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THE PILOT PHASE OF IMPLEMENTING THE CRITICAL THINKING DEVELOPMENT METHODOLOGY TO COUNTER MISINFORMATION THROUGH ARTIFICIALLY REPRODUCED MEDIA CONTENT

Abstract. *This article explores the results and perspectives of current educational practices in critical thinking and media literacy to counteract disinformation of artificially reproduced media content. Qualitative and quantitative data were collected to evaluate the methodology's impact on students' ability to discern and counteract disinformation across various educational institutions. A pilot phase, conducted in collaboration with select educational institutions, yielded positive feedback regarding its impact on students' critical thinking abilities and awareness of disinformation challenges.*

Key words*: deepfake, artificial intelligence, generative images, misinformation, media literacy, critical thinking, synthetic media content, methodology, qualitative and quantitative data.*

Чемерис Г. Пілотна фаза імплементації методології розвитку критичного мислення для протидії дезінформації штучно відтвореним медіа-контентом. *У статті досліджено результати та перспективи поточних результатів педагогічної практики у формуванні критичного мислення та медійної грамотності для протидії дезінформації штучно відтворюваного медіа-контенту: результати проекту та перспективи. Були зібрані якісні та кількісні дані для оцінки впливу методології на здатність студентів розрізняти та протидіяти дезінформації у різноманітних освітніх установах. Пілотна фаза, проведена у співпраці з обраними освітніми установами, принесла позитивний зворотній зв'язок щодо її впливу на розвиток критичного мислення студентів та їх усвідомлення викликів дезінформації.*

Ключові слова: *Deepfake, штучний інтелект, генеративні зображення, дезінформація, медіаграмотність, критичне мислення, синтетичний медіаконтент, методологія, якісні та кількісні дані.*

Relevance. The research has formulated and substantiated the methodological foundations for introducing the methodology of critical thinking development and pedagogical support to counteract misinformation and manipulations through synthetically reproduced media content in the practice of formal and non-formal education institutions. The results have led to the creation of a methodology and algorithms for implementing a system of critical thinking in society to combat misinformation and manipulation of synthetically reproduced media content, as well as the development of scientific and methodological support for mentors and trainers in the formation and development of such critical thinking.

The aim of the research is the   assess the effectiveness of these strategies through qualitative and quantitative analysis across multiple educational institutions.

Outline of the main material. Fake news has become a serious threat to public discourse and democratic processes in recent years [1; 2; 7; 15]. Spread widely through social networks, it impacts millions of users [11; 9]. We are amidst a digital disinformation era, where orchestrated fake information campaigns seek to sway public opinion [13; 14; 15; 17]. Deepfake technology facilitates the creation of hyperrealistic visual content, posing threats ranging from political manipulation to terrorism [8; 10; 12; 16].

Conducted an in-depth analysis of current trends in disinformation and manipulation, emphasizing the role of AI in generating deceptive media content. Conducted a comprehensive review of existing educational practices in critical thinking and media literacy. Developed a suite of pedagogical support materials, including plans for workshops and masterclasses, interactive modules, and assessment tools, aimed at enhancing students' critical thinking skills. Completed a pilot phase in collaboration with select educational institutions, receiving positive feedback on its impact on students' critical thinking abilities and awareness of disinformation challenges. Collected qualitative and quantitative data to evaluate the impact of the methodology on students' ability to discern and counteract disinformation across a broader spectrum of educational institutions. A database with classification is being

developed, focusing on methodological interactive cards with 66 curated cases of deepfakes and synthetically reproduced media (in Ukrainian). This initiative aims to provide educators, researchers, and learners with a versatile resource for understanding the challenges posed by manipulated media.

At the current stage, we compare statistic information of 124 respondents from the Zaporizhzhia region (Zaporizhzhia National University; Municipal Institution of Higher Education "Khortytsia National Academy" of Zaporizhzhia Regional Council; Classic Private University) and 34 respondents from Poltava region (State Institution "Luhansk Taras Shevchenko National University"). Our target audience was students majoring in Higher Education Pedagogy (as this specialty is a "lifelong learning" specialty, which gave us a diverse age group) and in visual media (speciality "Design") (Table 1).

Table 1

Forming stage of effectiveness experiment

The level of of Critical Thinking				
Scale of measurement of level of progress	Unsatisfactory 0-59 points	Satisfactory 60-74 points	Good 75-89 points	Excellent 90-100 points
1-st checkpoint	51,0%	30,5%	15,5%	4,0%
2-nd checkpoint	17,5%	60,5%	15,5%	6,5%

To the future research steps we provide the comparison of results of the first and second checkpoints of respondents knowledge. The comparison of indicators of individual progress of respondents is liable to statistic processing, namely: the number of received points of experimental group during the first and second checkpoints of the experiment. And planning to calculate data with the help of calculation of dispersion and with methods of mathematic statistics, using Student's t-test.

Also we will expand the geography of the results implementation by involving respondents from other regions of the country in the experiment. Statistical information on the results of the project implementation in other

universities of Ukraine (Interregional Academy of Personnel Management, Melitopol State Pedagogical University, Ivan Franko Zhytomyr State University, Volodymyr Hnatiuk Ternopil National University, Polissya National University) will be obtained. We will engage respondents from various regions of the country in the experiment to ensure a broader representation. The statistical data from other universities across Ukraine will be gathered to compare and analyze the project implementation. Findings from these universities will be integrated into our project, contributing to a more comprehensive understanding and enriched outcomes.

The prospects for the further development of the project include the possibility of developing a reliable methodology that integrates the principles of critical thinking at different educational levels, ensuring adaptability to various educational environments: at first step the creation of new certification for non-formal education institutions based on "Challenge Design" online school (Kyiv) program is planned in 2024 year, which is being discussed with director Yulia Petrychenko and tutor Mykola Kardashov.

Also a request was received from a professor Muhammet Demirbilek from Suleyman Demirel University (Isparta, Turkey) for collaboration within the academic incentive programme of Higher Education Institutions. An international agreement was signed about conduct research activity in a multi-disciplinary project "A Comprehensive Review of Impact of Deepfake Technology on Visual Media Authenticity during the War in Ukraine" collaboration with Prof. M. Demirbilek for a period in our research partnership is expected to span a period of 10 months, commencing on February 1, 2024, and concluding on November 30, 2024. This will make it possible to expand the geography and scale the results of the detection of deepfakes. The primary objectives of this research initiative are to evaluate the prevalence of deepfake technology in visual media related to the War in Ukraine, analyze the influence of deepfake content on public perception and information dissemination, and explore the challenges and implications for media authenticity in conflict zones. The research will encompass a thorough examination of deepfake technology, prior studies on its use in conflict zones, and existing literature on the influence of manipulated visual media on public opinion. We see prospects of scaling up the project through marketing research to promote the methodology for the formation and development of critical thinking to counteract disinformation and manipulation of synthetically reproduced mediacontent in the European and world market. Potential customers and

future users are educational and specialized institutions, experimental centers for processing and implementing media literacy and media education.

The research has formulated and substantiated the methodological foundations for introducing the methodology of critical thinking development and pedagogical support to counteract misinformation and manipulations through synthetically reproduced media content in the practice of formal and non-formal education institutions. The results have led to the creation of a methodology and algorithms for implementing a system of critical thinking in society to combat misinformation and manipulation of synthetically reproduced media content, as well as the development of scientific and methodological support for mentors and trainers in the formation and development of such critical thinking.

Conclusion, results and perspectives. As further prospects are improvement of existing methodical material from a systematized database and formation of interactive methodological interactive cards; supplementing each case with learning resources for deeper research; complementing different scenarios, including applications in different industries, societal impacts, detection strategies, ethical considerations and legal implications; English translation. Identifying avenues for further research to stay ahead of emerging challenges in the evolving landscape of disinformation and media manipulation. Proper pedagogical support aimed at forming and developing critical public thinking to counter disinformation and manipulation through synthetically reproduced media content has been established. This is particularly crucial in the context of the global technological and informational boom, information warfare, and disinformation. The implementation of the tasks set in the research has increased the effectiveness of achieving the goals included in the state priority areas of countering disinformation and the strategy of strengthening the country's cybersecurity.

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ARTIFICIAL INTELLIGENCE AS A PARADIGM IN UNIVERSITY EDUCATION: CHALLENGES AND SOLUTIONS

Abstract. *The article examines the problem of teaching artificial intelligence in universities, the difficulties of this process and ways to solve them. It is noted that the teaching of artificial intelligence in universities faces a number of problems. There is a shortage of qualified teachers in the field of artificial intelligence. The rapid pace of development of this field requires constant updating of educational programs and materials. The topic itself is quite technical and requires students to have a deep understanding of mathematical models, algorithms and programming. The difficulty of studying artificial intelligence at a university is the need for a wide range of knowledge and skills. Lack of practical experience of teachers and students of higher education, etc. Ways to solve the highlighted problems are proposed.*

Key words: *university, education, artificial intelligence training, students, knowledge.*