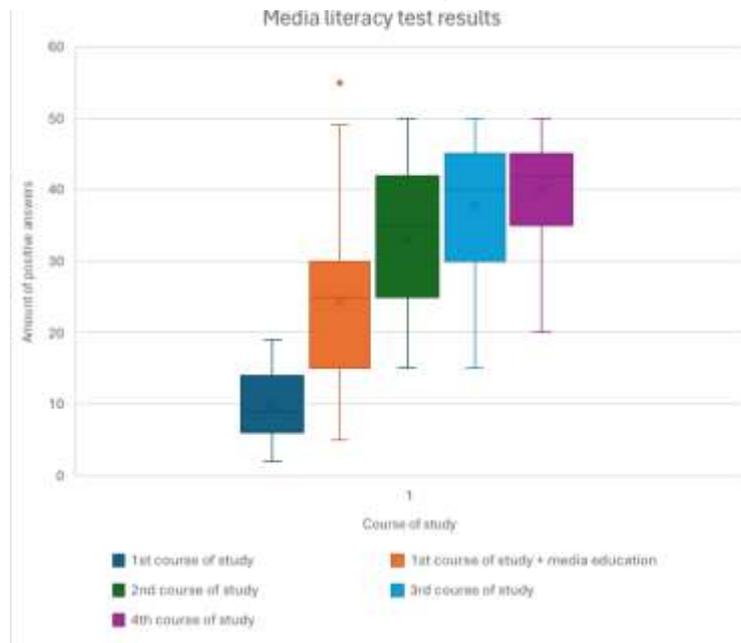
Source: Calculated by the author

Almost one-third of first-year students who had not studied media literacy identified a large amount of data and sources on the Internet as a problem in finding information, which was explained by a low level of knowledge about methods of searching for quality information and awareness of the quality of sources suitable for finding scientific information. By contrast, after media literacy training, less than 15% of students considered a large amount of information to be a problem because media literacy involved learning about reputable scientific and metric databases and the rules for finding scientific information in them. Attitudes towards large amounts of data did not differ between students of different courses who had previously studied the basics of media literacy.

Instead, the unreliability of the data was considered a problem to a greater extent by students who were studying in their senior years. The lowest number of students who doubted the reliability of the data was among first-year respondents who had not studied media literacy. The highest number of respondents who considered the unreliability of the data to be a problem was among 4th-year students. Having built a trend line of positive answers to the question about the problem of data unreliability, we identified a trend of increasing distrust in the reliability of data with an increase in the course of study with a probability of  $R^2 = 0.9024$  (Fig. 2). This trend may

indicate that students' skills of analysis, evaluation, logical comparison and critical thinking progressed with each subsequent year of study, which increased the level of distrust in the reliability of data on the Internet.

To determine the role of media literacy in the quality of education, a test was conducted between groups of surveyed students of the 1st, 2nd, 3rd and 4th years. The test included answering questions about the content of media materials, identifying disinformation and searching for information according to requests. The lowest results were shown by 1st-year students who had not studied the basics of media literacy. The best results were observed among 3rd and 4th-year students. The results are shown in Figure 3.



**Figure 3. Results of media literacy testing depending on the course of study and media education**

Source: Created by the author

The test results, depending on the course “Fundamentals of Media Education”, were compared between the two groups of the 1st year using Student’s t-test for independent samples (Table 1). Group 1 did not study the basics of media literacy, while Group 2 studied the course “Fundamentals of Media Literacy”, which lasted 4.5 months. The test results of the 1st, 2nd, 3rd and 4th courses were compared using a one-way ANOVA analysis for more than 2 groups (Table 2).

**Table 1. Student's t-test results for independent samples**

Course "Fundamentals of media education"	n	Mean	SD	Mean difference	T	P
No (1 year of study)	221	9,4	4,7	15,0	-21,1	<0,001
Yes (1st year of study)	212	24,4	9,4			

Source: Created by the author based on the test results

The test results revealed a significant difference between the test results of 1st-year students who had taken a media literacy course and 1st-year students who had not studied the basics of media literacy. Since the test questions were based on assessing competences in analysis, critical thinking and qualitative information search on the Internet, the test results confirmed the positive impact of media education (4.5-month course) on developing the above competences. This confirms the expediency of media education at the initial stages of studying in higher education institutions from the first year, which will help to achieve success and acquire skills for further study.

**Table 2. Results of one-factor ANOVA analysis of variance for 1, 2, 3, and 4 courses**

Course of study	n	Mean	SD	F	P
1 course + "Fundamentals of media education"	212	24,4	9,4	142,9	<0,001
2nd year	215	33,1	9,3		
3rd year	213	37,9	8,3		
4th year	218	40,2	7,1		

Source: Created by the author based on the test results

The test results of the 1st, 2nd, 3rd, and 4th-year students who studied the basics of media literacy revealed a significant difference between the student's achievements. The 4th year students had the highest rates of positive responses, while the 1st year students, despite having recently studied the course "Fundamentals of Media Education", showed the lowest results. This suggests that media education depends not only on the skills of using various online platforms but also on critical thinking, the ability to analyse and compare, and applying the accumulated knowledge in the field of research acquired in the course of a long-term study.

## Discussion

Among the problems that students faced when searching for scientific information, the most relevant was the problem of restricting access to closed sources of information. Although the number of open-access publications has been increasing in recent years, there is still a large amount of restricted information, which limits students' learning opportunities (Zhang et al., 2022). Another aspect is the control over the reliability of information in the public domain, as statistics on retracted articles showed that more than 65% of retracted articles were freely available (Shahraki Mohammadi et al., 2024).

Another problem for students with no media literacy training was the difficulty of searching and the abundance of information and databases, while media literacy involved learning to search for scientific information in high-quality scientometric databases. At the same time, the high level of mastery of media education and critical thinking skills among undergraduate students has led to an increase in the role of the problem of unreliable information. There are many

publications in the literature on the spread of false information. Dame Adjin-Tettey (2022) conducted a study on the role of media education and the ability to identify and disseminate false information. The study's results found that people who had received training in media education were more likely to verify information before publication and less likely to spread disinformation. At the same time, people who did not take media literacy courses were more likely to trust and spread disinformation, which is confirmed by the results of our study. Hwang et al. (2021) investigated the protective effect of media education on the level of critical perception and dissemination of deepfake videos. The experimental group was taught how to identify disinformation by typical features and provided with examples and the social consequences of its spread. Since deepfake videos were more vivid and convincing, most people who participated in the study wanted to share their content. However, after media literacy training, the number of participants who refused to share these videos and critically evaluated their content increased.

Thus, to develop media literacy, it is important to know the media space's basics and the media environment's risks and analyse, synthesise, think critically, abstractly, compare and draw conclusions. Akimova et al. (2022) studied the ability to analyse the content of media materials among social media users and found a low degree of content understanding independent of internet experience. However, better comprehension of information was observed among users with higher levels of speech and thinking skills. This was confirmed by the results of our study, which showed better content comprehension among senior students with a high level of critical and analytical thinking and media competence skills. Al-Zou'bi's (2021) study also described a high level (over 80%) of comprehension of media messages among students who took a semester-long media literacy course and the link between media literacy and critical thinking.

## **Conclusion**

Our survey of students revealed that information retrieval problems include limited access to scientometric databases, complexity of search methods, a large number of databases and unreliable information. The problem of accessibility of closed sources of information should be addressed at the university level and in cooperation with journals and scientometric databases. The problems of the complexity of search methods and the large number of databases were identified to a greater extent among the first-year students who had not studied the basics of media literacy. Our study confirmed the importance of media literacy for education to facilitate the search for scientific information and raise awareness of quality scientometric databases. It was proved that students who had taken a media literacy course had fewer problems finding scientific information and a better understanding of the content of media materials.

At the same time, a tendency to increase doubts about the reliability of information among senior students was identified, which testifies to the development of critical thinking based on the analysis and comparison of data with their professional knowledge, which increases with each year of study. The test results were the highest among senior students, indicating the complex impact of analytical skills and critical thinking developed during the study, combined with the basics of media literacy taught in the media education course and the curricula of other disciplines. Thus, it is advisable to introduce media education from the first years of study in higher education institutions and include elements of media literacy in the curricula of other specialised disciplines, contributing to student success.

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