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About the Journal

Media Literacy and Academic Research is a scientific journal focused on the academic reflection of media and information literacy issues, media education, critical thinking, digital media and new trends in related areas of media and communication studies. The journal is devoted to addressing contemporary issues and future developments related to the interdisciplinary academic discussion, the results of empirical research and the mutual interaction of expertise in media and information studies, media education as well as their sociological, psychological, political, linguistic and technological aspects.

Media Literacy and Academic Research is a double-blind peer-reviewed journal published twice a year. The journal is international and interdisciplinary, inviting contributions from across the globe and from various academic disciplines of social sciences. It focuses on theoretical and empirical studies, research results, as well as papers related to the new trends, practices and other academic a research areas. Also encouraged are literature reviews, innovative initiatives, best practices in online teaching, institutional policies, standards and assessment. The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence.

The members of the journal´s Editorial Board and Advisory Board are members of the International Communication Association, International Association for Media Education, European Communication Research and Education Association, UNESCO-UNAOC UNITWIN Network for Media and Information Literacy, European Association for Viewers Interests, The Slovak EU KidsOnline Team and AlfaMed (Euro-American Inter-University Research Network on Media Literacy for Citizenship).

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Editorial

Although artificial intelligence (AI) is not a new "invention", it has only now begun to impact our lives more intensely and has become a phenomenon that is receiving enormous attention. We have entered *the era of AI,* which affects the spheres of everyday life, work and study. This era brings new opportunities, but also challenges that we must face as a society, and it reminds us once again of what has proven to be extremely important over the past three years - critical thinking in all areas of our lives and examining the nature and intentions of the content we ingest. The "relationship" between AI and fake news is often discussed, and this discussion is definitely "on point". The impact of AI on fake news is twofold - on the one hand, AI can "help" to spread fake news, but on the other, it can be an effective tool to detect and prevent its spread. The negative aspects of this issue lie in the ability of AI to create fake news itself. Even now, we are able to use this technology to create convincing, seemingly correct, stylistically and grammatically "perfect" fake news. The spread of such misinformation on social media represents a huge risk, for example, in amplifying the impact of various types of propaganda, health risks, safety risks and so on. On the other hand, AI has enormous potential to help us in the fight against fake news. The machine learning algorithms by which artificial intelligence works can be used to identify and detect disinformation campaigns and attacks of this type. In addition, AI can also help with faster and more efficient searches and verifying the authenticity of information.

In this regard, which is better? Do the benefits of having AI outweigh any risks associated with it in this area (and other areas as well)? How can we exploit the full potential of this new technology without being overwhelmed by its (possible) negative impacts? Once again we return to critical thinking and dealing with information, media, technology. As with media, we can apply the definition of a media-literate individual to AI thus: an individual who uses media and receives media content consciously, critically, with a purpose and with regard to their own needs and interests. In this sense, we consider AI as a medium that we include with other, already existing platforms that we have discussed so far in the context of media literacy. If we achieve synergy between humans and AI, we will be able to effectively identify problems and propose solutions, not only in the fight against fake news and propaganda, but in all areas of life.

This is why we should be aware of the technological changes that are part of our world, accept them and learn to live with them. We need to learn, and equally teach others, how to identify, evaluate and critically reflect on the information that AI provides us through media and digital platforms. We need to nurture the development of critical thinking in schools, universities, and lifelong learning. Because it is the conscious critical reflection on the information that comes to us that will greatly help us to learn to live more easily and safely in *the AI era*. The ability to evaluate the quality and validity of information has become a very valuable, powerful and precious skill in *the AI era.*

By creating the scholarly journal *Media Literacy and Academic Research*, we aim to address these current and important topics and bring you views on them from the perspective of academic research. In the latest issue you will find 12 interesting studies that focus on education, fake news, propaganda, media literacy, the impact of media on young people and more interesting media-related topics.

Pleasant reading,

Monika Prostináková Hossová
Editor-In-Chief

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photo: Jakub Ďuriš

Erin Steuter

Not Just for Laughs – Using Comics to Burst the Fake-News Bubble

DOI: https://doi.org/10.34135/mlar-23-01-01

ABSTRACT

This research study presents an analysis of a pedagogical strategy for teaching university students how to apply critical media literacy skills to develop their ability to detect fake news. The goal of the study was to explore the potential advantages of using comics as medium to engage students, clarify complex content, and accelerate cognition. The empirical part of the paper provides a comprehensive account of this pedagogical strategy, outlining the design and implementation of the workshop, incorporating insights from critical media literacy literature, current examples of fake news, and graphic narrative approaches. In particular, the project engaged the students through the presentation of information about fake news with comic-style graphic narratives and assessed their learning through their interaction and completion of creative dialogue within these narratives. The students showed a high level of engagement and helped peers navigate examples of fake news. They also demonstrated insights into the structural and economic factors that encourage fake news, including within the commercial news media. This study brings new insights and information on several issues related to media literacy practice in the academic context and emphasizes the relationship between communication and pedagogical studies. Adding comics to the critical media literacy toolkit shows promise in expanding techniques in the battle against fake news.

KEY WORDS

Comics. Critical Media Literacy. Educational Comics. Fake News. Graphic Novel. Multimodal Literacy.

1 Introduction

The decline of traditional media and the rise of social media have resulted in an increase in inaccurate and, sometimes, dangerous information. This fake news has economic, political, and social consequences. Citizens need to learn how to filter, and they must become their own educators, editors, and fact checkers to ensure that the information they receive and rely upon is trustworthy. And, they must do so in a fast-changing informational and political environment. Young adults, in particular, need to be educated about the tools and tactics to identify fake news, as they are often at greater risk of exposure than older generations by sheer virtue of their higher use of social media – the main culprit in the spread of fake news. A study revealed that over 50% of responding Internet users in 24 countries use social networks to keep up to date. At the same time, social media is also used for verifying the accuracy of online news with some consumers admitting that they look at how many other people have shared or liked a story to determine whether the content is reliable.[1] While regulation and legislation are part of the solution, experts agree that we must take swift action to inform our leaders of tomorrow about how to seek verification before acting on what might be fake news.

In 2022, in a global survey, the majority of people said that they had recently witnessed false or misleading information about a variety of important topics including COVID-19, politics, immigration, and climate.[2] Citizens in multiple countries report anxiety about fake news and indicate support for government investment in regulating and censoring it.[3] But fake news can also be costly and potentially invasive if government regulation is needed to provide surveillance, policing, and prosecution. A more economical and, arguably, more effective response is for investment in education. Experts suggest that research initiatives should focus on how to motivate young adults to fact check, and how to provide media literacy skills to evaluate information and find trustworthy answers. Public education to help young adults become stronger and more insightful media consumers has been identified as more effective than legislating social media platforms.[4]

The public is also expressing anxiety about the social impact of fake news, with many reporting concern that it could influence the outcome of elections. Fake news and misinformation have greatly affected their confidence in government institutions.[5] Experts warn that it may influence the core functions of the democratic system.[6] A variety of researchers report that dubious and inflammatory content can undermine the quality of public debate, promote misperceptions, foster greater hostility toward political opponents, and corrode trust in government and journalism.[7] Researchers have documented a concerning disconnection and

1 WATSON, A.: *Fake News Worldwide – Statistics & Facts*. [online]. [2023-02-22]. Available at: <https://www.statista.com/topics/6341/fake-news-worldwide/#topicOverview>.

2 WATSON, A.: *News Consumers Who Saw False or Misleading Information about Selected Topics in the Last Week Worldwide as of February 2022, by Region*. [online]. [2023-02-24]. Available at: <https://www.statista.com/statistics/1317019/false-information-topics-worldwide/>.

3 CHENG, Y., CHEN, Z. F.: The Influence of Presumed Fake News Influence: Examining Public Support for Corporate Corrective Response, Media Literacy Interventions, and Governmental Regulation. In *Mass Communication and Society*, 2020, Vol. 23, No. 5, p. 712; VESE, D.: Governing Fake News: The Regulation of Social Media and the Right to Freedom of Expression in the Era of Emergency. In *European Journal of Risk Regulation*, 2022, Vol. 13, No. 3, p. 480.

4 IRETON, C., POSETTI, J.: *Journalism, Fake News & Disinformation: Handbook for Journalism Education and Training*. Paris : UNESCO Publishing, 2018, p. 33.

5 See: CARLSON, M.: Fake News as an Informational Moral Panic: The Symbolic Deviancy of Social Media During the 2016 US Presidential Election. In *Information, Communication & Society*, 2020, Vol. 23, No. 3, p. 374-388.

6 See: BENNETT, W. L., LIVINGSTON, S.: The Disinformation Order: Disruptive Communication and the Decline of Democratic Institutions. In *European Journal of Communication*, 2018, Vol. 33, No. 2, p. 122-139.

7 OGNYANOVA, K., LAZER, D., ROBERTSON, R. E., WILSON, C.: Misinformation in Action: Fake News Exposure Is Linked to Lower Trust in Media, Higher Trust in Government When Your Side Is in Power. In *Harvard Kennedy School Misinformation Review,* 2020, Vol. 1, No. 3, no paging.

disengagement with news, with an increase in the proportion of global news consumers who are avoiding news.[8] A broad process of "truth decay" has been observed and is resulting in greater disagreement about facts, widespread preferences for personal experience and opinion over fact, and growing distrust in sources of factual information.[9]

A consequence of political polarization and the prevalence of disinformation on social media makes politics less attractive for people, which can reduce democratic political engagement.[10] Research with young people reveals that experiences with fake news may be indicating declining trust in the information they receive from legitimate news organizations.[11] The *World Health Organization* reports that the public are experiencing mental, social, political and/or economic distress due to misleading and false health-related content on social media during pandemics, health emergencies, and humanitarian crises, and has noted that this can negatively affect people's health behaviours.[12] Fake news has even had fatal consequences globally where hate crimes and other forms of violence have been prompted by its spread, and people have been left unprotected because of health disinformation during outbreaks of deadly diseases.[13]

Misinformation and fake-news campaigns can be amplified and circulated through social networks or by targeted campaigns fomenting discord on hot-button policy issues, including immigration, refugees, and climate change, possibly impacting social license and election outcomes. Many young adults simply do not possess the media or information literacy to accurately assess information they are sharing. The time has come for creative solutions.

2 Literature Review

Fake news is not new – misinformation and disinformation have always been an aspect of the news media. However, the development and adoption of new communication technologies have accelerated the speed and breadth of its reach and provide fresh evidence for the seventeenth-century insight that *"a lie can travel halfway around the world while the truth is still putting on its shoes."*[14] In addition, the nature and usage of social media have made it easier to insert automated messages into the public conversation for reasons of profit and/or to sow discord.[15] Communications scholars note that the words we use to name this phenomena can themselves act as a framing device triggering different associations for different terms.[16] Some researchers

8 NEWMAN, N.: *Reuters Institute Digital News Report 2022*. Oxford : Reuters Institute for the Study of Journalism, 2022, p. 13; WENZEL, A.: To Verify or to Disengage: Coping with "Fake News" and Ambiguity. In *International Journal of Communication*, 2019, Vol. 13, p. 1988. [online]. [2023-02-22]. Available at: <https://ijoc.org/index.php/ijoc/article/viewFile/10025/2636>.

9 KAVANAGH, J., RICH, M. D.: *Truth Decay: An Initial Exploration of the Diminishing Role of Facts and Analysis in American Public Life*. Santa Monica, CA : RAND Corporation, 2018, p. 191.

10 REGLITZ, M.: Fake News and Democracy. In *Journal of Ethics and Social Philosophy*, 2022, Vol. 22, No. 2, p. 176.

11 See: ELVESTAD, E., PHILLIPS, A., FEUERSTEIN, M.: Can Trust in Traditional News Media Explain Cross-National Differences in News Exposure of Young People Online? A Comparative Study of Israel, Norway and the United Kingdom. In *Digital Journalism*, 2018, Vol. 6, No. 2, p. 216-235.

12 See: BORGES, D. O., NASCIMENTO, I. J., PIZARRO, A. B., ALMEIDA, J. M., AZZOPARDI-MUSCAT, N., GONÇALVES, M. A., BJÖRKLUND, M., NOVILLO-ORTIZ, D.: Infodemics and Health Misinformation: A Systematic Review of Reviews. In *Bulletin of the World Health Organization*, 2022, Vol. 100, No. 9, p. 544-561.

13 PIAZZA, J. A.: Fake News: The Effects of Social Media Disinformation on Domestic Terrorism. In *Dynamics of Asymmetric Conflict*, 2022, Vol. 15, No. 1, p. 61.

14 CHOKSHI, N.: *That Wasn't Mark Twain: How a Misquotation Is Born*. [online]. [2023-02-22]. Available at: <https://www.nytimes.com/2017/04/26/books/famous-misquotations.html>.

15 BAKIR, V., MCSTAY, A.: Fake News and the Economy of Emotions. In *Digital Journalism*, 2018, Vol. 6, No. 2, p. 15.

16 TANDOC, E. C., SEET, S. K.: War of the Words: How Individuals Respond to "Fake News," "Misinformation," "Disinformation," and "Online Falsehoods". In *Journalism Practice*, 2022, p. 6. [online]. [2023-02-22]. Available at: <https://doi.org/10.1080/17512786.2022.2110929>.

recommend the term "misinformation" as a less volatile word, noting the negative associations and impact of "fake news" which has been weaponized by political leaders and partisan media.[17] In this article, I will use Higdon's definition of fake news – any false or misleading information introduced as fact-based news.[18] The term "fake news" continues to have relevance as it has both the benefit and drawback of having been shown to elicit the highest level of concern, perceived severity, and treatment recommendation.[19]

The spread of fake news has exacerbated societal strife including current economic and health crises.[20] Scholars are concerned about its potential impact on democratic processes in light of evidence of declining trust in democratic institutions.[21] While some focus on regulation of social media and journalism as a solution, many other see education as the way forward.[22] Media literacy is the educational solution that has the potential to effectively arm the public against fake news.[23]

Media literacy refers to developing knowledge of media forms and content and often includes creating media products. It has the benefit of cultivating important awareness skills that protect the public from manipulation and empower them to identify reliable information needed to be engaged citizens in a democratic context.[24] Many communication scholars prefer a critical media literacy orientation because it extends the skill set to include an understanding of ideology and propaganda and invites the learner to consider who benefits by the perpetuation of certain information even when found in "official" sources.[25] Debates between media literacy and critical media literacy are common in the United States, in particular focusing on the partisan politicization of the issue, and a move toward "objectivity" as a means to bridge the divide.[26]

Critical media literacy embraces a broader understanding of the definition, producers, and influence of fake news, combined with the exploration of power, resistance, and liberation.[27] Much of the public pedagogy that mass media (including social media) teach about race, gender, class, sexuality, consumption, fear, and morals reflects corporate profit motives and ideologies at the expense of social concerns needed for a healthy democracy and sustainable planet.[28]

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17 COLLIER, J., VAN DUYN, E.: Fake News by Any Other Name: Phrases for False Content and Effects on Public Perceptions of U.S. News Media. In *Journal of Applied Communication Research*, 2022, p. 15. [online]. [2023-02-22]. Available at: <https://doi.org/10.1080/00909882.2022.2148487>.

18 HIGDON, N.: What is Fake News? A Foundational Question for Developing Effective Critical News Literacy Education. In *Democratic Communiqué*, 2022, Vol. 29, No. 1, p. 3.

19 TANDOC, E. C., SEET, S. K.: War of the Words: How Individuals Respond to "Fake News," "Misinformation," "Disinformation," and "Online Falsehoods". In *Journalism Practice*, 2022, p. 11. [online]. [2023-02-22]. Available at: <https://doi.org/10.1080/17512786.2022.2110929>.

20 ARAL, S.: *The Hype Machine: How Social Media Disrupts Our Elections, Our Economy, and Our Health – and How We Must Adapt*. London : Penguin Books, 2021, p. 26.

21 See: CHAMBERS, S.: Truth, Deliberative Democracy, and the Virtues of Accuracy: Is Fake News Destroying the Public Sphere? In *Political Studies*, 2020, Vol. 69, No. 1, p. 147-163.

22 VESE, D.: Governing Fake News: The Regulation of Social Media and the Right to Freedom of Expression in the Era of Emergency. In *European Journal of Risk Regulation*, 2022, Vol. 13, No. 3, p. 480.

23 MCDOUGALL, J.: Media Literacy versus Fake News. In *Medijske Studije*, 2019, Vol. 10, No. 19, p. 30.

24 HOBBS, R.: *Media Literacy in Action: Questioning the Media*. New York, NY : Rowman & Littlefield Publishers, 2021, p. 4; KLINE, S., STEWART, K., MURPHY, D.: Media Literacy in the Risk Society: Toward a Risk Reduction Strategy. In *Canadian Journal of Education / Revue Canadienne de l'éducation*, 2006, Vol. 29, No. 1, p. 137.

25 KELLNER, D., SHARE, J.: *The Critical Media Literacy Guide: Engaging Media and Transforming Education*. Leiden : Brill, 2019, p. 21.

26 HIGDON, N., BUTLER, A., SWERZENSKI, J. D.: Inspiration and Motivation: The Similarities and Differences Between Critical and Acritical Media Literacy. In *Democratic Communiqué*, 2021, Vol. 30, No. 1, p. 7; MIHAILIDIS, P., RAMASUBRAMANIAN, S., TULLY, M., FOSTER, B., RIEWESTAHL, E., JOHNSON, P., ANGOVE, S. Y.: Do Media Literacies Approach Equity and Justice? In *Journal of Media Literacy Education*, 2021, Vol. 13, No. 2, p. 2; TEBALDI, C., NYGREEN, K.: Opening or Impasse? Critical Media Literacy Pedagogy in a Post-Truth Era. In *Cultural Studies ↔ Critical Methodologies*, 2021, Vol. 22, No. 2, p. 146.

27 STODDARD, J., TUNSTALL, J., WALKER, L., WIGHT, E.: Teaching Beyond Verifying Sources and "Fake News": Critical Media Education to Challenge Media Injustices. In *Journal of Media Literacy Education*, 2021, Vol. 13, No. 2, p. 60.

28 KELLNER, D., SHARE, J.: *The Critical Media Literacy Guide: Engaging Media and Transforming Education*. Leiden : Brill, 2019, p. 101.

Media literacy in formal public education began in the 1980s in Australia, Britain, and Canada, although nonformal media education has existed for decades.[29] Len Masterman in England and Barry Duncan in Canada are the pioneers who developed eight key concepts.[30]

The most important is that all media are constructions, not simply reflecting external reality, but presenting carefully crafted constructions that include many decisions. The media construct reality and are responsible for most observations and experiences from which we build our personal understandings of the world. Audiences negotiate meaning in media, according to personal needs and anxieties, pleasures or troubles, racial and sexual attitudes, family and cultural background, and moral standpoint.

Media messages have commercial implications. Media literacy aims to encourage awareness of how these impinge on content, technique, and distribution. Questions of ownership and control are central. Media messages also contain ideological and value messages, conveying, explicitly or implicitly, messages about the virtue of consumerism, the role of women, and the acceptance of authority and patriotism. Media messages contain social and political implications about issues such as civil rights, migrant crises, and health pandemics.

Critical media literacy is inspired by the work of Brazilian educator Paulo Freire. These scholars explore race, class, gender, and other cultural forces to process how media reinforce cultural norms.[31] This approach explores how power, ideology, and sociocultural context shape media messages and representations.[32] Critical media literacy rigorously examines the politics of representation and how historically disenfranchised social groups are represented.[33] Encouraging media literacy facilitates a more critically engaged civic society.[34]

Fake news comes from within the mainstream media because of a rush to publish, and staff cutbacks, but at times they distort, lie, and manufacture consent as part of a larger agenda.[35] Many media literacy advocates guide the public to mainstream media as a trusted source. Critical scholars do not.[36] Mainstream media's power means their narratives are largely unquestioned.[37]

Some scholars suggest that mainstream media see the uncertainty about fake news as an opportunity to re-establish their dominance in public opinion and information, as well as recapturing advertising profits by limiting audience access to alternative media sources.[38]

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29 FUNK, S., KELLNER, D., SHARE, J.: Critical Media Literacy as Transformative Pedagogy. In YILDIZ, M. N., KEENGWE, J. (eds.): *Handbook of Research on Media Literacy in the Digital Age.* Hershey : IGI Global, 2016, p. 324.

30 JOLLS, T., WILSON, C.: The Core Concepts: Fundamental to Media Literacy Yesterday, Today and Tomorrow. In *Journal of Media Literacy Education*, 2014, Vol. 6, No. 2, p. 69.

31 MORRELL, E.: Toward Equity and Diversity in Literacy Research, Policy, and Practice: A Critical, Global Approach. In *Journal of Literacy Research*, 2017, Vol. 49, No. 3, p. 458.

32 HIGDON, N., BUTLER, A., SWERZENSKI, J. D.: Inspiration and Motivation: The Similarities and Differences Between Critical and Acritical Media Literacy. In *Democratic Communiqué*, 2021, Vol. 30, No. 1, p. 3.

33 FUNK, S., KELLNER, D., SHARE, J.: Critical Media Literacy as Transformative Pedagogy. In YILDIZ, M. N., KEENGWE, J. (eds.): *Handbook of Research on Media Literacy in the Digital Age.* Hershey : IGI Global, 2016, p. 321.

34 FOWLER-WATT, K., MCDOUGALL, J.: Media Literacy vs Fake News: Fact-Checking and Verification in the Era of Fake News and Post-Truths. In *Journalism Education*, 2020, Vol. 8, No. 1, p. 63. [online]. [2023-02-22]. Available at: <https://journalism-education.org/2020/07/media-literacy-vs-fake-news-fact-checking-and-verification-in-the-era-of-fake-news-and-post-truths/>.

35 DIMAGGIO, A. R.: *Fake News in America: Contested Meanings in the Post-Truth Era*. Cambridge : Cambridge University Press, 2023, p. 31.

36 HIGDON, N.: *The Anatomy of Fake News: A Critical News Literacy Education.* Berkeley, CA : University of California Press, 2020, p. 10.

37 MARMOL, E.: Nine Key Insights. In HOECHSMANN, M., THÉSÉE, G., CARR, P. R. (eds.): *Education for Democracy 2.0.* Leiden : Brill, 2020, p. 290.

38 MARMOL, E., MAGER, L.: Fake News: The Trojan Horse for Silencing Alternative News and Reestablishing Corporate News Dominance. In ROTH, A. L., HUFF, M., Project Censored (eds.): *Censored 2020. Through the Looking Glass: The Top Censored Stories and Media Analysis of 2018-2019*. New York, Oakland, London : Seven Stories Press, 2020, p. 232.

There has been a growing call for critical media literacy educators to develop and identify effective strategies to address fake news[39] with an emphasis on global perspectives.[40] Some scholars have pressed the importance of this, noting that countries outside the United States may have a greater need for students to think critically about the news media because they are seeing American values imported into their culture.[41] The European Union has encouraged *"media literacy educators and stakeholders to document their best practice in the form of empirical classroom research, and to address enduring disconnects between theory and practice, conceptual frameworks and pedagogic practice, and educational/political policy and classroom practices."*[42] Best practice involves moving away from competence models and protectionist approaches to embrace a more genuinely critical and holistic media literacy.[43] Media literacy from a critical thinking and social justice framework is a necessary skill for the success of learners in the twenty-first century. Media-literate citizens have the ability to better understand how a message is created and to construct meaning out of it.[44]

A recent study of undergraduate students at a public university in Ghana found that when students were provided with appropriate media literacy training, they were more likely to determine authenticity of information and less likely to share inaccurate stories. The researchers concluded that, *"when* [media literacy] *increases, sharing of fake news decreases."*[45] Similarly, a study of media literacy interventions with undergraduates in Türkiye found that students gained an important awareness of the nature and power of mass media messages.[46] A Brazilian study found that students gained a high level of critical media literacy when taught to critically examine health misinformation, and consequently urged others to be cautious when sharing news, emphasizing their responsibility as citizens to check facts first and to realize the possible consequences of not doing so.[47]

The importance of providing training in critical media literacy for young people determined to be "at risk" has also been noted by Finnish researchers who considered youth who drop out of school, display social and learning difficulties, or encounter challenges in language or life situations.[48] They propose an inclusive approach to media education to advance their motivation to participate, communicative media skills, autonomous agency, relatedness, and experiences of inclusion in both educational settings and society.[49] Researchers studying the learning needs of young migrants in Europe note that in an increasingly polarized mediatized world, there must

39 KELLNER, D., SHARE, J.: *The Critical Media Literacy Guide: Engaging Media and Transforming Education*. Leiden : Brill, 2019, p. 63.

40 DE ABREU, B. S.: Global Perspective on Media Literacy. In CHRIST, W. G., DE ABREU, B. S. (eds.): *Media Literacy in a Disruptive Media Environment*. 1st Edition. New York, NY : Routledge, 2020, p. 11.

41 KUBEY, R.: Obstacles to the Development of Media Education in the United States. In *Journal of Communication*, 1998, Vol. 48, No. 1, p. 63.

42 MCDOUGALL, J.: *Fake News vs Media Studies: Travels in a False Binary*. London : Springer Nature, 2019, p. 27.

43 MCDOUGALL, J.: Media Literacy versus Fake News. In *Medijske Studije*, 2019, Vol. 10, No. 19, p. 41.

44 FUNK, S., KELLNER, D., SHARE, J.: Critical Media Literacy as Transformative Pedagogy. In YILDIZ, M. N., KEENGWE, J. (eds.): *Handbook of Research on Media Literacy in the Digital Age.* Hershey : IGI Global, 2016, p. 319.

45 DAME ADJIN-TETTEY, T.: Combating Fake News, Disinformation, and Misinformation: Experimental Evidence for Media Literacy Education. In *Cogent Arts & Humanities*, 2022, Vol. 9, No. 1, p. 9.

46 DOLANBAY, H.: The Experience of Media Literacy Education of University Students and the Awareness They Have Gained: An Action Research. In *International Online Journal of Education and Teaching*, 2022, Vol. 9, No. 4, p. 1621.

47 MEYRER, K., KERSCH, D. F.: Can High School Students Check the Veracity of Information about COVID-19? A Case Study on Critical Media Literacy in Brazilian ESL Classes. In *Journal of Media Literacy Education*, 2022, Vol. 14, No. 1, p. 24.

48 PIENIMÄKI, M., KOTILAINEN, S.: Media Education for the Inclusion of At-Risk Youth. In HOECHSMANN, M., THÉSÉE, G., CARR, P. R. (eds.): *Education for Democracy 2.0.* Leiden : Brill, 2020, p. 67.

49 Ibidem, p. 68.

be better recognition of how the needs of certain young people diverge depending on how they are situated in racialized, gendered, and classed structures of power.[50]

A chorus of scholars is calling for development of a more inviting approach to media education, acknowledging a variety of voices, and providing skills and recognition for everyone, irrespective of their social class, status, gender identification, sexuality, race, ability, and other variables.[51] The inclusion of comics and graphic narratives is one innovation that may be effective. Many critical media literacy scholars are defining media literacy texts as those that rely on both print and image literacies.[52] Scholars have advanced their understanding of the value of multimodality and contributed to our appreciation of the importance of visualized storytelling as a growing communication type in the globalized world.[53] Introducing multimodal approaches in the classroom that combine visual and linguistic modes in creative ways have been determined to be helpful in developing students' conceptual understanding skills and engage both reluctant readers and new language learners.[54] Comics and graphic novels effectively demonstrate the multimodal interplay, incorporating visual, spatial, and linguistic meaning.[55] Lida Tsene (founder of the *Athens Comic Library*) has observed first-hand how multimodal meanings are made as people engage with comics. She notes that comics have certain "superpowers" that make them an efficient learning tool. Skills, such as storytelling, visual literacy, collaboration, critical thinking, creativity, empathy, seeking and synthesis of information, understanding of reality, and multimedia and transmedia content production, are encouraged while reading or creating a comic story.[56] Comics, combining benefits of visualization with powerful metaphors and character-driven narratives, have the potential to make complex subjects more accessible and engaging to a broader audience.[57] An Indonesian study found that improving Big Data literacy through comics is a novel and noteworthy approach.[58]

Developing critical media literacy approaches to fake news that utilize comics and graphic narratives can help students decipher how media messages are constructed, and discover how they create meaning in ways that are often hidden. This process is similar to the synthesis, decoding, interpretation, and transmedia navigation of reading and creating comics.[59] Comics and graphic narratives have been called *"a skill vital to decoding fake news"*.[60]

[50] LEURS, K., OMEROVIĆ, E., BRUINENBERG, H., SPRENGER, S.: Critical Media Literacy Through Making Media: A Key to Participation for Young Migrants? In *Communications*, 2018, Vol. 43, No. 3, no paging.

[51] BOZDAĞ, V., NEAG, A., LEURS, K.: Inclusive Media Literacy Education for Diverse Societies. In *Media and Communication*, 2022, Vol. 10, No. 4, p. 249.

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3 Methodology

In December 2019, I was invited into my colleague's classrooms at a small, liberal arts university in Canada, where I used the graphic format to teach 300 students how to investigate news stories. Before the study even started, there was a measure of success as students were clearly excited to learn through reading comics. That could be attributed to the departure from typical lessons, but that immediate receptiveness is worth noting. Comics may be regarded as trivial or shallow in some academic circles, but they are highly impactful when they distill a verbal point, especially when accompanied by strong visuals that draw the reader/student into the conversation.

The workshop design was based on a review of the literature of critical media literacy, current developments in fake news examples, and relevant aspects of graphic narrative approaches. Insights learned were applied regarding the use of graphic images, illustrations, and the medium of comics to effectively communicate complex issues and facilitate understanding of how to dissect fake news strategies – appeal to emotion, unnamed sources, and spoofing (imitation of a legitimate news site) – as well as dealing with consequences such as confrontations, fractious political engagement, and divisive news commentary. Scholars in the emerging field of graphic narrative theory have argued that comic-style narratives can accelerate cognition because they focus attention on what is most crucial.[61] The pictures in the comic format are thought to clarify complex content, especially for visual learners.[62]

I sought to develop comic materials that feature interactive dialogue between characters. Instead of creating an omniscient narrator, common in educational graphic narratives, I chose an interactive format as an ideal vehicle to engage with fake news and cultivate conversations about what information can be trusted. Dialogue in graphic books often occurs between "experienced" characters who impart information and "experiencing" characters who have things explained to them or who discover information.[63] This process has been described as "focalizing" because it invites identification from the reader.[64]

Already warmed to the concept, students were commenting early in the study that they enjoyed the activity and the energy of the cartoon characters' conversations. Through the characters, I showed the students strategies that included reverse image search, researching sources referenced in news articles, and directly checking information on government websites. This created increased confidence and strengthened their critique skills, prompting them to ask the right questions. Students were inspired to rethink what they thought they knew, including the reliability of the first results that pop up when researching a subject using a search engine. They realized that those results may include fake news that continues to snowball across the Internet.

Through numerous carefully curated cartoons, students were invited to consider the economic and power dynamics behind the creation and dissemination of a fake news story. Scenarios in the graphics featured groups finding their way to successful conclusions by respectfully working together and keeping their critical thinking caps on. The issues were based on current real-world examples of fake news. Putting analytic tools to work, characters go beyond the content to investigate all stakeholders involved.

The topics, although based on different scenarios, are relevant to contemporary societal issues and common responses to fake news. The characters are relatable. They represent inclusivity with careful attention paid to avoiding stereotypical representations. Each situation

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61 See: COHN, N.: *The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images*. London, New York, New Delhi, Sydney : Bloomsbury, 2013.

62 TILLEY, C. L., WEINER, R. G.: Teaching and Learning with Comics. In BRAMLETT, F., COOK, R. T., MESKIN, A. (eds.): *The Routledge Companion to Comics*. New York, NY : Routledge, 2016, p. 376.

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walks learners through a journey to an insight that showcases numerous investigative tools. The comic conversations swivel realistically to emotionally charged comments that compel the reader to experience their own emotional response and become further invested in the storyline.

Figure 1 shows the student handout about spoofing in which a family is participating in a school competition on fake news detection. The children show their parents what they have learned about media literacy and earn a pizza prize. The family members delve into an online report about the government banning the singing of the national anthem at sporting events. Immediately, the dad comments that such a ban represents government overreach, which is ruining the country. The daughter spars back and suggests that it was overreach to require the anthem in the first place. Her brother pulls the focus of the discussion back to the issue by reminding his family of an important tool he has learned – reading past the headline.

The family's notices that although the network news broadcaster's website looks legitimate, the address is incorrect and does not have the requisite "about" page. They find a claim that the author won multiple Pulitzer Prizes, but he isn't on the list of winners at the prize website. Not swayed by that revelation, the father tells the others that they are overthinking the article. The news story cited the executive order banning the anthem, and when he searched the order number, lots of websites popped up. He confidently pronounced the story to be true. Remembering their critical media literacy lessons, and the effective tools they were given, the children check a government website to find that no executive order with that number exists.

As Figure 1 shows, this dialogue intentionally highlights core principles of fake news detection.

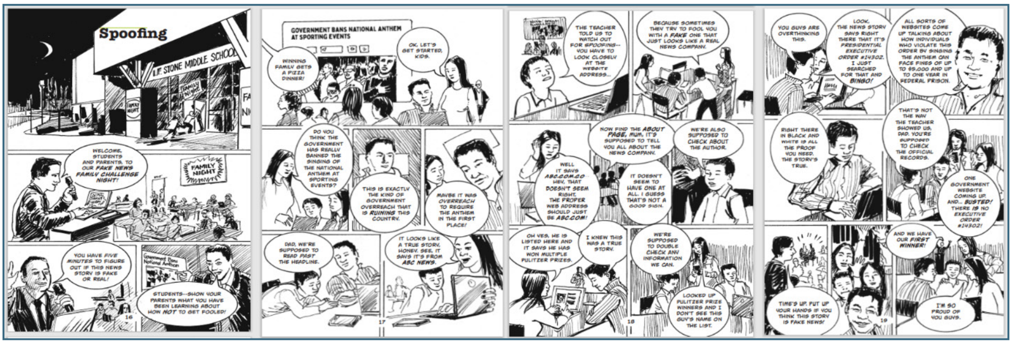

FIGURE 1: *Example of comic series #1 that helps explain the concept of spoofing*

Source: Author-designed workshop materials. Illustrated by: Alan Spinney

Figure 2 depicts the student handout about ownership influences in which four colleagues in a scientific lab study the phenomenon of fake news. On a radio broadcast, the colleagues hear that recent survey results show that a majority of people do not believe humans cause global warming. Their reactions, which occur in the casual context of preparing for a meeting, reflect the engaging personalities typical of the comic medium. *"That makes me so mad,"* one lab-coated woman begins. Another colleague gets to the heart of the matter and wonders how, with so much available – and accessible – science-based information urging immediate solutions, people are still in denial.

His colleague pivots from anger to empathy for the public. She attempts to make her point with a humorous analogy about people shoving cotton swabs in their ears, despite knowing they should not, something she does herself. The pragmatic male colleague fires back, saying that her example was not analogous because using cotton swabs against advice hurts only the user and isn't comparable to human actions that negatively affect others.

Another colleague offers comic relief, laughingly claiming he cannot hear them because his ear hurts. His joking demonstrates empathy for those who do not always respond to science and health advice. Enter the colleague – a critical media literacy thinker – who reminds the others that trustworthy, factual information starts with good sources. That brings everyone to the same page as they recall their first-hand observations of biased news about climate change, and question the agenda of some media owners who consistently raise doubts about human causes. Their colleague notes research showing that fewer people trust science because of how some media outlets encourage skepticism of climate change. She says people who understand the tactics used to trick them are more likely to seek – and accept – facts.

FIGURE 2: *Example of comic series #1 that helps explain the concept of news media ownership influence*

Source: Author-designed workshop materials. Illustrated by: Alan Spinney

The next step in the study was an assessment. Participants were given cartoons with interacting characters and empty speech bubbles. Shown a piece of fake news on a social media site, they had 30 minutes to write conversations explaining the fake news, reasons it was posted, and ways to prove it false.

Figure 3 shows the panels provided to give students the opportunity to write thoughtful interactions. As it is important to learn to distill information, the speech bubbles were dauntingly and purposely tiny. The graphic format forces the writer to communicate successfully with the smallest number of words. Visual media – body language and the principle of "show, not tell" – is essential to conveying the message.

FIGURE 2: *Empty comic that students completed themselves with the prompt: "Why Is the media showing fake news about the shark? Fill in the empty speech bubbles to create a conversation that helps reader learn about fake news."*

Source: Author-designed workshop materials. Illustrated by: Alan Spinney

In this study, participants were not asked to draw their own characters because I have observed in other workshops that asking students to draw cartoons takes time and encouragement as drawing – even stick figures – can cause anxiety and cloud thought processes. The attributes of the cartoon characters are a critical aspect, needing to promote inclusivity, so students see themselves in one or more of them. Students didn't express concerns about any of the types of pre-drawn characters they were given to work with.

A professional illustrator was commissioned to draw the workshop materials, focusing on portraying a wide range of ethnicities, disabilities, and body types without perpetuating character stereotypes. It was important to include marginalized groups and to represent them in a respectful way. His characters are presented as interesting, sympathetic, engaging, and diverse. I researched the best ways to approach representation to get even the smallest details right. There had been interesting discussions around diversity and representation in comics with many complaints from marginalized groups who felt absent from comics, or reduced to caricature.

For example, I reviewed research about representations of disability. In many comics, characters are pictured in manual wheelchairs with someone pushing from behind, which does not represent people who use electric wheelchairs independently. I was careful to make sure that I was aware of any concerns expressed about representation and to present these to the artist, who was very receptive. He also did his own research within the illustrator community to present people fairly. Those conversations and that partnership were a very rewarding and exciting part of the process. I believe that we need to be inclusive in the way we teach and promote critical media literacy so that it will resonate and be effective.

Characters have distinct personalities, relationships, and traits that draw students into the story. Some characters almost always get things wrong. Some are more trustworthy. But they grow over time, demonstrating how people can change the way they think. They work at maintaining a nonconfrontational approach that fosters cooperation rather than defensiveness, which can ultimately be the means to a truthful end. This was done intentionally given the tense atmosphere created by fake news with people reporting that they have had to drop friends and even family from their social circles because of serious conflict.

4 Results

It was clear that this approach created a space for learning as students encountered new information in a relaxed, recreational setting, following the flow of a conversation in a visual format and with a humorous tone.

Student-created dialogues offered insight into the ability students developed to think for themselves, use critical analysis tools, look behind the scenes for motives and agendas, and be engaged. They demonstrated empathy and a sense of social responsibility. Tables 1 and 2 show that multiple responses raised questions and concerns about the impact of fake news on society and implications for individual response. They showed an awareness of how this can undermine liberal democracy and how fake news can come from domestic – and not just foreign – actors. Some felt that the fake news phenomenon is inevitable while others communicated empowered engagement and a desire to help others learn critical media literacy skills. An additional cluster of themes focused particularly on making sense of why the mainstream news media might share fake news, as this was inherent in the comic they were given to complete. Their answers showed an understanding of the monetization of fake news. In addition, several students included comments about the agenda-setting role of media and the potential for fake news to be used to in the interests of those in power.

THEMES	SELECTED EXAMPLES OF STUDENT-CREATED DIALOGUE
Awakening to how widespread the fake news might be	• It is so shocking other news aren't telling us about this; We deserve to know! • They are endangering us! Yeah, like what else aren't they telling us?! • It looked real! How was I supposed to know it wasn't true. I suppose it wouldn't hurt to get properly informed though.
Inevitability of fake news distortions	• We can't always trust what we see. Fake news is an inescapable phenomenon. • With fake news becoming more and more popular, stories like these will be a whole lot more common.
Concerns about the impact of fake news on democracy	• You should learn about fake news. It's hurting our democracy. • Fake news causes rifts in society because no one can tell what the truth is anymore. • It's a shame that the culture of fake news has eliminated the people's trust in the media.
Empowerment to identify fake news and desire to teach others	• Is there a way we can prove to people that this is fake news? • We should research the topic! We need to know if there was actually a hurricane and how we get a shark onto a highway. • We need to educate people on what they are reading online as well. • Showing them the warning signs would help the readers, right? • We could show examples of fake versus Real News too. What do you think? That's brilliant! What are we waiting for? Let's get to it! • I think we really need to talk about teaching you how to recognize fake news. No more *Facebook* news for you.
Self-reliance orientation to checking fake news	• Well, I guess that goes to show we can't rely on one source of news. We need to always be fact-checking the stuff we read for ourselves. • We just have to make sure our sources are credible. It seems like that task is getting harder and harder each day. We have to make sure we use more than one source and gather all the facts. • I believe that finding a site that's willing to provide their sources is a good sign that their stories are valid.
Accountability focus on perpetrators	• As citizens and consumers, we have a responsibility to be critical! Do not accept stories blindly. More than that we have to take action. Hold those responsible for their actions!

TABLE 1: *Themes of the student responses: engagement with the problem of fake news*

Source: own processing, 2023

THEMES	SELECTED EXAMPLES OF STUDENT-CREATED DIALOGUE
Qui Bono – focus on who benefits from fake news	• Consider whose interests the article might serve. Also consider who the target audience is. • This story has been thought up to get attention, money and to favour a certain political agenda. • Why would the media be warning us about shark attacks? Because fear sells. The media loves to capitalize on human emotion. Being scared can assist in maintaining viewership since frightened individuals want to stay in the loop. • Media companies take advantage of people's laziness to fact check or maybe they're too trusting but when people just take the news as true the media can create chaos. In many cases this breeds moral panics by making people believe issues are bigger than they are.

Mainstream news media can include fake news because of profit motives	• It could be fake news. All those people wanting to make money by getting people to share their over-the-top stories on social media! Even if it's featured on multiple news sources, it could be fake. Everyone wants a piece of the pie; everyone wants the breaking story! • My goodness! I can't believe it! I thought that I wouldn't be tricked because of all my research, but the media is sneakier than I first thought! • By creating such a sensational story on hot topics, it will get more people watching. When media cares more about money than truth, you get fake news! • The media often sensationalizes stories to get more views. That's why you should be careful what you click on and try to verify who writes the articles. • This website is making money off the link you clicked. Yes, that's what they do to make you click it, even though it's fake. • Just because the story has so many views doesn't mean it's real. Some companies just want to maximize views to make money. • This problem is continuing to grow because capitalism favours money over people. So, they keep us in the dark. #Fuck capitalism.
Mainstream news media can include fake news because of power motives	• Media companies make a lot of money off fake news. • They also distract people from what really matters sometimes. That's just the reality. • It helps those in power control what the public knows.

TABLE 2: *Themes of the student responses: comments about mainstream media's role in fake news dissemination*

Source: own processing, 2023

5 Discussion

The graphic format was well-received, and the students demonstrated comprehension of core concepts in the creation of their own comics. Through their characters, they expressed concern about fake news and how to recognize red flags. Students engaged their comic characters in complex discussions about the political economy of the news media and demonstrated that they understood the financial motives underpinning some fake news. In addition, some of them identified the agenda-setting role of the mainstream media and raised thoughtful questions about who benefits politically from fake news. Overall, they demonstrated that they were confidently able to explain and teach the topic to others. The exercise was clearly a positive learning experience, with an effective uptake of information and demonstrated results.

The size of the comic bubble forces a student to really get to the heart of a topic and create dialogue that sounds real and is effective in concisely communicating a message. Reading graphic novels can also work to relax a reader to the point where they are more receptive to learning and relating to a topic or character. The novelty and creativity of taking in information through comics can create a more open frame of mind, allowing for a reader's defenses and preconceptions to begin to drop.

An effective method of delivering the information and topics offers a seamless way into the kinds of conversations a facilitator might want to have in your community. It is crucial to recognize that there are so many ways to facilitate conversations about media literacy, including multimodal exercises that go beyond purely text-based formats that may lack necessary opportunities for creativity and vulnerability and thus prove less impactful for students.

Given the isolating and alienating impacts of fake news on civic engagement, students' attitudes toward the learning activity and the content of their comic dialogues was heartening. The students created character dialogue that enthusiastically engaged with identifying fake news and initiated a variety of actions to address it. This community-oriented approach to fact- checking and peer teaching may be an important part of the solution to living in a world rife with unreliable information and finding an alternative to retreating from political and civic engagement.

6 Conclusion

The pervasiveness of fake news presents an increasingly difficult challenge for educators. It is everywhere, including in well-respected commercial media outlets. Fake news is being read, watched, shared and, most importantly, believed. It is time to "think outside the box" and come up with creative solutions. Experts suggest that research initiatives should focus on how to motivate young adults to fact check, to provide media literacy skills so they can evaluate information and find the truth. Young adults need to become stronger and more insightful media consumers. They need to learn to understand what is real and what isn't.

This paper demonstrates an approach that works well with post-secondary students – the use of comics. Combining benefits of visualization with powerful metaphors and character-driven narratives, comics have the potential to make complex subjects more accessible and engaging. Comics may be regarded as trivial or shallow in some academic circles, but they have proven to be highly impactful when they distill a verbal point, and present strong visuals that draw the reader/student into the conversation. Given the isolating and alienating impacts of fake news on civic engagement, students' attitudes toward this learning activity and the content of their comic dialogues was heartening.

The novelty and creativity of taking in information through comics creates a more open frame of mind, allowing for a reader's defenses and preconceptions to begin to drop. An imaginative and sometimes humorous approach has shown impressive results. Decoding fake news is not always easy, but using comics could continue to increase student's ability to learn and share this vital skill.

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photo: Andrej Greguš

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Propaganda at Play: A Thematic Analysis of Belarusian Media Narratives in the Context of the Russo-Ukrainian War

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ABSTRACT

This study delves into the narratives employed by Belarusian propaganda during the Russo-Ukrainian War, examining 1,750 news items from Belarusian state media sources and the pro-government *Telegram* channels from September 1st to November 30th, 2022. The research employs the Looqme methodology, a robust content analysis approach that involves systematically coding and categorizing textual data to identify key thematic blocks and subthemes. The findings reveal a carefully crafted narrative aimed at demonizing Ukraine, promoting alternative realities, and glorifying military service. By portraying the West as a source of instability and danger, the propaganda fosters public support for Belarus's stance on the conflict. Additionally, the study exposes the use of historical manipulation and reinforcement of negative portrayals through quoting Russian authorities. The study highlights the role of language manipulation and selective presentation of events in shaping public opinion, providing valuable insights for countering disinformation and fostering objective reporting in times of conflict.

KEY WORDS

Belarus. Belarusian Propaganda. Information Warfare. Media Narratives. Russo-Ukrainian War.

1 Introduction

"If you're not careful, the newspapers will have you hating the people who are being oppressed, and loving the people who are doing the oppressing."

Malcolm X

"The propagandist's purpose is to make one set of people forget that certain other sets of people are human."

Aldous Huxley, 1937 *"The Olive Tree"*

The Russo-Ukrainian War has not only intensified the geopolitical tensions within the region, but has also led to the proliferation of state-sponsored propaganda, shaping public opinion and fostering division.[1] In this context, Belarus has emerged as a significant player, with its media landscape reflecting the country's complex political and social dynamics.[2] The Belarusian media landscape has been dominated by state-controlled outlets, allowing the government to wield significant influence over public opinion.[3] Belarus, situated to the west of Russia along Ukraine's extensive northern border, is one of Moscow's staunchest allies. It facilitated Russia's initial invasion of Ukraine in February 2022 by enabling Kremlin forces to enter from the north.[4] Concerns persist that Belarus may once again serve as a launchpad for offensives or that its military will join the conflict.[5]

Belarusian social cohesion is vulnerable to Russian influence in the information space and information warfare. With 60% of Belarusian TV content produced in Russia, citizens are exposed to the same messages as Russians, increasing their sense of belonging to the "Russian world".[6] Russian media is generally trusted more than Belarusian media, both official and independent.[7] Specifically, the media promotes narratives that amplify the government's achievements while undermining its opponents.[8] Belarus is dominated by state-controlled media, with limited freedom of speech and press under Alexander Lukashenko's leadership.[9] The country ranks 153rd (Russia 155th) out of 180 in the *World Press Freedom Index* (2022).[10] Regional media in Belarus face challenges adapting to online formats, and the state-owned company *Beltelecom* maintains an internet monopoly, blocking anti-regime information.[11] The Belarusian KGB monitors online communications, with most internet users in Minsk. After the

1 HANLEY, H., KUMAR, D., DURUMERIC, Z.: *A Special Operation: A Quantitative Approach to Dissecting and Comparing Different Media Ecosystems' Coverage of the Russo-Ukrainian War.* [online]. [2023-02-26]. Available at: <https://www.hanshanley.com/files/ICWSM_Eluosi.pdf>.

2 See: KOROSTELEVA, E., PETROVA, I.: Power, People, and the Political: Understanding the Many Crises in Belarus. In *Nationalities Papers*, 2022, p. 1-13. Available at: <https://doi.org/10.1017/nps.2022.77>.

3 See: GREENE, S.: You Are What You Read: Media, Identity, and Community in the 2020 Belarusian Uprising. In *Post-Soviet Affairs*, 2022, Vol. 38, No. 1-2, p. 88-106.

4 See: MARPLES, D.: Russia's War Goals in Ukraine. In *Canadian Slavonic Papers*, Vol. 64, No. 2-3, p. 207-219.

5 GLOD, K.: *The War in Ukraine One Year on: Will Belarus Join the Battlefield?* [online]. [2023-03-11]. Available at: <https://www.europeanleadershipnetwork.org/commentary/the-war-in-ukraine-one-year-on-will-belarus-join-the-battlefield/>.

6 BOULÈGUE, M., LUTSEVYCH, O., MARIN, A.: *Civil Society Under Russia's Threat: Building Resilience in Ukraine, Belarus and Moldova.* [online]. [2023-03-22]. Available at: <https://www.chathamhouse.org/sites/default/files/publications/research/2018-11-08-civil-society-russia-threat-ukraine-belarus-moldova-boulegue-lutsevych-marin.pdf>.

7 Ibidem.

8 See: STEBLYNA, N., DVORAK, J.: Reflections on the Independent Mass Media of Post-Soviet Countries and Political Competitiveness. In *Politics in Central Europe*, 2021, Vol. 17, No. 3, p. 565-588.

9 Ibidem, p. 570.

10 *RSF's 2022 World Press Freedom Index: A New Era of Polarisation.* [online]. [2023-03-11]. Available at: <https://rsf.org/en/rsf-s-2022-world-press-freedom-index-new-era-polarisation/>.

11 DVORAK, J.: Belarus. In MERSKIN, D. (ed.): *The Sage International Encyclopedia of Mass Media and Society*. Thousan Oaks, CA : SAGE Publications, 2019, p. 160-162.

August 2020 elections, the regime targeted both foreign and local journalists, detaining and withdrawing accreditations.[12] Additionally, state-controlled outlets tend to portray Western countries as hostile forces that threaten Belarusian national identity and sovereignty.[13]

Media freedom in Belarus has been suppressed since President Lukashenko's election in 1994, with laws limiting journalists' rights and with media restrictions.[14] In order to maintain power, Lukashenko's administration has manipulated elections, detained presidential contenders to weaken the political opposition, and enacted strict internet regulations to quell public and civil society demonstrations.[15] In February 2022, amid escalating tensions in Ukraine, Lukashenko solidified his control by passing a constitutional referendum. This granted him lifelong immunity from prosecution, extended his time in office, and allowed the permanent stationing of Russian troops and nuclear weapons in Belarus.[16] In March 2023, President Putin announced Russia's plan to station tactical nuclear weapons in Belarus. A storage facility will be completed by July, with an Iskander short-range missile system already transferred. Russia has also helped Belarus modify 10 aircraft for nuclear warhead capabilities and will begin pilot training soon. Belarus has had no nuclear weapons on its territory since the early 1990s.[17]

Belarusian authorities maintain tight control over media, with independent journalists and bloggers facing harassment and detentions. The state actively targets media outlets and individuals, blocking websites and tightening digital media control through legislation. As independent news sources dwindle, more Belarusians turn to social networks.[18] In 2019, Belarus was listed among the 10 most censored countries by the Committee to Protect Journalists.[19] The situation worsened after the August 2020 election, leading to increased harassment and imprisonment of journalists.[20] The government also oversees ISPs, information security standards, digital surveillance, and top-level domains, according to *Freedom House's Freedom on the Net report*.[21] Amid the political crisis and Russia's invasion of Ukraine in February 2022, the government escalated arbitrary arrests of media workers, bloggers, activists, and users, imposing harsh sentences on detainees. Security forces used raids, torture, and forced confession videos to suppress critical speech.[22] The war and international sanctions led the government to intensify its propaganda and manipulation of the information landscape. IREX's *Media Sustainability Index* also deemed Belarusian media as unsustainable and anti-free due to government obstruction.[23] Belarusian President Alexander Lukashenko fully supported Russia in the Russia-Ukraine war, permitting Russian forces to use Belarusian infrastructure and territory.

12 DVORAK, J.: Belarus. In MERSKIN, D. (ed.): *The Sage International Encyclopedia of Mass Media and Society*. Thousan Oaks, CA : SAGE Publications, 2019, p. 160-162.
13 See: DOVBYSH, O., LEHTISAARI, K.: Local Media of Post-Soviet Countries: Evidence from Belarus, Russia, and Ukraine. In *Demokratizatsiya: The Journal of Post-Soviet Democratization*, 2020, Vol. 28, No. 3, p. 335-343. [online]. [2023-03-11]. Available at: <https://www.muse.jhu.edu/article/762318>.
14 See: RYNG, J., GUICHERD, G., SAMAN, J. A. et al.: Internet Shutdowns. In *The RUSI Journal*, 2023, Vol. 167, No. 4-5, p. 50-63.
15 Ibidem.
16 Ibidem.
17 LJUNGGREN, D.: *Putin Says Moscow to Place Nuclear Weapons in Belarus, US Reacts Cautiously.* [online]. [2023-03-27]. Available at: <https://www.reuters.com/world/europe/putin-says-moscow-has-deal-with-belarus-station-nuclear-weapons-there-tass-2023-03-25/>.
18 *10 Most Censored Countries*. [online]. [2023-03-25]. Available at: <https://cpj.org/reports/2019/09/10-most-censored-eritrea-north-korea-turkmenistan-journalist/#9/>.
19 Ibidem.
20 See: MUDROV, S.: "We Did Not Unleash This War. Our Conscience Is Clear". The Russia-Ukraine Military Conflict and Its Perception in Belarus. In *Journal of Contemporary Central and Eastern Europe*, 2022, Vol. 30, No. 3, p. 273-284.
21 *Freedom on the Net 2022, Belarus.* [online]. [2023-03-25]. Available at: <https://freedomhouse.org/country/belarus/freedom-net/2022/>.
22 Ibidem.
23 *Media Sustainability Index 2019, Belarus.* [online]. [2023-03-25]. Available at: <https://www.irex.org/sites/default/files/pdf/media-sustainability-index-europe-eurasia-2019-belarus.pdf/>.

The state-controlled media justified the invasion with various reasons, while opposition media showed pro-Ukraine sentiments.[24] Russian and Belarusian state-sponsored propaganda evolved before and after the 2020 presidential election, with significant changes in mechanisms and influence. The ongoing geopolitical struggle for influence in the post-Soviet space played a major role in shaping these changes.[25]

The presented study seeks to contribute to the literature by conducting a comprehensive content analysis of news items published by Belarusian state information resources and pro-government channels between September 1st and November 30th, 2022. Drawing on the theoretical frameworks provided by propaganda studies[26] and media manipulation research[27], our analysis will explore the credibility, reliability, and manipulative techniques employed in these news items, as well as their use of hate speech and disinformation.

The purpose of this article is to investigate and analyze the primary narratives employed by Belarusian propaganda during the Russian-Ukrainian War. The article aims to uncover the underlying patterns and strategies used by Belarusian state and pro-government media to shape public opinion and advance their political objectives.

Three research questions derived from the article are:

RQ1. How does the Belarusian state media portray Ukraine and its people in the context of the Russian-Ukrainian War, and what strategies are used?

RQ2. In what ways does the Belarusian state media present the Western countries, and how does this narrative contribute to shaping public opinion and supporting the Belarusian government's stance on the conflict?

RQ3. How does the Belarusian state media's coverage of military successes and losses in the Russian-Ukrainian War impact public perception and support for the government's position in the conflict?

1.1 From Denial to Demonization: The Shift in Belarusian State Media's Coverage of the Russian Invasion of Ukraine

Belarus has two main national identity projects – the Belarusian national-romantic and the Soviet project, represented by the Conscious and Soviet segments respectively.[28] The Belarusian project is pro-European, promoting the Belarusian language and identity, while the Soviet project is nostalgic for the Soviet era and friendly towards Belarusian culture. Additionally, there is a modern Russian project supported by the Russified segment, which opposes Belarusian identity and promotes integration with Russia.[29] The pro-European segments tend to be protest-oriented, while the pro-Russian segments support union with Russia and view the US and the EU negatively. Support for the pro-Russian vector has increased by 10% over the past year due to the war and has intensified pro-Russian propaganda, but the choice is not always based on rational factors.[30] Integration supporters lack clear understanding and decisive support for state merger.

24 *Media Sustainability Index 2019, Belarus.* [online]. [2023-03-25]. Available at: <https://www.irex.org/sites/default/files/pdf/media-sustainability-index-europe-eurasia-2019-belarus.pdf/>.

25 See: MANAEV, O., RICE, N., TAYLOR, M.: The Evolution and Influence of Russian and Belarusian Propaganda During the Belarus Presidential Election and Ensuing Protests in 2020. In *Canadian Slavonic Papers*, 2021, Vol. 63, No. 3-4, p. 371-402.

26 See: JOWETT, G., O'DONNELL, V.: *Propaganda & Persuasion*. Los Angeles, CA : SAGE Publications, 2019.

27 See: TANDOC, E., LIM, Z., LING, R.: Defining "Fake News" a Typology of Scholarly Definitions. In *Digital Journalism*, 2018, Vol. 6, No. 2, p. 137-153.

28 BIKANAU, P.: *Belarusian Identity in 2022: A Quantitative Study*. [online]. [2023-03-25]. Available at: <https://library.fes.de/pdf-files/bueros/belarus/19777.pdf/>.

29 Ibidem.

30 Ibidem.

During the Russia-Belarus negotiations on “further integration” from December 2018 to April 2019, a surge of disinformation emerged. Utilizing framing theory, researchers uncovered how Russian media outlets masqueraded as “objective” regional sources, disseminating pro-integration discourse and advancing their agenda among Belarusian citizens.[31] The analysis revealed that Russia strategically targeted local levels and leveraged social media to distribute disinformation, filling gaps left by Belarusian authorities. This approach aimed to increase Russia’s popularity within Belarusian regions and challenge the dominant narrative presented by state-owned media.[32]

Integration between Russia and Belarus has been heavily promoted by bloggers, rather than pro-Russian journalists.[33] These narratives describe integration as a natural progression in the historical relationship between the two nations, presenting it as advantageous and risk-free for Belarus.[34] Benefits are cited across various spheres, including economic, political, military, cultural, and ideological ones. Bloggers argue that integration would bolster Belarusian sovereignty, strengthen its national identity, and replace the ambiguous Belarusian ideology with the concept of the “Russian world”.[35]

Since Russia’s full-scale invasion of Ukraine, surveys by *Chatham House* and other organizations have sought Belarusians’ opinions on Russia’s actions and Belarus’s potential complicity. From March to September 2022, a concerning trend showed a consistently high percentage of Belarusians approving of Russia’s actions, despite most not supporting the “special operation”. For example, a *Chatham House* survey in March found that 28% supported the invasion but didn’t want to participate, while in June, 33% effectively approved of the intervention. Meanwhile, 35% opposed Russia’s actions, and another 8% expressed some disapproval.[36] In August, the percentage of Belarusians who fully supported Russia’s military actions in Ukraine increased to 18%, while those who expressed support but with less confidence decreased to 12%. Those who categorically opposed Russia’s military actions remained unchanged at 35%, and those who were unsupportive of the Russian army increased to 10%. Some respondents chose not to answer.[37] However, a survey conducted by the Belarusian *Analytical Workshop* in September revealed that 41.3% of Belarusians approved of Russia’s actions against Ukraine, while 47.3% were against them.[38]

Between January 24th and February 3rd, 2023, a survey was conducted by *Chatham House* with 813 participants. The sample size was adjusted using RIM weighting to reflect the demographic characteristics of the urban population of Belarus, including gender, age, settlement size, and education level. The survey shows that in Belarus, state TV channels remain dominant among urban populations (35%), with higher trust compared to other sources.[39] Non-state media have a 20% audience share, while 26% use both types. State and non-state media form two distinct information echo chambers in Belarusian society, with mutual distrust. This

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31 See: NAVUMAU, V.: Integration or Absorption? Analyzing the Propagandist Narratives Generated by Russia-Backed Online Regional Media in Belarus. In *Demokratizatsiya: The Journal of Post-Soviet Democratization*, 2020, Vol. 28, No. 3, p. 461-484. [online]. [2023-03-03]. Available at: <https://www.muse.jhu.edu/article/762317>.

32 Ibidem.

33 NAVUMAU, V., ILYINA, A., SHMATSINA, K.: The Stalemate of Deepened Integration: Analysis of the Russian Anti-Belarus Disinformation Campaign in 2019. In *Democracies in a Digital Era: Legal, Political and Security Challenges*, 2020. [online]. [2023-03-25]. Available at: <https://www.weasa.org/wp-content/uploads/2021/02/WEASA-2019-publication.pdf#page=3/>.

34 Ibidem.

35 Ibidem.

36 *Eight Survey Wave*. [online]. [2023-03-25]. Available at: <https://belaruspolls.org/wave-8/>.

37 Ibidem.

38 *Belarusians Are Increasingly Hesitant on the Issue of War and Sympathize with Russia? Results of a New Survey and the Opinion of a Sociologist.* [online]. [2023-03-15]. Available at: <https://news.zerkalo.io/economics/23189.html/>.

39 *Fourteenth Survey Wave*. [online]. [2023-03-25]. Available at: <https://en.belaruspolls.org/wave-14/>.

distrust is more pronounced among non-state media audiences, who largely distrust television and have reduced trust in "new neutral media" since November 2022.[40]

It's worth considering that many Belarusians may be hesitant to express their true opinions due to fear of repercussions if their views deviate from the official narrative. Additionally, a significant proportion of people (ranging from 5.8% to 24% at different times) may be hesitant to answer politically sensitive questions for various reasons.[41] As a result, even with data from independent institutions, it is challenging to determine how accurately these surveys reflect the views of Belarusians, particularly regarding their stance on Russia's aggressive war against Ukraine and whether they approve of the destruction caused. It is uncertain whether a significant number of Belarusians are unaware of the catastrophe's full extent or whether they actively support it.

In April 2022, during the third month of Russia's brutal full-scale war against Ukraine, even as the world was exposed to shocking photos and videos of the Russian army atrocities in the towns of Kyiv Oblast, 41% of Belarusians remained confident that Russian soldiers were not using weapons against Ukrainian civilians.[42] More notably, by August, this percentage remained unchanged, as evidenced by the *Chatham House* survey results.[43] This detachment from reality could be considered paradoxical if it were not for the systematic efforts of Russian and Belarusian propaganda, aimed at denying Russia's war crimes, among other things. Propaganda has a significant impact on Belarusians, and the reasons for believing in it may vary. Some factors contributing to the influence of propaganda include: limited access to alternative sources of information, historical and cultural ties with Russia, fear and insecurity.

2 Methodology

This research employs a comprehensive methodology to investigate the narratives in Belarusian propaganda by analyzing 1,750 news items from Belarusian state media and the pro-government *Telegram* channels between September 1st and November 30th, 2022. The research included analyses of news and publications from three Belarusian state information resources (*ONT* and *STV* television channels and the *BelTA* news agency) and two pro-government telegram channels (*Yellow Plums (Zheltye Slivy)* and *ATN News*).

The *LOOQME Mention Monitoring* and *Analysis Service* monitored the messages using a two-step algorithm, enabling analysis from both official media sources and *Telegram*. Technical information and simplified tone were provided for each publication. The platform's analysis view was customized for the research period and search parameters. The qualitative content analysis, as described by Krippendorff[44], was utilized to examine textual material in-depth, particularly from the perspective of the context in which the chosen categories were presented. The selection of texts for analysis was facilitated by the *LOOQME* platform for media analysis and media ecosystems. Factors taken into account included reliability, presence of credible or non-credible sources of information, manipulative headlines, manipulation of emotions in news items, existence of hostile language, and the presence of fake information in the news. This study adhered to established methodologies for content analysis and best practices for identifying propaganda in media content, as outlined by Jowett & O'Donnell.[45]

40 *Fourteenth Survey Wave*. [online]. [2023-03-25]. Available at: <https://en.belaruspolls.org/wave-14/>.

41 *Belarusians Are Increasingly Hesitant on the Issue of War and Sympathize with Russia? Results of a New Survey and the Opinion of a Sociologist*. [online]. [2023-03-15]. Available at: <https://news.zerkalo.io/economics/23189.html/>.

42 *Eight Survey Wave*. [online]. [2023-03-25]. Available at: <https://belaruspolls.org/wave-8/>.

43 Ibidem.

44 See: KRIPPENDORFF, K.: *Content Analysis: An Introduction to Its Methodology*. Thousan Oaks, CA : SAGE Publications, 2018.

45 See: JOWETT, G., O'DONNELL, V.: *Propaganda & Persuasion*. Los Angeles, CA : SAGE Publications, 2019.

The quantitative analysis examined the number of mentions and their dynamics, while the qualitative analysis focused on the indicators of mentions by tone, role, topic, and media visibility. On the basis of the results of the analyses (between September 1st and November 30th, 2022) – based on titles, keywords and thematic connotations – all the analyzed content (n=1750) has been segmented into four thematic blocks, namely Portrayal of Ukraine (n=731), Western Threat (n=269), Belarus as a Peaceful Country (n=255), and Military Successes and Losses (n=495). This segmentation allowed for a comprehensive understanding of the various narratives actively employed by Belarusian propaganda during the monitoring period.

Figure 1 shows the main propaganda narratives from the content analysis. They are grouped into the 4 key themes that we identify in the analysis (per period).

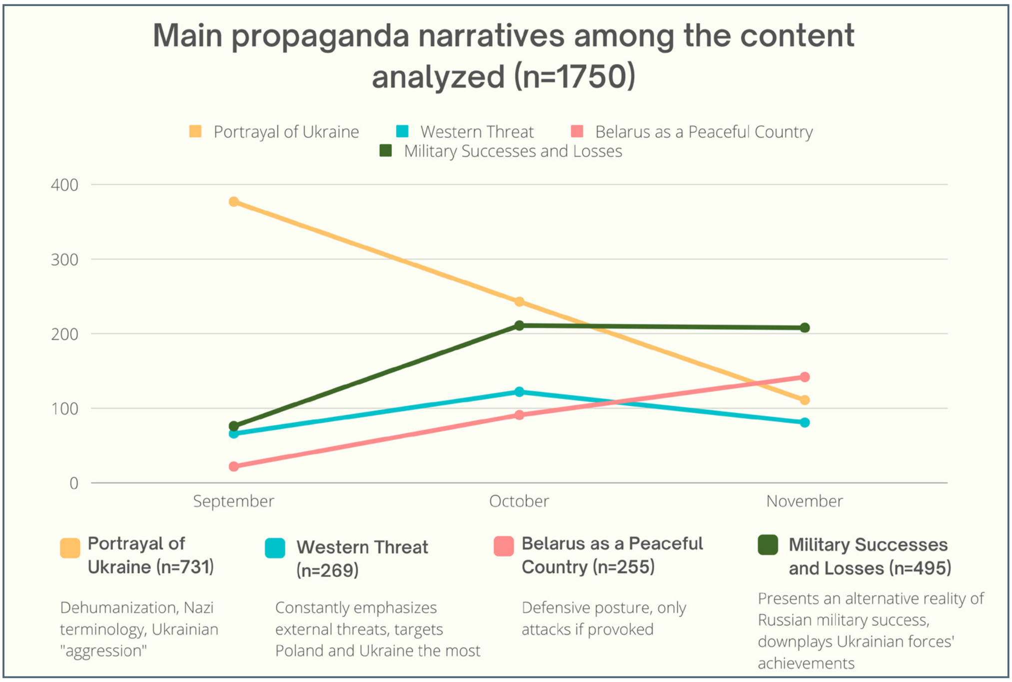

FIGURE 1: *Main propaganda narratives among the content analyzed (n=1750)*

Source: own processing, 2023

3 Results

3.1 The Portrayal of Ukraine

Belarusian state media present a carefully crafted portrayal of Ukraine that demonizes and dehumanizes its people, while legitimizing Belarus's stance on the conflict. The content analysis identified 731 materials within this narrative theme, encompassing news reports and articles in the media, as well as news reports on the *Telegram* channels. The main subthemes include:

1. Dehumanization of the Ukrainian Government and Some Ukrainians (n=202, except for the categories related to Nazi terminology, which are quite extensive and are presented in a separate topic group): Belarusian state media systematically dehumanizes Ukrainians by employing Russian "newspeak" terms like "terrorists", and "punishers". They utilize disinformation and manipulation to reinforce this hostile language. For instance, Belarusian

propaganda frequently spreads hoaxes about Ukraine's alleged intention to use a "dirty bomb"[46] despite being a non-nuclear state.

2. Use of Nazi Terminology (n=58): State media draws parallels between the Ukrainian government, certain Ukrainians, and far-right extremist ideologies, using Nazi terminology to create a negative image of Ukraine in the minds of the Belarusian audience.
3. Ukraine as the "Aggressor" (n=92): Belarusian state media portrays Ukraine as an aggressive, hostile nation by emphasizing alleged acts of aggression, particularly towards Belarus and its allies. It focuses on incidents of violence or unrest in Ukraine, presenting them as evidence of the country's inherent instability.
4. Incompetent and Corrupt Ukrainian Government (n=145): Media sources emphasize the perceived incompetence or corruption of the Ukrainian government, arguing that they are incapable of governing effectively. This narrative serves to justify intervention or support for separatist movements.
5. Victimhood (n=234): Belarusian media portrays Ukraine as a victim of Western manipulation or geopolitical games, undermining its sovereignty and autonomy in decision-making.

Belarusian state-controlled media also reinforces these narratives by quoting Russian authorities and experts who support these negative portrayals. For example, during the monitoring period, a Belarusian television channel *ONT* quoted the speaker of the Russian State Duma, Volodin, comparing Ukrainian President Volodymyr Zelensky to the terrorist Osama bin Laden due to the supposed "nuclear terror".[47]

A quantitative content analysis of this narrative theme on the platforms analyzed by month is shown in Figure 2.

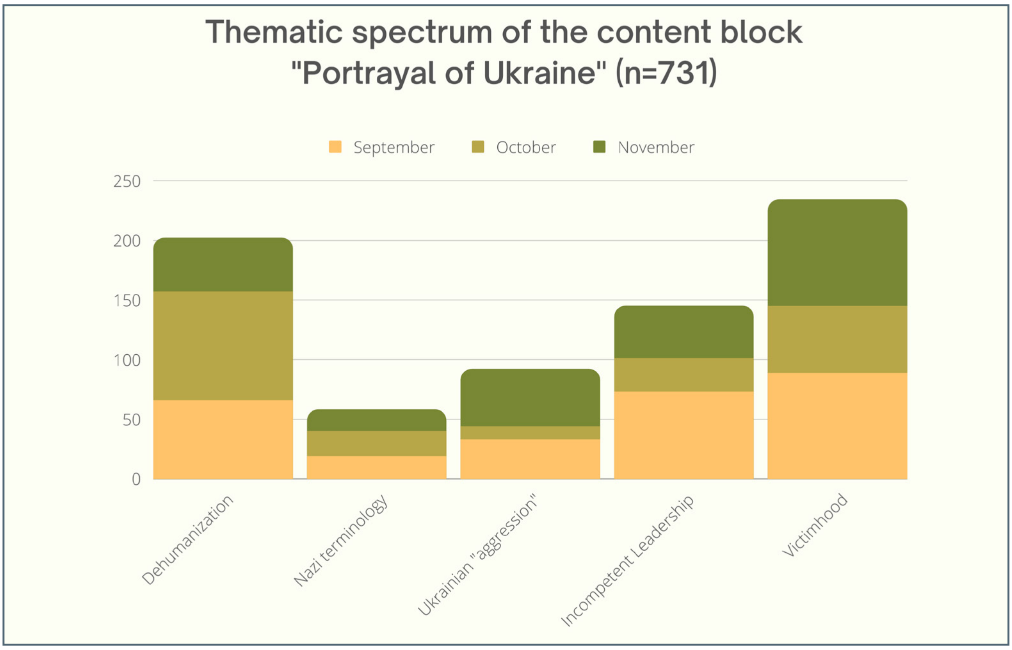

FIGURE 2: *Thematic spectrum of the narrative theme "Portrayal of Ukraine" (n=731)*

Source: own processing, 2023

[46] *The Russian Defense Ministry Revealed Details of a "Dirty Bomb" Provocation Being Prepared by Kyiv*. [online]. [2023-03-12]. Available at: <https://ont.by/news/v-minoborony-rossii-rasskazali-detali-o-gotovyashejsya-provokacii-kieva-s-podryvom-gryaznoj-bomby/>.

[47] *Volodin Compared Zelensky to the Terrorist Bin Laden*. [online]. [2023-03-24]. Available at: <https://ont.by/news/volodin-sravnil-zelenskogo-i-terrorista-ben-ladena/>.

3.2 The Western Threat

The Western threat narrative is a critical component of Belarusian state media's coverage of the Russo-Ukrainian War. Through this narrative, the media seeks to shape public opinion by portraying the West as a source of instability and danger. The content analysis identified 269 materials within this theme, which can be divided into five key subthemes:

1. External Threats (n=62): Belarusian state media emphasizes external threats to the country's sovereignty and security, often targeting Poland and Ukraine as the primary sources of danger. This narrative aims to justify the Belarusian government's actions and instill a sense of urgency in defending the nation against perceived foreign adversaries.
2. NATO Expansion (n=19): The media highlights the expansion of NATO and its military activities near Belarus's borders, portraying it as a direct threat to the country's security and stability. This narrative serves to rationalize the Belarusian government's efforts to strengthen its military capabilities and forge closer ties with Russia, a fellow opponent of NATO expansion.
3. US Influence (n=66): Belarusian state media frequently focuses on the alleged nefarious influence of the United States in the region, accusing it of orchestrating regime change attempts and supporting opposition movements in Belarus and other countries. This narrative seeks to delegitimize pro-democracy movements and justify the government's crackdown on dissent.
4. EU Interference (n=33): The media emphasizes the alleged meddling of the European Union in the internal affairs of Belarus and its neighbors, accusing it of promoting instability and division in the region. This narrative aims to discredit the EU's policies and interventions, portraying them as harmful to the interests of Belarus and its people.
5. Western Manipulation of Ukraine (n=89): Belarusian state media portrays Ukraine as a victim of Western manipulation or geopolitical games, further undermining Ukraine's sovereignty and autonomy in decision-making. This narrative serves to justify Belarus's support for Russia in the conflict and discredit the legitimacy of the Ukrainian government.

Belarusian propaganda perpetuates the notion of being "surrounded by enemies", instilling fear in its citizens regarding external threats.[48] The most aggressive attacks are directed at Poland and Ukraine, followed by the Baltic countries, the United Kingdom, and the United States. For example, Belarusian media published articles alleging Poland's intention to deploy US nuclear weapons on its territory.[49] To vilify Poland, Belarusian propagandists frequently distort historical events, alleging that the Polish Home Army (*Armia Krajowa*) deliberately perpetrated a genocide against Belarusians during World War II.[50]

The Western threat narrative in Belarusian state media encompasses various subthemes that collectively portray the West as a source of instability and danger in the context of the Russo-Ukrainian War. This narrative aims to shape public opinion, justify the government's actions, and emphasize the need to "protect" Belarus's interests in the face of perceived external threats.

A quantitative content analysis of this narrative theme on the platforms analyzed by month is shown in Figure 3.

48 *The Special Services Will Never Let This Happen. Poland Sought to Seize Power in Belarus, Now It Is Awaiting a Summons to an International Court.* [online]. [2023-03-10]. Available at: <https://ctv.by/specsluzhby-etogo-nikogda-ne-dopustyat-polsha-stremilas-zahvatit-vlast-v-belarusi-teper-eyo-zhdyot/>.

49 *Lavrov Said That Poland's Desire to Host U.S. Nuclear Weapons Is Alarming*. [online]. [2023-03-10]. Available at: <https://ont.by/news/lavrov-zayavil-chto-zhelanie-polshi-razmestit-u-sebya-yadernoe-oruzhie-ssha-vyzyvaet-trevogu/>.

50 *The Grodno Region Is Not Only Germans, It Is Also the Armia Krajowa. An Expert on the Genocide Case*. [online]. [2023-03-10]. Available at: <https://www.belta.by/regions/view/grodnenskij-region-eto-ne-tolko-nemtsy-eto-i-armija-krajova-spetsialist-o-dele-po-genotsidu-532267-2022/>.

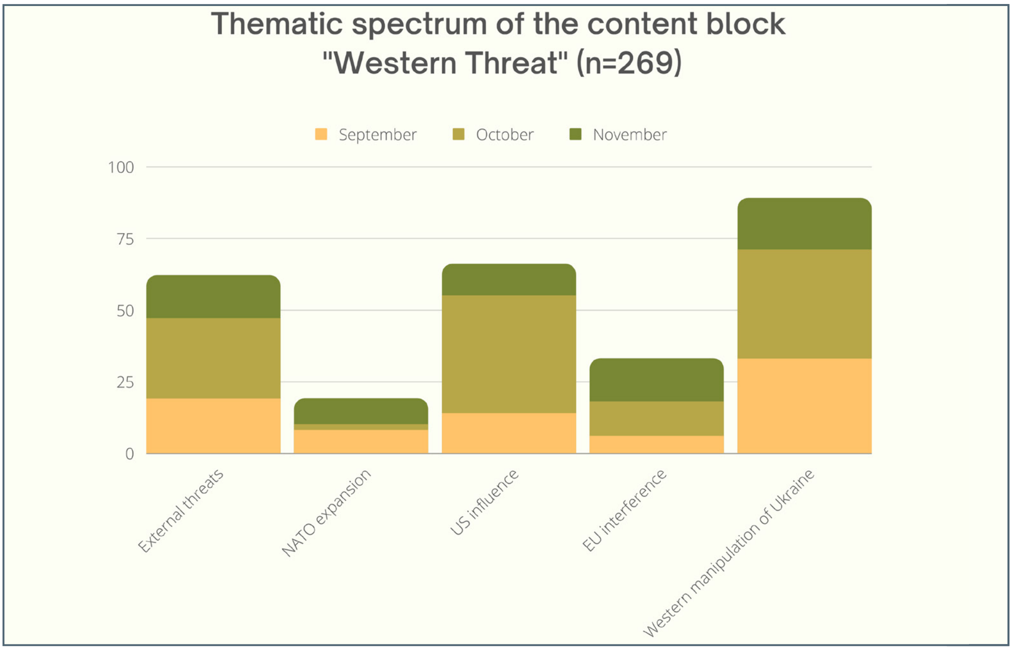

FIGURE 3: *Thematic spectrum of the narrative theme "Western Threat" (n=269)*

Source: own processing, 2023

3.3 Belarus as a Peaceful Country

This narrative portrays Belarus as a responsible, non-aggressive actor in the conflict, aiming to shape public opinion and justify the government's stance. The content analysis identified 255 materials within this theme, which can be divided into five key subthemes:

1. Defensive Posture (n=66): Belarusian state media emphasizes the country's defensive posture, asserting that it only resorts to military action when provoked or threatened. This portrayal presents Belarus as a responsible and restrained actor on the international stage, focused on preserving regional peace and stability.
2. Mediator Role (n=51): The media highlights Belarus's role as a mediator in peace talks and negotiations between conflicting parties, such as the *Minsk Protocol*. This emphasis on diplomacy underscores the country's commitment to resolving disputes and conflicts peacefully.
3. Cooperation with International Organizations (n=34): Belarusian state media underlines the country's willingness to work with international organizations, such as the United Nations and the Organization for Security and Co-operation in Europe (OSCE), to address regional security concerns and promote peace and stability.
4. Promotion of Regional Peace Initiatives (n=38): The media frequently covers Belarusian-led or supported peace initiatives, such as the Eastern Partnership, which fosters closer ties between the European Union and its Eastern neighbors, including Belarus, Ukraine, and other countries in the region. This narrative highlights Belarus's commitment to maintaining a peaceful and cooperative regional environment.
5. Emphasizing the Human Cost of Conflict (n=66): Belarusian state media regularly report on the negative impact of war on civilian populations, including the plight of refugees and displaced persons, as well as the destruction of infrastructure and cultural heritage. This coverage underscores the importance of pursuing peaceful solutions to conflicts and avoiding unnecessary violence and suffering.

Belarusian state media continually reassures its citizens that the country will not engage in military aggression unless provoked. However, this reassurance is not without manipulation, as Belarusian officials and media dismiss the possibility of military aggression in the absence of "provocations"[51], which are, in fact, staged by the republic itself.[52] The narrative theme of "Belarus as a Peaceful Country" in Belarusian state media encompasses various subthemes that collectively portray Belarus as a responsible and peace-loving actor in the context of the Russo-Ukrainian War.

A quantitative content analysis of this narrative theme on the platforms analyzed by month is shown in Figure 4.

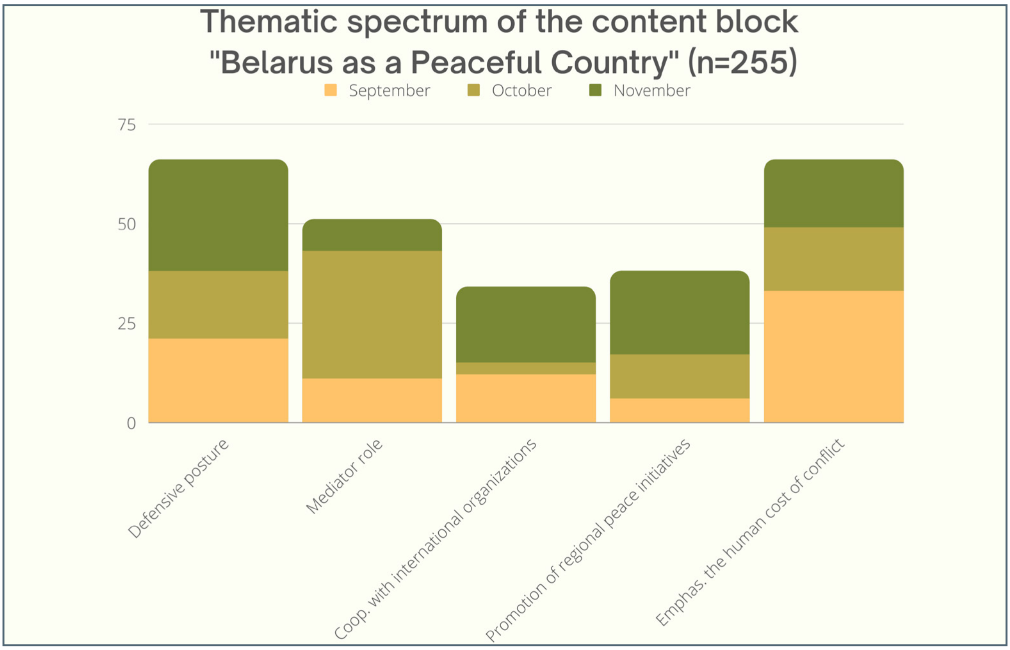

FIGURE 4: *Thematic spectrum of the narrative theme "Belarus as a Peaceful Country" (n=255)*
Source: own processing, 2023

3.4 Military Successes and Losses

The narrative theme of military successes and losses in the Belarusian state media focuses on the Russo-Ukrainian War and plays a crucial role in shaping public opinion and supporting the Belarusian government's stance on the conflict. The content analysis identified 495 materials within this theme, which can be divided into five key subthemes:

1. Alternative Reality of Russian Military Success (n=77): Belarusian state media presents an alternative reality where Russian forces achieve significant successes against Ukraine, downplaying or ignoring the achievements of Ukrainian forces. This narrative aims to legitimize Russia's actions and maintain public support for Belarus's backing of Russia.

[51] *Lappo About the Situation on the Ukrainian Border: Any Provocation in Our Direction Will Be Adequately Responded to*. [online]. [2023-03-10]. Available at: <https://www.belta.by/society/view/lappo-o-situatsii-na-ukrainskoj-granitse-na-ljubuju-provokatsiju-v-nashu-storonu-budet-adekvatnyj-otvet-532292-2022/>.

[52] *Dzermant: We're Not Preparing for Any Attack, We're Preparing so We Won't Be Caught off Guard and We Can Fight Back*. [online]. [2023-03-10]. Available at: <https://ctv.by/dzermant-my-ne-gotovimsya-ni-k-kakomu-napadeniyu-gotovimsya-chtoby-nas-ne-zastigli-vrasploh-i-my/>.

2. Downplaying Ukrainian Forces' Achievements (n=101): The media tends to minimize the successes of the Ukrainian military and exaggerate the setbacks they experience. This narrative serves to demoralize the Ukrainian side and reinforce the perception that the conflict is unwinnable for Ukraine.
3. Emphasizing Russian Military Might (n=55): Belarusian state media frequently highlights the strength and capabilities of the Russian military, portraying it as an unstoppable force destined to prevail in the conflict. This narrative seeks to bolster public confidence in the Russian-led military campaign and justify Belarus's continued support for it.
4. Underreporting Losses and Setbacks (n=204): The media downplays the losses and setbacks experienced by Russian and Belarusian forces, avoiding reporting on the full extent of casualties and difficulties faced on the battlefield. This narrative aims to maintain public support for the war effort and prevent the emergence of anti-war sentiment.
5. Heroism and Sacrifice (n=58): Belarusian state media emphasizes the heroism and sacrifice of Russian and Belarusian soldiers fighting in the conflict, portraying them as valiant defenders of their homeland and the Slavic brotherhood. This narrative serves to rally public support for the war effort and create a sense of national pride and unity.

A quantitative content analysis of this narrative theme on the platforms analyzed by month is shown in Figure 5.

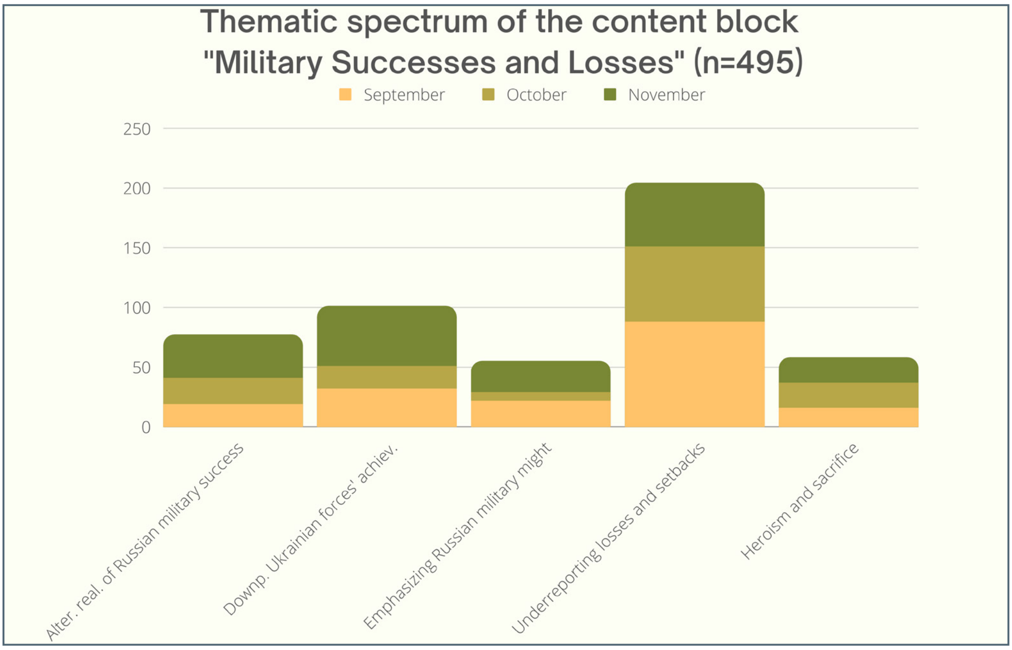

FIGURE 5: *Thematic spectrum of the narrative theme "Military Successes and Losses" (n=495)*

Source: own processing, 2023

The narrative theme of "Military Successes and Losses" in Belarusian state media encompasses various subthemes that collectively seek to shape public opinion about the Russo-Ukrainian War and its implications for Belarus. This narrative aims to legitimize the conflict, maintain public support for Belarus's backing of Russia, and rally the nation around the war effort. By selectively emphasizing Russian victories[53] and minimizing Ukrainian

[53] *Russian Defense Ministry: Four Ukrainian Ammunition Depots Destroyed in One Day*. [online]. [2023-03-10]. Available at: <https://ont.by/news/minoborony-rossii-za-sutki-unichtozheno-chetyre-ukrainskih-sklada-boepripasov/>.

achievements[54], the media supports the Belarusian government's position[55], and reinforces the notion of Russia as a powerful ally in the face of the regional conflict.

4 Discussion

This study aimed to explore the primary narratives employed by Belarusian state and pro-government media during the Russo-Ukrainian War and understand the underlying patterns and strategies used to shape public opinion and advance their political objectives. Our analysis led to the identification of several key themes in the Belarusian media landscape. In this discussion section, we delve deeper into these themes, reflecting on their implications for the understanding of the Belarusian propaganda apparatus.

The portrayal of Ukraine in Belarusian state media is characterized by demonization and dehumanization, achieved through the strategic use of language, selective presentation of events, and reinforcement of negative portrayals by quoting Russian authorities and experts. By presenting Ukraine as a nation filled with "Nazis", "terrorists", and "punishers", Belarusian propaganda seeks to legitimize its own stance in the conflict and shape public opinion. This portrayal is not only detrimental to Ukraine's international image, but also serves to foster animosity between the two nations, potentially exacerbating the ongoing conflict (RQ1).

The Western threat narrative is a critical component of Belarusian state media's coverage of the Russo-Ukrainian War. By portraying the West as a source of instability and danger, the media aims to shape public opinion in favor of the Belarusian government's actions. This narrative encompasses several subthemes, including external threats, NATO expansion, US influence, EU interference, and Western manipulation of Ukraine. By perpetuating the notion of being "surrounded by enemies", Belarusian propaganda instills fear in its citizens, further justifying the government's actions and policies (RQ2).

The narrative theme of Belarus as a peaceful country portrays the nation as a responsible, non-aggressive actor in the conflict. This theme aims to shape public opinion and justify the government's stance by emphasizing the country's defensive posture, its role as a mediator, cooperation with international organizations, promotion of regional peace initiatives, and the human cost of the conflict. However, the reassurance provided by this narrative is not without manipulation, as the Belarusian government stages "provocations" to justify its military actions.

In the context of military successes and losses, the Belarusian state media selectively emphasizes Russian victories, while minimizing Ukrainian achievements, aiming to legitimize the conflict and maintain public support for Belarus's backing of Russia. The media often downplays the losses and setbacks experienced by Russian and Belarusian forces, avoiding reporting on the full extent of casualties and difficulties faced on the battlefield. This selective coverage serves to rally public support for the war effort, create a sense of national pride and unity, and reinforce the notion of Russia as a powerful ally in the face of the regional conflict (RQ3).

5 Conclusion

In conclusion, this study sheds light on the intricate narratives and tactics used by Belarusian state media during the Russo-Ukrainian War, offering a comprehensive understanding of how disinformation is spread during times of conflict. By revealing four key thematic blocks, namely

[54] *NATO Officer: A "Logistical Nightmare" for the Ukrainian Armed Forces*. [online]. [2023-03-10]. Available at: <https://ont.by/news/oficer-nato-dlya-vsu-nastupil-logisticheskij-koshmar/>.

[55] *Matvienko: The Main Priorities of the Presidents of Belarus and Russia Are National Interests*. [online]. [2023-03-10]. Available at: <https://www.belta.by/politics/view/matvienko-glavnye-prioritety-prezidentov-belarusi-i-rossii-natsionalnye-interesy-531928-2022/>.

The Portrayal of Ukraine, Western Threat, Belarus as a Peaceful Country, and Military Successes and Losses, our research helps to uncover the underlying patterns and strategies employed to shape public opinion and advance political objectives.

The demonization and dehumanization of Ukraine, along with the emphasis on the Western threat, serve to legitimize Belarus's stance in the conflict and rally public support for its policies. The portrayal of Belarus as a peaceful, responsible actor serves to justify the government's actions and reassure the public of the country's commitment to regional stability. Selective coverage of military successes and losses, on the other hand, aims to maintain public support for Belarus's support of Russia and to bolster Russia's image as a powerful ally in the face of the regional conflict.

As we continue to navigate an increasingly polarized media environment, it is crucial to understand and address the tactics used by state-controlled media to manipulate public opinion, and foster a more accurate and nuanced understanding of complex geopolitical issues. By recognizing and confronting these manipulative narratives, we can empower ourselves to make informed decisions and contribute to a more transparent, balanced media landscape.

5.1 Limitations and Further Research

Despite the valuable insights provided by this study, there are several limitations that should be acknowledged. Initially, the study concentrated on a particular timeframe (September 1st to November 30th, 2022), which might not comprehensively represent the development of narratives used by Belarusian state media over the entire course of the Russo-Ukrainian War.

Additionally, the analysis was limited to three Belarusian state information resources and two pro-government *Telegram* channels, potentially excluding other sources that may also disseminate disinformation and propaganda. Further research could expand the scope of the study by examining a broader range of media sources and analyzing a more extended time frame, thereby providing a more comprehensive understanding of the narratives and strategies used by Belarusian propaganda. Additionally, comparative research could explore the similarities and differences in propaganda tactics employed by various state actors involved in the conflict, illuminating the ways in which different countries utilize media manipulation to advance their political objectives. Finally, future research could also investigate the impact of these propaganda narratives on public opinion and behavior, providing insights into the effectiveness of these tactics in shaping the beliefs and actions of the target audience. This information would be valuable in informing strategies for countering disinformation and promoting objective, fact-based reporting in times of conflict.

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photo: Jakub Ďuriš

Erik Bean

Seven Initial Prominent Sources of All Information Bias Impartiality Types Parsed

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ABSTRACT

Ever since information was first operationalized by library science into consumer formats, media bias has been studied from the purview of information gatekeepers who decide what, how, and when to publish based on story importance and factors like circulation. This concept did not include individuals or entities outside of the journalism discipline. With the advent of the internet and a number of social media networks that soon followed, individuals could more effectively release information without waiting for gatekeepers, thus shaping the public's perception regardless of the topic. Scholars offered a theoretical framework for shaping the public's opinion and still other scholars focused on how information could be slanted or partisan. However, these seminal approaches did not operationalize the term information bias in terms of the overall partiality of major sources themselves. Information evaluation tests such as the Currency, Relevance, Authority, Accuracy, and Purpose (CRAAP) and Stop, Investigate, Find, Trace (SIFT) that have been discussed as tools to assess information for bias fall short on the very first step of what to inspect and how to sort. With a gap in the literature sorting through the types of biases can be daunting and confusing. The purpose of this paper is to propose one initial method as the first step to sort information bias regardless of its form, analog or digital, into seven prominent sources each with their own inherent but larger impartiality tied to it. The sources of all information bias to be discussed in alphabetical order are: 1) academic, 2) for-profit, 3) government, 4) hidden agenda, 5) individuals, 6) nonprofit, and 7) watchdog groups.

KEY WORDS

Impartiality. Information Bias. Inspected. Media. Parsed. Sources. Types.

1 Statement of Purpose

Information can be generated by a variety of sources, each with its own purpose, interests, and biases. Understanding the source of information can help individuals evaluate its credibility and potential biases whether they include said information in school essays, in business white papers, or in sharing in social media, for example.[1] With many social networks containing fake news and increasing misinformation, whether information literacy is taught in libraries, at schools, or anyone in the public willing to help people from all walks of life separate fact from fiction, people need to start evaluating information carefully before they subscribe to it and to be most responsible when contributing to civil discourse. But where should people begin to discern biases associated with pieces of information? One way is to separate or parse the information, if you will, into types of higher-level impartiality tied to the authors. But what types of information make sense?

A review of the literature across several disciplines from journalism, media and information literacy to books and media communications reveals that no single study has suggested an overall number or segment of all information impartiality source types, but that the seven to be discussed here have, for the most part been the subject of separate studies of impartiality holding their source category as a separate documented bias. By categorizing information sources in the following seven ways, to view all of the possible most prominent sources of inherent impartiality tied to them, individuals can see the range of perspectives to form their initial opinions of the usefulness of such information as an initial inspection or evaluative step. When tied to bias evaluation tools like CRAAP and SIFT, students and people everywhere can now take the first step in parsing the information so that while other types of biases may later be found, the initial bias type can more immediately identified.[2] After separating such information into any one or more of the seven proposed here, people can drill down deeper to inspect for fallacies and other such tests outside scope of this paper, that can account for information objectivity and its authenticity. Observing the 7 initial sources of prominent bias type categories to follow can, therefore, aid as the initial step in such an evaluation inspection process that undoubtedly relies on critical thinking.

2 Methodology

Using databases such as *ProQuest*, *Digital Dissertations*, the *Elton B. Stephenson Database* (EBSCO), *ERIC*, and *Google Scholar*, a broad range of journals were examined across many disciplines to determine the types of information sources that were initially separated for their use by libraries, students, and researchers using terms like information category history, types of information sources, for example. In February 2023 the popular Artificial Intelligence (AI) tool *ChatGPT* was also used based on numerous scholarly studies it could access. The initial question was: *"Of all the information available anywhere, on and off the internet, what categories have researchers divided it into?"* And while the response listed some source types including primary, secondary, and tertiary to academic, and popular sources like journalistic and media companies to and even grey literature like white papers and technical documents and finally electronic sources, no single study has been conducted nor one that conceptually discussed all seven to follow here. Other search terms for the history of the study of information bias were used as, "information", "organization", "categories", "bias", "partiality", "source", for example.

1 See: WINEBURG, S., MCGREW, S., BREAKSTONE, J., ORTEGA, T.: *Evaluating Information: The Cornerstone of Civic Online Reasoning. Stanford Digital Repository*. Stanford, CA : Stanford University, 2019. [online]. [2022-11-15]. Available at: <https://purl.stanford.edu/fv751yt5934>.

2 CAULFIELD, M.: *SIFT (The Four Moves)*. [online]. [2023-02-09]. Available at: <https://hapgood.us/2019/06/19/sift-the-four-moves/>.

The results of that search are shown throughout the following literature review. However, even when *ChatGPT* was asked: *“Have sources of all information ever been categorized into these overall types of impartiality studies collectively: academic, for-profit, government, hidden-agenda, individuals, and watch dog groups in one study?”* The answer was “no”.[3]

3 Literature

Ever since information was first operationalized by library science into the *Five Laws of Information Accessibility* and into proposed formats such as *Memex*, a hypothetical device as a new way to organize and access information, a precursor to computers and individually accessed databases, but one where users could store their personal preferences and notes about information they read, for example, *Memex* was a proposed way to make connections to various pieces of information to help users discern its meaning.[4] With regard to the *Five Laws* they helped librarians to initially categorize information and these types did recognize academic, commercial (for-profit), non-profit, but hidden agenda was labeled political or social issues and finally individuals were only recognized as users of the information.

As research continued scholars examined ways in which public opinions were shaped by information they consumed. This led to studies on media bias from the purview of information gatekeepers who decide what, how, and when to publish based on story importance and factors like circulation.[5] Thirty years later this continued look at how opinions are swayed in the media turned to information bias itself as well as how artificial intelligence-based algorithms can affect news consumption. In this example from *Digital Threats: Research and Practice*, the authors maintained, *“the shift to consuming news information on SM* [social media] *along with the growing use of AI* [artificial intelligence] *for DPL* [dynamic programming language] *has changed information bias anchoring behaviors.”*[6]

This concept of bias associated with specific media outlets continues to be the subject of much debate. But less is known about information bias associated with individuals who also can contribute to national conversations. With the advent of the internet and several social media networks that soon followed, individuals could more effectively release information without waiting for gatekeepers, thus shaping the public’s perception regardless of the topic. Entman offered a theoretical framework for shaping the public’s opinion.[7] Other scholars focused on how information could be slanted or partisan. [8]

However, these seminal approaches did not operationalize the term information bias nor the sources most prominently tied to overall partiality. With a gap in the literature as well as the dangers of misinformation that can affect people personally and professionally not to mention democratic values that rely on objectivity and authenticity of said information, sorting through the types of biases can be daunting and confusing. Studies have been conducted that discuss impartiality of several of the seven proposed here but each has been singled out for possible impartiality.

3 Author’s note: Response to *“With regard to these sources of information, academic, for-profit, government, hidden agenda, individuals, non-profits, and watchdog groups, which one would AI tools like ChatGPT fall under and why?”* (See: *ChatGPT*. (online forum comment). [online]. [2023-02-23]. Available at: <https://www.chatgpt.com>.).

4 BUSH, V.: As We May Think. In *The Atlantic Monthly*, 1945, Vol. 176, No. 1, p. 101. See also: RANGANATHAN, S. R.: *The Five Laws of Library Science*. Madras : Madras Library Association, 1931.

5 See: HERMAN, E. S., CHOMSKY, N.: *Manufacturing Consent: The Political Economy of the Mass Media*. New York, NY : Pantheon Books, 1988.

6 DATTA, P., WHITMORE, M., NWANKPA, J. K.: A Perfect Storm: Social Media News, Psychological Biases, and AI. In *Digital Threats: Research and Practice*, 2021, Vol. 2, No. 2, p. 15:5.

7 See: ENTMAN, R. M.: Modern Racism and the Images of Blacks in Local Television News. In *Critical Studies in Media Communication*, 1990, Vol. 7, No. 4, p. 332-345.

8 See: BAUM, M. A.: Sex, Lies, and War: How Soft News Brings Foreign Policy to the Inattentive Public. In *American Political Science Review*, 2002, Vol. 96, No. 1, p. 91-109.

For example, in 1999, Kathleen Hall Jamieson and Paul Waldman published a book called *The Press Effect: Politicians, Journalists, and the Stories that Shape the Political World*, in which they discussed different sources of information and their potential biases. While they did not explicitly categorize sources into the prominent types this paper proposes, they provided a detailed analysis of the ways in which different sources of information can shape public opinion from a journalistic purview. *"In examining sources, we have found that journalists draw on four major types: official, partisan, outside the process, and personal. The personal and outside sources add a valuable dimension to political coverage, bringing to bear perspectives that official and partisan sources are unlikely to offer. However, journalists must be careful not to overuse these sources, or they risk reinforcing a sense of cynicism among the public about politics and government."*[9]

In 2016, David M. Croteau and William Hoynes published a book called, *Media/Society: Industries, Images, and Audiences.* Here the two authors discussed different types of media organizations and the ways in which they are funded and regulated. They also separated the types of sources journalists might turn to for their stories. *"Journalists turn to a variety of sources to generate news stories. These sources can include government officials, corporate executives, experts in various fields, celebrities, activists, and ordinary people. However, the selection of sources is not always neutral, and can reflect the biases and interests of the media organizations themselves, as well as the larger societal and political forces that shape news coverage."*[10]

In 2022, Jayes et al. published a paper called *The impact of hyperlinks, skim reading and perceived importance when reading on the Web,* in which they discuss the ways in which the amount of information helps make better decisions even if that information is irrelevant for the decision. *"Firstly, we predicted that longer sentences would be rated as more important than shorter sentences due to the so-called* ***information bias****.* ***Information bias*** is the ***belief*** that the more ***information*** that can be acquired to *make a decision, the better, even if that extra* ***information*** is irrelevant for the decision*."*[11]

Hence, while there isn't one definitive scholarly paper that categorizes sources of information into these seven: academic, for-profit, government, hidden agenda, individuals, non-profits, and watchdog groups, Bean had proposed the concept as recently as of 2022 and many researchers have written about sources, how they are used and the types of biases that can be inherently associated with some as well as the individuals who seek or otherwise choose to interact with such information.[12] These examples provide insights into the ways in which different sources of information can be shaped by public opinion and the factors that influence the production and dissemination of information in general.

Finally, traditionally libraries served as a great place to start as reference experts have had already vetted much of the information as well as the information in their collections available to their patrons. When COVID hit and schools and libraries shut down, students as well as the public had little choice but to investigate information on their own as well as be responsible to inspect it for bias. Before, during, and after COVID academicians have provided evaluation tools like CRAAP and SIFT to help people separate facts from fiction. "*The CRAAP test can be used to guide users through a series of questions designed to assess a source's credibility.*

9 JAMIESON, K. H., WALDMAN, P.: *The Press Effect: Politicians, Journalists, and the Stories That Shape the Political World*. Oxford : Oxford University Press, 2004, p. 73.

10 CROTEAU, D. M., HOYNES, W.: *Media/Society: Industries, Images, and Audiences*. London, New York, Thousand Oaks : Sage Publications, 2016, p. 174

11 JAYES, L. T., et al.: *The Impact of Hyperlinks, Skim Reading and Perceived Importance When Reading on the Web*. [online]. [2023-05-21]. Available at: <https://doi.org/10.1371/journal.pone.0263669>.

12 BEAN, E.: *Analyzing Information for Bias Is All Around You.* Presented at the 2022 JEA/NSPA, National High School Journalism Convention. St. Louis, presented on 12th November 2022. [online]. [2023-05-21]. Available at: <https://studentpress.org/wp-content/uploads/2022/10/program.NHSJC.NF22.101922.pdf>.

This test prompts users to consider a source's currency, relevance, authority, accuracy, and purpose before using it to make decisions or draw conclusions."[13]

CRAAP relies on five steps to examine information so prospects can be more confident in sharing or subscribing to it. But in none of the scholarly literature are the details of how to sort information into its respective overarching bias category from the get-go using it discussed.

The SIFT method involves four steps: Stop, Investigate the source, Find trusted coverage, and Trace claims, quotes, and media to their original context. The purpose of the SIFT method is to provide a practical framework for evaluating information and to help users avoid falling for false or misleading information regardless of where the information is located and how it is displayed digitally or in analog format. However, neither of these suggest the very first step in the process, to effectively categorize the information into an overall group of partiality. Thus, this paper serves to propose those categories. Even if individuals simply select information served to them by algorithms, those pieces of information should be tied to the groups suggested here.

4 Discussion

Bias has remained largely undefined in the literature let alone how to identify it. *"Given that, it makes sense librarians have taught students to assess information for bias. In a post-truth society, where disinformation and hyper-partisan media weaponise bias by appealing to emotions rather than facts, there is an added urgency in knowing how to evaluate a source critically."*[14] Users of information, reference librarians, students, teachers in the classroom, those in the civic life, in industry and business, anyone, who may include said information for essays, reports, white papers, in books, blogs, for causal or important decision-making use in social media posts or otherwise, for personal or professional use, before they subscribe to or believe in or recommend such data, should inspect it for bias levels regardless of the topic.

Noting that all information has a purpose and that when seeking information people should strive to be objective and open to varying points of view before formulating a final opinion, they should strive to inspect said information for possible bias it may contain, and they can do so by first separating such data into higher level or most prominent categories of overall partiality regardless of the topic discussed. This initial evaluative step can come before further analysis of fallacies or other evaluative inspection processes and just look at the piece of information for the most prominent category of impartiality it represents.

That said, when one inspects for such information bias, one really is vetting or appraising the material. One can say bias is nothing more than one person's opinion on any given topic, but is that opinion based on good information or bad information and who is to judge? According to *Dictionary.com*, "vetting" means, *"to appraise, verify, or check the accuracy, authenticity, validity"*[15]. Consequently, as the first step in this vetting or evaluative process of any piece of information regardless of its form, digital or analog, such information can be categorized into these seven sources each with their own inherent impartiality, listed and discussed in alphabetic order: 1) Academic, 2) For-Profits, 3) Government, 4) Hidden Agenda, 5) Individuals, 6) Non-Profits, and 7) Watch Dog Groups.

[13] WINEBURG, S., MCGREW, S., BREAKSTONE, J., ORTEGA, T.: *Evaluating Information: The Cornerstone of Civic Online Reasoning. Stanford Digital Repository*. Stanford, CA : Stanford University, 2019, p. 6. [online]. [2023-03-06]. Available at: <https://purl.stanford.edu/fv751yt5934>.

[14] BURKHOLDER, J. M., PHILLIPS, K.: Breaking Down Bias: A Practical Framework for the Systematic Evaluation of Source Bias. In *Journal of Information Literacy*, 2022, Vol. 16, No. 2, p. 53.

[15] *Vetting*. [online]. [2023-02-22]. Available at: <https://www.dictionary.com/browse/vetting?s=t>.

4.1 Academic

The first source is Academic. Academic sources are schools, colleges, institutions, and universities. This source is on a mission to create and/or uphold knowledge. If one examines higher education, one finds that in many cases professors and chairs often need to get published particularly through peer reviewed journals so that their research contributes to the literature in a meaningful way. But this race to get published is often tied to tenure and the money they earn as academicians. As the *Ivy League* saying goes, "Publish or perish", meaning that a professor cannot earn tenure if the publication does not occur; therefore, he or she might as well perish. According to *Enago Academy*, *"for graduate students, it means that if the research you're working on isn't 'publishable', you may have a hard time finding a job. For new faculty, 'perish' means not making progress on the track to tenure."*[16]

For potential bias it could mean they might have overlooked some rigor in their study and that the journal that published it could overlook it too. The viability and usability of academic sources has been studied to analyze its use as a source with potential partiality. Inequities in academic publishing have been studied for decades. Such inequities include editorial board selection of the publications, gender, race as well as educational achievements, degrees. For example, Girolamo et al., examined the extent to which various people in the academy were affected by the peer review process including faculty retention, and advancement. *"Experiences of marginalization, including inequity in peer review, may contribute to BIPOC underrepresentation in the academy."*[17]

Sometimes studies about the same topic that may be done at different times or by tracking different variables may have disagreements among findings and conclusions. One study says oatmeal is good for us because it is high in fiber. Another says too much oatmeal can lead to too much carbohydrate intake and weight gain. This is not to say either study is false. When screening information derived from higher education, one should examine the schools the research is tied to and the publications the studies are presented in to make sure these are not predatory. Predatory journals are often categorized as publications that require an inordinate amount of money for a study to be reviewed or ones that instantly publish a study with little or no rigorous peer review. *"Then came predatory publishers, which publish counterfeit journals to exploit the open-access model in which the author pays. These predatory publishers are dishonest and lack transparency."*[18] Therefore, when examining such studies look carefully at the backgrounds of the researchers to determine what, if any, bias exists in their overall effort to lead a conversation in their field. Again, gray areas of bias exist all around us. No study is perfect.

With the advent of several artificial intelligence (AI) tools including the popular *ChatGPT*, one can argue that it falls under the for-profit source since it was created by *OpenAI* which is heavily funded by *Microsoft Corporation*. However, when asked about how it sees itself among the seven sources discussed here, *ChatGPT* said, *"As an AI language model, ChatGPT can be considered an academic source of information. Academic sources are typically created by experts in a particular field, and they are subjected to a rigorous review process by other experts in the same field before being published. Similarly, ChatGPT is developed by a team of experts in natural language processing and machine learning, and its responses are generated based on the patterns it has learned from analyzing large amounts of text data."*[19]

16 *Publish or Perish: What Are Its Consequences?* [online]. [2023-02-22]. Available at: <https://www.enago.com/academy/publish-or-perish-consequences/>.

17 GIROLAMO, T. M.: Inequity in Peer Review in Communication Sciences and Disorders. In *American Journal of Speech-Language Pathology,* 2023, Vol. 31, No. 4, p. 1898.

18 BEALL, J.: Predatory Publishers Are Corrupting Open Access. In *Nature,* 2015, Vol. 521, No. 7551, p. 179.

19 Author's note: Response to *"How it sees itself among the seven sources discussed here"*. (See: *ChatGPT*. (online forum comment). [online]. [2023-02-23]. Available at: <https://chatgpt.com/>.).

We can perhaps say "academic", but also can surmise "for-profit" which could have some built in conflicts of interests within that machine learning, but we also may label AI generated published content in the "hidden agenda" source since one may never know how such text was generated if the information does not contain an authentic byline. The jury is out whether such AI tools can be simply pigeonholed into the academic category as well as whether their use will be widely accepted in the academy. That said, the academic source nevertheless is its own and brings to all the seven sources of impartiality its own inherent bias.

4.2 For-Profit

Turning to For-Profit organizations, one can postulate that it represents the most amount of all information most people are exposed to off and on the internet because modern culture is primarily fashioned upon a free enterprise market system. According to the *Heritage Foundation's 2021 Index of Economic Freedom*, which measures the degree of economic freedom in countries around the world, there are 161 countries of the 178 recognized by the United Nations that have a mostly free economy, indicating that free enterprise is prevalent.[20] However, one also can postulate that individuals now represent the majority of all information found on and off the internet.

With the rise of social media and personal blogs, it has become easier for individuals to publish and share their thoughts and opinions with a global audience. Additionally, many news outlets and organizations rely on user-generated content, such as eyewitness accounts and videos, to report on events happening around the world. But this is just a general assumption, and the actual distribution of information across the seven sources discussed here may vary depending on the context and topic being discussed. That said, the goal of for-profit organizations is to influence prospects to purchase their product. Therefore, bias is inherent in their sales techniques. *Ford Motor Company* is one example of millions.

Ford is in the business of manufacturing cars. When Ford advertises their products, obviously their goal is to get people interested in buying them. But like all companies, they should be subject to truth in advertising. They can make claims that are independently verified but should not exaggerate such claims just to make a profit. Throughout the years many automobile manufacturers both domestic and international have been caught exaggerating claims from performance, to gas mileage, to air emission ratings.[21] As such, many for-profit companies try to appeal to one's emotions and overvalue their product to make sales. Therefore, double check third party reviewers like Consumer Reports that have been shown to have low bias and impartiality.[22]

An example of a study that examined bias of news coverage among for-profit media corporations themselves was conducted by Gilens and Hertzman who analyzed newspaper coverage of the 1996 Telecommunications Act. *"We find substantial differences in how newspapers reported on these proposed regulatory changes depending on the financial interests of their corporate owners."*[23]

20 MILLER, T., KIM, A. B., ROBERTS, J. M.: *2021 Index of Economic Freedom*. [online]. [2023-03-09]. Available at: <https://www.heritage.org/index/pdf/2021/book/2021_IndexOfEconomicFreedom_FINAL.pdf>.

21 BROWN, N.: *20 Car Ads That Totally Lied to Us*. [online]. [2023-03-05]. Available at: <https://www.hotcars.com/20-car-ads-that-totally-lied-to-us/>.

22 *Consumer Reports Bias and Credibility*. [online]. [2023-05-21]. Available at: <https://mediabiasfactcheck.com/consumer-reports//>.

23 See: GILENS, M., HERTZMAN, C.: Corporate Ownership and News Bias: Newspaper Coverage of the 1996 Telecommunications Act. In *The Journal of Politics*, 2000, Vol. 62, No. 2, p. 369-386. [online]. [2023-05-21]. Available at: <https://www.jstor.org/stable/2647679>.

4.3 Government

Government entities are many. In the United States, for example, there are numerous agencies and departments. From the United States Department of Agriculture (USDA) to the Centers for Disease Control and Prevention (CDC) to the White House, there are literally dozens upon dozens of governmental units, and each publishes mounds of reports, demographics, advisories, studies, research, and warnings.[24] Bias within these reports might be tied to lobbyists or legislation that is profitable to certain other entities or contain "pork" or "pork-barrel spending". "Pork" is extra initiatives and/or funding that typically has nothing to do with a bill's real purpose. For example, a bill designed to provide homeowners with tax relief in a certain geographic area, may also fund other out of state projects. *"One popular U.S. government text defines pork-barrel legislation as 'Appropriations made by legislative bodies for local projects that are often not needed but that are created so that local representatives can carry their home district in the next election.' But this definition betrays two important biases about pork. First, while appropriations may still be the most important and widely recognized form of pork, it does come in a wider variety of forms than simply direct spending on local projects. Second, while this definition of pork asserts that pork is generally wasteful spending initiated by self-interested incumbents using taxpayer dollars to support their own electoral efforts, just how wasteful one believes pork-barrel legislation is often depends on where one sits."*[25]

Therefore, one must inspect underlying forces that require the bill to be created. The same holds true for many government reports. One should ask how they were funded, and what purpose do they ultimately serve? The statistical data often associated with such reports is vulnerable to manipulation. Mark Twain (Samuel Clemens) said more than 100 years ago, *"Figures don't lie, but liars figure"*. Bohanon and Curott referred to this famous quote in a 2020 *Indiana Business Journal* article regarding misinterpreted U.S. Economy statistics.[26]

Government reports should be rigorous in terms of sample size and proper research method application. So, when assessing these reports pay careful attention to possible bias associated with the politics behind the governmental unit itself. Were these reports influenced by other agencies or people who may have censored some of the information after or prior to its release? Governmental agency reports are sometimes produced to enhance their own hidden agendas. They can generate reports they do not want the public to even know about. Jesse Ventura, a former independent governor of Minnesota, wrote about these reports in his co-authored Simon & Schuster book, *63 Documents the Government Doesn't Want You to Read*.[27] However, in other instances, the government has a right to keep secrets such as nuclear codes, military plans, and those in the best interest of national security.

Therefore, it is important one rigorously reviews such government data. When vetting these kinds of reports, closely examine the legislation that might have originally been created to yield governmental studies and laws. Do these reports reflect more facts rather than opinion? For example, according to a *Washington Post* investigative piece, U.S. officials misled the public about the War in Afghanistan for many years via a variety of government documents the paper obtained.[28]

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24 *The U.S. Government's Official Web Portal.* [online]. [2023-05-21]. Available at: <https://www.usa.gov/>.

25 BECKER, L.: *Pork-Barrel Expenditures*. [online]. [2023-05-21]. Available at: <https://search.credoreference.com/content/entry/fofgac/pork_barrel_expenditures/0>.

26 BOHANON, C., CUROTT, N.: Tossing Around Statistics Can Quickly Lead to Trouble. In *Indianapolis Business Journal*, 2020, Vol. 41, No. 24, no paging. [online]. [2023-05-21]. Available at: <https://link.gale.com/apps/doc/A633726700/ITBC?u=uphoenix&sid=ebsco&xid=54ea4032>.

27 See: VENTURA, J., RUSSELL, D.: *63 Documents That Government Doesn't Want You to Read*. New York, NY : Skyhorse Imprint of Simon & Schuster, 2021.

28 WHITLOCK, C.: *At War with the Truth*. [online]. [2022-12-09]. Available at: <https://www.washingtonpost.com/graphics/2019/investigations/afghanistan-papers/afghanistan-war-confidential-documents/>.

Another example that examined the credibility of government sources was published in a 2022 edition of Crain's *Chicago Business*. According to the journal, government sources were among the least trusted as well as journalist when compared to scientists and their own coworkers. *"The 22nd annual Trust Barometer survey, which includes more than 36,000 respondents across 28 countries, shows that government institutions were the most trusted source as recently as May 2020. But since then, trust in government has fallen 18 points to 52%."*[29] These examples demonstrate how government information is its own unique type of source with its own unique type of credibility, such trust among the public appears to be waning. When government intertwines with for profits or nonprofits, it also can contain some hidden agendas like pork as discussed.

4.4 Hidden Agenda Groups

Hidden Agenda Groups purport to represent one or several causes, but covertly may represent one or several nefarious undertakings. The information they distribute may be hard to track to a single person or agency. They also may be hard to contact since they really are not in the business of being transparent. Nor do hidden agendas provide accurate information. Groups like *QAnon* who magnify and circulate conspiracy theories are identified as a hidden agenda group. *QAnon* also recruits prominent people in power who might use the information to amplify their messages, to further their own hidden agendas, to enhance their political standing, or to simply bolster their careers.[30] Some of these entities are found in the form of apps, or dangerous computer code masquerading as a friendly game, or a website whose users were drawn there by misleading search engine descriptions.

More recently, *TikTok*, the popular video sharing application, was accused of allegedly collecting and distributing user data for political or other possible nefarious purposes.[31] Applications have less impactful hidden agendas that may include buying or selling user data. For example, *Facebook*, *Google*, and *LinkedIn*, have been accused of violating user privacy policies. In *Facebook*'s case, a company known as *Cambridge Analytics* knowingly used the social media giant's database of users for their own hidden agenda purposes. *"As Facebook reeled, The New York Times delved into the relationship between Cambridge Analytica and John Bolton, the conservative hawk named national security adviser by President Trump. The Times broke the news that in 2014, Cambridge provided Mr. Bolton's 'super PAC' with early versions of its Facebook-derived profiles – the technology's first large-scale use in an American election."*[32]

Quite simply put, you may not ever be able to judge the bias in these groups' materials because their materials are designed to be deceptive like propaganda. They may look like a game or a traditional website that portrays that they represent a good cause but underneath they are funneling data or revenue for another purpose. In sum, we need to be aware that hidden agendas and hidden agenda groups are out there. In a worst-case scenario, if we accidentally paraphrase or quote them, we may be perpetuating their self-interests as our own. From anonymous posts, to protected sources, there is a fine line to how hidden agendas are carried

29 DAVIS, K.: *Government Officials, Journalists Least-Trusted Sources, Says Survey.* [online]. [2023-05-21]. Available at: <https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=edsbig&AN=edsbig.A690654628&site=eds-live&scope=site&custid=uphoenix>.

30 KUZNIA, R., DEVINE, C., GRIFFIN, D.: *How QAnon's Lies Are Hijacking the National Conversation.* [online]. [2023-05-21]. Available at: <https://www.cnn.com/2020/12/15/us/qanon-trump-twitter-invs/index.html>.

31 MCMILLAN, R., LIN, L., LI, S.: *Tiktok User Data: What Does the App Collect and Why Are U.S. Authorities Concerned?* [online]. [2023-03-09]. Available at: <https://www.wsj.com/articles/tiktok-user-data-what-does-the-app-collect-and-why-are-u-s-authorities-concerned-11594157084>.

32 CONFESSORE, N.: *Cambridge Analytica and Facebook: The Scandal and Fallout So Far.* [online]. [2023-03-09]. Available at: <https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html>.

out. It is sufficed to say hidden agendas exist for a multitude of purposes, uses and gratifications, including the spread of fake news and other viral internet messages with no authentication. Some people are more susceptible to these messages that ultimately affect society's overall ability to contribute constructively to civil discourse. As Reader noted, civility means politeness in terms of discourse. Uncivil people sow mistrust and can anger those susceptible to manipulation. Only known processes and facts can be legitimately and openly debated.

Reader examined anonymous comments posted to news media websites for their "civility". Using Condit's theory that contends good public debates are not only represented by those in power or who are otherwise transparent but can include those who choose to be anonymous. *"The framework seems especially suitable for a critical analysis of the issue of anonymous commentary online, as the forums themselves are (ostensibly) intended to be locations for pluralistic debate on all manner of issues – thus, the regulation of those forums might need to be even more accommodating of varied minority viewpoints, including viewpoints that may be considered on the fringes of acceptability."*[33]

Generally, the study highlighted the role of anonymous, otherwise hidden agendas, in shaping perceptions of important debate. This is where it is significant to note how crucial it is that people inspect information for its objectivity, its inclusion of other sources to defend suppositions, for example, and the level of transparency it portrays. Enter critical thinking and efforts made to encourage media literacy skills to help individuals make more informed decisions and resist misinformation and conspiracy theories. Thus, this type of bias, Hidden Agenda, can be disguised as any individual or group of individuals whose covert opinions or behaviors may be the opposite of their overt actions since their posted discourse cannot typically be verified.

4.5 Individuals

Individuals are categorized into their own group simply because they can publish, share, and distribute information that they or others create just like any of the other six sources discussed in this paper. Independence lends itself to personal bias overtly or covertly tied to a hidden agenda. The only way to fairly assess any level of individual bias is to assess ethos, the Greek rhetorical style that involves evaluating the background, credibility, or character of the writer or speaker. To that degree one can examine conflicts of interests that could allow the reader to speculate or judge the piece as bias.

Several studies have identified ethos, as well as its counterparts, pathos (emotion), kairos (timeliness), logos (reasoning, logic) and mythos (symbolic and ritual cultural enactments) embedded in such discourse. In 2022, Iob, Visintin, and Palese examined editorials published by five major nursing journals and found that approximately 25 percent of the persuasiveness was attributed to author ethos, another 25 percent to pathos, and about half dedicated to logos. *"Aristotle links Ethos to the orator, namely, the speaker or author of written texts, to their credibility as a speaker. Using Ethos, authors assert their moral position, promoting full trust and respect from readers (Lo Cascio, 1991)."*[34] However, the authors maintain readers are more open minded to the discourse first than the background of the author.

According to Bizzell and Herzberg as well as many other Aristotle scholars, pathos is an emotional appeal typically related to an argument.[35] Combined with ethos, pathos resonates as the psychological connection between author and reader. For example, Steven Spielberg is

[33] READER, B.: Free Press vs. Free Speech? The Rhetoric of 'Civility' in Regard to Anonymous Online Comments. In *Journalism & Mass Communication Quarterly*, 2012, Vol. 89, No. 3, p. 499.

[34] See: IOB, G., VISINTINI, C., PALESE, A.: Persuasive Discourses in Editorials Published by the Top-Five Nursing Journals: Findings from a 5-Year Analysis. In *Nursing Philosophy*, 2022, Vol. 23, No. 2, p. 2.

[35] See: BIZZELL, P., HERZBERG, B.: *The Rhetorical Tradition: Readings from Classical Times to the Present.* Boston, MA, New York, NY : Bedford/St. Martin's, 2021.

Jewish. He had family members in the Holocaust. He directed and produced the award winning 1993 movie *Schindler's List.* Spielberg's ethos and expression of pathos was fundamental to creating a film that resonated with people from many religious sects. His attention to script details enabled him to connect with his audience.

Mythos is like ethos, but instead of being built upon the writer's entire background, it is an ongoing set of assumptions, values, or beliefs about a particular field of study, or specific issue. Richards describes the rhetorical style this way, *"The dominant mythos of a culture is expressed in its arts, literature, values, aspirations and rituals, providing individuals with the resources for interpreting and expressing their emotional lives and relationships with others."*[36]

Finally, kairos is defined as *"the opportune moment of speech, which involves not only the fitting occasion but also the fitting style and the fitting composition."*[37] Most experienced social media users have seen posts whose friends or connections have shared what they thought was timely information only upon closer inspection to discover just how outdated the material was in support of an argument. This is not to say outdated information is not valid, it is to say there could be newer more rigorous data available.

All published information can be said to contain any degree of these Greek rhetorical styles. We could arrange these styles in an easy to remember acronym such as KLEMP: kairos, logos, ethos, mythos, and logos. By examining the credibility of the author and possible conflicts of interest, the published piece may be said to contain some bias.[38] By the very virtue of individual's abilities to contribute to public discourse they too represent an overall partiality that upon inspection holds them accountable to their ethos, their credibility, objectivity, values, transparency, and authenticity. As such individuals' perspectives and biases present can range from hidden agendas to conflicts of interest, but that one's ethos can enhance a piece of information by including that author's experience or expertise.

4.6 Non-Profit

Non-Profits are either public charities, philanthropic foundations, or an enterprise that serves individuals, industry, or education. Examples include churches, shrines, and synagogues as well as governments, some business associations, municipalities, and other community enterprises. The *Young Men's Christian Association* (YMCA), *American Foundation for Suicide Prevention*, the *American Marketing Association*, and the *United Negro College Fund*, have been reliable examples of popular non-profits. It is important to vet all publicized information pertaining to non-profits by carefully examining any claims they make about where funds are distributed and if their actions align with the values they publicize, yet like any of the other six sources of over partiality, they too can emulate bias tied to any subject or cause they may represent.

Little is known as to the level of nonprofit bias in communications, but a recent study examined how one Kenya based nonprofit strived to remove bias from its own messaging. *NEW STORIES Room to Read*, is an international nonprofit that teaches children to read.

[36] RICHARDS, G.: Mythos and Logos. In RIEBER, R. W. (ed.): *Psychology, Religion, and the Nature of the Soul*. New York, NY : Springer, 2011, p. 9.

[37] KINNEAVY, J. L., ESKIN, C. R.: Kairos in Aristotle's "Rhetoric". In *Written Communication*, 2000, Vol. 17, No. 3, p. 432.

[38] BEAN, E.: *Weeding Out Suspect Bias Using the Greek Rhetorical Styles of KLEMP in Social Media and News Stories.* Presented at the 2022 National Council of Teachers of English Homecoming Conference. Louisville, KY, presented on 31st July, 2022. [online]. [2023-05-21]. Available at: <https://img1.wsimg.com/blobby/go/fd10a2bf-629c-4c87-b041-43eb2af8f6a0/downloads/NCTE_2022ELATEHomecoming_Program.pdf?ver=1684858591632>.

"Geographically imprecise terms force people to make assumptions, and they often reflect and perpetuate bias by defining complex communities with singular perspectives."[39]

As a distinct type of source nonprofits can imbued impartiality for their own benefit and causes regardless of what they represent and therefore, are unique among the other six sources identified.

4.7 Watchdog Groups

The purpose of watchdog groups is to monitor other groups by employing checks and balances approach. They measure the value these groups hold for humanity. For example, *People for the Ethical Treatment of Animals* (PETA) helps spread awareness about animal safety and wellbeing and others like the *Gun Violence Archive* (GVA) track incidents of gun violence across America. Others track water resources such as the *Environmental Working Group*.[40] Watchdog groups may contain any number of biases or hidden agendas as well that could possibly lead people to follow a false cause if they are not authentic or transparent in their published communications. Most watchdog groups are organized as non-profits and provide a philanthropic approach to their public value. Like any nonprofit one should scrutinize watchdogs to be sure they are legitimate. *"A nonprofit watchdog – also called a charity watchdog (CWD) or nonprofit evaluator – refers to a type of nonprofit organization that exists to gather and provide information, reviews, and ratings of other nonprofit organizations. These organizations are not associated with the government, as each is an independent, nonprofit group of its own."*[41]

Watchdogs, while organized as nonprofits, can have biases that tie them to their own unique impartiality. But watchdogs, nevertheless, are grouped differently from the other six discussed, a source that as suggested earlier in this paper, should be first analyzed as such when inspecting any piece of information that one finds or appears in their newsfeed or in social media. The inspection can be something as simple as identifying the author and their affiliation, the medium in which the piece of information is published, and its intended original audience.

5 Conclusion

The seven sources of overall impartiality discussed in this paper have their unique biases that are typically tied to their mission and purpose. Yes, it is possible that when evaluating any piece of information, it might be found that it can be tied to more than one of these sources as well as other types of biases baked into it which makes critically thinking about information such an important step in subscribing to or sharing such information. The stakes are high for not properly vetting information and while the merits of traditional types of bias such as personal explicit and implicit prejudice, and other types of biases more related to information such as confirmation, affinity, halo, and anchoring bias, are important types, these seven types of sources represent their overall bias impartiality that hold them accountable to authentic and objective information when they publish any piece of information.

39 MURALI, G., HEGRANES, C.: Charity's Guide Helps Nonprofits Use More Equitable Language. In *Chronicle of Philanthropy,* 2022, Vol. 34, No. 7, no paging. [online]. [2023-05-21]. Available at: <https://www.philanthropy.com/article/using-dignified-language-unseats-bias-and-advances-equity>.

40 BOTE, J.: *Toxic 'Forever Chemicals' Found in Drinking Water Throughout US*. [online]. [2023-05-21]. https://www.philanthropy.com/article/using-dignified-language-unseats-bias-and-advances-equity Available at: <https://www.usatoday.com/story/news/health/2020/01/23/pfas-toxic-forever-chemicals-found-drinking-water-throughout-us/4540909002/>.

41 *What Executive Directors Need to Know About Nonprofit Watchdogs*. [online]. [2023-05-21]. Available at: <https://www.growthforce.com/blog/nonprofit-watchdogs>.

More importantly the seven sources of bias discussed here within represent all the possible high level first types of sources for which all other biases types like fallacies, for example, might be later found upon further inspection. This alone is an important factor that all who may employ CRAAP or SIFT as an evaluation tool should be aware. The seven initial prominent sources of all information bias impartiality types rest on parsing them in the initial evaluative process, a first step in critically thinking about information, who created it and its ultimate purpose. No one can control how people initially interact with information. Whether they succumb to information served to them by an algorithm or they search for information, parsing it into one or more of these seven sources is a step in the right bias analysis recognition direction.

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photo: Matúš Andráš

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With Games Against Fake News – Developing Critical Thinking with the Help of the Card Game Follow Me

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ABSTRACT

Recent serious events, such as the coronavirus pandemic and the war conflict in Ukraine, have significantly increased the amount of fake news in the online space. This news contributes to society's radicalization, destabilizes democratic regimes, and can result in violence and damage to health and property. The most effective approach to address fake news is prevention and the education associated with it. The current education system is not ready for these challenges, which is why more and more attention is being paid to alternative solutions such as game-based learning. Game-based learning enables the acquisition of new knowledge and skills in a fun yet effective way. These games include a game developed by *Impact Games* studio named *Follow me*, which is focused on developing critical thinking skills in the context of countering fake news. This study aims to validate the contribution of the game *Follow me* in building resilience to fake news through an experiment on a sample of 130 secondary school students from six different schools. The results suggest that although there was no global statistically significant improvement measured in students' ability to recognize fake news, students are healthily skeptical of information, this is also indicated by the fact that on average they were more likely to label news as untrustworthy despite varying attitudes towards the selected topics. We also managed to make findings based on the data acquired from this experiment, which provide a deeper look into students' attitudes toward fake news and therefore can improve games and experiments prepared in the future.

KEY WORDS

Critical Thinking. Educational Games. Fake News. Game-based Learning. Hoaxes.

1 Introduction

The rapid development of communication technologies, the Internet, and the associated simple access to information has brought, in addition to countless benefits, significant risks for users and society. The ease of creating and disseminating content over the Internet has led to the emergence of a large amount of false and misleading information, called fake news or hoaxes.[1] Fake news can be understood as a set of reports about events of public interest that attempt to mimic reliable sources while containing false information.[2] Such news can be encountered in a variety of domains: news dealing with political events, information about the Covid-19 virus and other health topics, or fake studies on social issues.

Fake news can seriously influence public opinion and threaten the functioning of democratic systems, this phenomenon has been demonstrated during the 2016 and 2020 US presidential elections[3] and, likewise, in the United Kingdom during the Brexit vote.[4] In these cases, people's decisions were heavily influenced by fake news, and this influence was reflected in the results. Fake news can also have a negative effect on people's health, for example during the coronavirus pandemic, where the amount of fake and misleading news increased to such an extent that the World Health Organisation (WHO) warned of the so-called "Infodemic". Infodemic has caused a significant drop in interest in vaccination and caused a communication blackout while measures were being put in place to prevent the spread of the virus around the world.[5]

The reasons behind the spread of fake news can vary, but one of the most important is certainly the desire to increase the viewership and thus generate more profit. In the online space, the value of advertising space depends on the number of views of a given page, so authors aim to attract as much attention as possible. Fake news work very well to gain a bigger audience, because it is not expensive to create (as it does not require research and factual knowledge), and it can influence people's feelings and thus gain significant attention.[6]

At the same time, it shows that fake news can be successfully used to achieve political goals, influence public opinion, or dehumanize political opponents.[7] Another motivation for creating fake news can be to spread propaganda and to try to destabilize rival states.[8]

From the point of view of news consumers, rapid technological developments have contributed to the spread and popularity of fake news, in particular enabling new ways of consuming information. Nowadays, traditional media is getting side-lined, and people are more likely to get their information from online sources.[9] However, unlike traditional media, in the online space, the information does not have to go through any verification process, and therefore there

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1 ZHANG, X., GHORBANI, A. A.: An Overview of Online Fake News: Characterization, Detection, and Discussion. In *Information Processing & Management*, 2020, Vol. 57, No. 2, no paging.

2 See: PENNYCOOK, G., RAND, D. G.: The Psychology of Fake News. In *Trends in Cognitive Sciences*, 2021, Vol. 25, No. 5, p. 388-402.

3 GUNTHER, R. B. et al.: *Fake News Did Have a Significant Impact on the Vote in the 2016 Election*. [online]. [2023-04-13]. Available at: <https://bpb-us-w2.wpmucdn.com/u.osu.edu/dist/d/12059/files/2015/03/Fake-News-Piece-for-The-Conversation-with-methodological-appendix-11d0ni9.pdf>.

4 See: HÖLLER, M.: The Human Component in Social Media and Fake News: The Performance of UK Opinion Leaders on Twitter During the Brexit Campaign. In *European Journal of English Studies*, 2021, Vol. 25, No. 1, p. 80-95.

5 CARRION-ALVAREZ, D., TIJERINA-SALINA, P.: Fake News in COVID-19: A Perspective. In *Health Promotion Perspectives*, 2020, Vol. 10, No. 4, p. 290.

6 See: KSHETRI, N., VOAS, J.: The Economics of "Fake News". In *IT Professional*, 2017, Vol. 19, No. 6, p. 8-12.

7 GUNTHER, R. B. et al.: *Fake News Did Have a Significant Impact on the Vote in the 2016 Election*. [online]. [2023-04-13]. Available at: <https://bpb-us-w2.wpmucdn.com/u.osu.edu/dist/d/12059/files/2015/03/Fake-News-Piece-for-The-Conversation-with-methodological-appendix-11d0ni9.pdf>.

8 BRENNEN, B.: Making Sense of Lies, Deceptive Propaganda, and Fake News. In *Journal of Media Ethics*, 2017, Vol. 32, No. 3, p. 179.

9 ZHANG, X., GHORBANI, A. A.: An Overview of Online Fake News: Characterization, Detection, and Discussion. In *Information Processing & Management*, 2020, Vol. 5, No. 2, no paging.

is also significantly more false information. The use of online sources has also been boosted by the arrival of the coronavirus and the measures that have forced people to work from home and spend more time online. Fake news most often exploits flaws in our cognitive processes, so-called cognitive biases, which affect our thinking and judgment, so the authors of such news seek to appeal to emotions, create opinion bubbles, or report sensational news.[10] Various methods are currently being used to fight the negative effects of fake news. One of the most widespread is labeling information as fake or true. This can be accomplished by using human experts or machine learning methods.[11] Such labeling is very accurate in the vast majority of cases, but the downside is that fake news tends to spread significantly faster than the news that disproves it.[12] Another problem with these practices is that labeled fake news can grow in popularity and promote conspiracy theories claiming that secret government organizations want to hide the real truth from people. On the other hand, fact-checking portals, which contain analyses of the veracity of various articles and information, can greatly help people to make informed decisions about the credibility of the information they receive.

1.1 Game-Based Learning

Due to the disadvantages of reactive approaches to the phenomenon of fake news, more and more attention is being paid to prevention, especially in education. Proper education can significantly reduce the risk of people believing fake news or even spreading it.[13] The primary goal in teaching about fake news should be to develop critical thinking skills so that people can critically evaluate information without being influenced by cognitive biases.[14] Currently, public education is not sufficiently prepared for the challenges of modern times and is unable to respond flexibly enough to prepare students for new dangers. This is why increasing attention is being paid to other forms of learning, such as gamification and game-based learning (GBL).[15]

The so-called inoculation theory has been successfully used in game-based education.[16] This theory is based on the principle of inoculation as we know it from biology: an individual receives a small, weakened sample of a certain harmful microorganism, the body learns what antibodies it needs to produce to defeat it, and if it subsequently encounters the microorganism in everyday life, it will be able to react to it in a timely and effective manner. Similarly, educational games about fake news work the same way: the player is exposed to the impact of these messages in a safe, game-like environment, learns to recognize them, and as a result, becomes more resistant to the impact of false information in everyday life.[17]

10 PENNYCOOK, D. et al.: The Science of Fake News: Addressing Fake News Requires a Multidisciplinary Effort. In *Science*, 2018, Vol. 359, No. 6380, p. 1094.

11 SIMKO, J. et al.: A Study of Fake News Reading and Annotating in Social Media Context. In *New Review of Hypermedia and Multimedia*, 2021, Vol. 27, No. 1-2, p. 100.

12 See: FLINTHAM, M. et al.: Falling for Fake News: Investigating the Consumption of News via Social Media. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. New York, NY : Association for Computing Machinery, 2018, p. 1-10.

13 KUKLINSKI, J. H. et al.: Misinformation and the Currency of Democratic Citizenship. In *The Journal of Politics*, 2015, Vol. 62, No. 3, p. 809-810.

14 BAILIN, S., SIEGEL, H.: Critical Thinking. In BLAKE, N. ed.: *The Blackwell Guide to the Philosophy of Education*. New York, NY : John Wiley & Sons, 2008, p. 182-183.

15 PLASS, J. L. et al.: Foundations of Game-Based Learning. In *Educational Psychologist*, 2015, Vol. 50, No. 4, p. 260.

16 See: ROOZENBEEK, J., VAN DER LINDEN, S.: The Fake News Game: Actively Inoculating Against the Risk of Misinformation. In *Journal of Risk Research*, 2018, Vol. 22, No. 5, p. 570-580.

17 ROOZENBEEK, J. et al.: Inoculating Against Fake News About COVID-19. In *Frontiers in Psychology,* 2020, Vol. 11, Article No. 566790.

1.2 Related Work

The inoculation theory has been successfully used in several educational games aimed at fighting fake news, such as the *Bad News* game,[18] where the player is put in the role of a fake news spreader and tries to get as many followers as possible by using the techniques most commonly used in writing and spreading fake news. By using these techniques themselves within the game, the chances of them recognizing fake news when they see them in real life when gathering information are increased. Another similarly focused game is *Harmony Square*[19], where the player finds themselves once again in the role of the chief disinformer of a fictional city where everyone lives in peace and harmony. The player's goal is to use fake news to disrupt the mayhem in the city, stir up negative emotions and cause chaos. They achieve all this again by learning successful disinformation techniques during the gameplay. The next game, The *Fake News Detective*[20], puts the player in the opposite role, acting as a professional fact-checker. While playing, they try to label the articles they see as true or false based on certain characteristics they learn while playing.

These and other games have been studied through several experiments that have demonstrated their effectiveness in developing critical thinking skills.[21] These experiments in most cases include two questionnaires, one before and one after playing, where the player's task is to judge the truthfulness of the short news displayed. Based on these data it is then possible to determine the effect of the games on the players.

1.3 The Follow Me Card Game

Our work aims to use an experiment to verify the contribution of the *Follow Me* card game on critical thinking of secondary school students. *Follow Me* is a card game developed by a Slovak game development studio *Impact Games*. The game is available in print in the Slovak language, but the authors have already prepared a freely available and printable pdf version of the game in English, Croatian and Slovenian languages as well. The game is focused on the development of critical thinking and digital literacy. Players are put in the role of users of a fictional social networking site named *Duckface*, where they try to gain as many followers as possible. The primary target audience are high school students, but the game can also be enlightening for other generations. The game teaches about the functioning of social media, how to distinguish between fake and true news, how fact-checking works, and also about responsible online behavior.

The game can be played by two to four players at a time; for a larger group of players (such as in a classroom), it is recommended to divide the entire group into smaller teams and provide each team with its own game set. Players compete while playing, but are also given tasks that they must solve together. In principle, one game can last until all the cards are spent. The recommended playing time is approximately thirty to forty-five minutes (eight rounds for four players and nine rounds for three players).

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18 ROOZENBEEK, J., VAN DER LINDEN, S.: Fake News Game Confers Psychological Resistance Against Online Misinformation. In *Palgrave Communications*, 2019, Vol. 5, No. 1, p. 7.

19 ROOZENBEEK, J., VAN DER LINDEN, S.: Breaking Harmony Square: A Game That "Inoculates" Against Political Misinformation. In *Harvard Kennedy School Misinformation Review*, 2020, Vol. 1, No. 8, no paging. [online]. [2023-02-03]. Available at: <https://misinforeview.hks.harvard.edu/wp-content/uploads/2020/11/roozenbeek_harmony_square_game_misinformation_20201106.pdf>.

20 JUNIOR, R. B.: *The Fake News Detective: A Game to Learn Busting Fake News as Fact Checkers Using Pedagogy for Critical Thinking*. [online]. [2023-02-03]. Available at: <https://repository.gatech.edu/entities/publication/a4a72f54-bf59-4974-955d-c908fa22bf51>.

21 See: BASOL, M. et al.: Good News About Bad News: Gamified Inoculation Boosts Confidence and Cognitive Immunity Against Fake News. In *Journal of Cognition*, 2020, Vol. 3, No. 1, p. 2-9.

The game introduces several creative elements, offering interesting educational potential in the development of critical thinking. The game does not allocate the "bad" or "good" roles to the players; they are ordinary Internet users. Their goal is to attract as many followers as possible, and they can decide for themselves what strategy they will use to achieve victory. Another interesting element is the rather large amount of information that the player has to keep track of: news in front of themselves and the other players, news that no one has shared yet, followers that no one has convinced yet, and the credibility of the other players, and the action cards in their hand. This aspect of the game looks unnecessarily confusing at first glance, but it actually illustrates social media, where we are also exposed to a huge amount of information, quite convincingly.

The authors of the game recommend that after the game is finished in the class, the teacher conduct a debriefing. Thanks to this, it is possible to increase the educational effect and to sort out the acquired knowledge with the students. Such a "block" of playing and debriefing can be done in free time but also during formal education, as its duration is about an hour and a half (so around two formal classes with a duration of 45 minutes). During the debriefing, there must be a discussion between the teacher and the students. For example, instead of having the teacher list the characteristics of the hoaxes that were used in the game, the teacher should ask on what basis the students were deciding which news to share. During this discussion, topics such as the reasons why fake news spreads, the reasons why ordinary people share fake news, the characteristics of fake news, the role and use of fact-checking portals, and the reasons why we are prone to believe fake news can be addressed.

2 Methods

Based on previous findings, we set the following research questions, which we will test using the data obtained from the experiment:

- RQ1: Do players have a significantly higher ability to detect fake news after playing *Follow Me* than before playing it?
- RQ2: Are players significantly more confident in determining the truthfulness of messages after playing *Follow Me* than before playing it?

Based on these research questions, we can set our hypotheses as follows:

- $H_{RQ1}0$: players do not have a significantly different ability to detect fake news after playing *Follow Me* than before playing it.
- $H_{RQ1}1$: players have a significantly higher ability to detect fake news after playing *Follow Me* than before playing it.
- $H_{RQ2}0$: players' confidence in determining the truthfulness of messages after playing *Follow Me* is at the same level as before playing it.
- $H_{RQ2}1$: players' confidence in determining the truthfulness of messages after playing *Follow Me* is at a higher level than before playing it.

To find answers to our research questions, we will use an experiment that will be constructed similarly to published experiments with similar games, such as *Bad News*[22] or The *Fake News* game.[23] We will evaluate the results with double sided t-test with confidence interval of 90%.

[22] See: BASOL, M. et al.: Good News About Bad News: Gamified Inoculation Boosts Confidence and Cognitive Immunity Against Fake News. In *Journal of Cognition*, 2020, Vol. 3, No. 1, p. 2-9.

[23] ROOZENBEEK, J., VAN DER LINDEN, S.: Fake News Game Confers Psychological Resistance Against Online Misinformation. In *Palgrave Communications*, 2019, Vol. 5, No. 1, p. 7.

In the experiment, we investigate the causality and the relationship between playing the game and the ability to detect fake news. Therefore, we can define the dependent variable as the ability to determine the truthfulness of the news and the independent variable as whether the player has played the game or not. In addition, we will also observe the confidentiality of the respondents in entering their answers, i.e., how confident they are that they have determined the truthfulness of the news correctly; this will be our second dependent variable observed. Our hypotheses are based on the assumption that we expect that players will have higher accuracy and confidence after playing. During the experiment, we examine the respondents' attitudes towards the selected topics and quantify their ability to determine the truthfulness of the news before and after playing the game with the help of questionnaries.

2.1 Sample and Procedure

The experiment targets high school students between the ages of 15-18. The reason for selecting this group is that the *Follow Me* game was developed primarily with this audience in mind, in an effort to make the game usable within a formal learning process. The game was tested in six secondary schools in southern Slovakia with a total of 130 respondents. All parts of the experiment were conducted in the Slovak language.

The experiment consists of five parts:

1. A questionnaire regarding respondents' demographics and attitudes – in this questionnaire, we focus on the basic demographics of the respondents (age, gender) and their attitudes towards the selected topics. With this data, we can evaluate the correlation between the respondents' attitudes and their ability to determine the veracity of the news. Several studies have shown that our attitudes affect the perception of the truthfulness of news.[24] In determining attitudes, we draw on the methodology used in the work of Simko et al.[25]: The respondents are asked to comment on 4 to 6 statements on each selected topic and rate on a five-point scale whether they agree (+2) or disagree (-2) with the statement. This procedure allows us to get a more accurate picture of opinions than if we just asked one generic question. For each topic, we select statements to represent extreme views with both positive and negative attitudes. For example, in the case of global warming, the statements might be as follows:
   a) Global warming is a natural process, the impact of mankind is negligible (denialist attitude).
   b) Fighting global warming is just a trend used to increase the popularity of companies or products (denialist attitude).
   c) Strong measures must be taken to slow global warming (alarmist attitude).
   d) Global warming may significantly change social circumstances in the near future (alarmist attitude).
2. A questionnaire for assessing the truthfulness of news before playing – in this questionnaire, the respondents are asked to determine the truthfulness of short articles shown on a five-point scale, while also indicating on the same scale how confident they are that they have correctly estimated the truthfulness of the article. The order of the news is random for each respondent. The news in the questionnaire is constructed to represent both true and false news on each selected topic (Covid-19, global warming, and the European Union) and each extreme position. The reason for this selection is to avoid favoring one

[24] See: FLINTHAM, M. et al.: Falling for Fake News: Investigating the Consumption of News via Social Media. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems.* New York, NY : Association for Computing Machinery, 2018, p. 1-10.

[25] See: SIMKO, J. et al.: A Study of Fake News Reading and Annotating in Social Media Context. In *New Review of Hypermedia and Multimedia,* 2021, Vol. 27, No. 1-2, p. 97-127.

opinion group over another, which could bias the results obtained.[26] Each message is displayed as a post on *Facebook* and has an author, a title, a short description, a link to the website, and the number of reactions and comments (see Figure 1.). We created the news based on real events/articles whose veracity had been sufficiently clearly verified. We reformulated these messages to suit the purposes of the experiment. We relied on the data from well-known fact-checking portals to verify the veracity of the selected reports.

3. Playing the *Follow Me* game – in this step, we explain the rules of the game to the students and they play the *Follow Me* game in groups of three or four for about 30 to 45 minutes.
4. Debriefing – after playing the game, a debriefing session takes place, where we follow the methodological guide from the authors of the game and discuss the risks associated with fake news, the signs of fake news, cognitive bias, and how to build resilience to fake news.
5. A questionnaire for assessing the truthfulness of the news after playing – to verify the benefits of the game, the respondents are given the same questionnaire as before playing, where again they have to determine the truth value of the messages and the degree of certainty with which they have determined it. The order of the messages is the same as in the pre-game questionnaire to keep the same conditions for completion. In this questionnaire, we use eight of the same news items as in the first questionnaire, while swapping out four news items so that we can determine the effect of playing on both the known and new articles.

FIGURE 1: *Example of news used in the questionnaires during the experiment*

Source: own processing, 2023

[26] See: SIMKO, J. et al.: A Study of Fake News Reading and Annotating in Social Media Context. In *New Review of Hypermedia and Multimedia*, 2021, Vol. 27, No. 1-2, p. 97-127.

3 Results

In the experiment, we worked with eight groups from six secondary schools in southern Slovakia and received responses from 130 students in total. The respondents included 79 females and 51 males between the ages of 15 and 19. The age and gender distribution are shown in Figure 2.

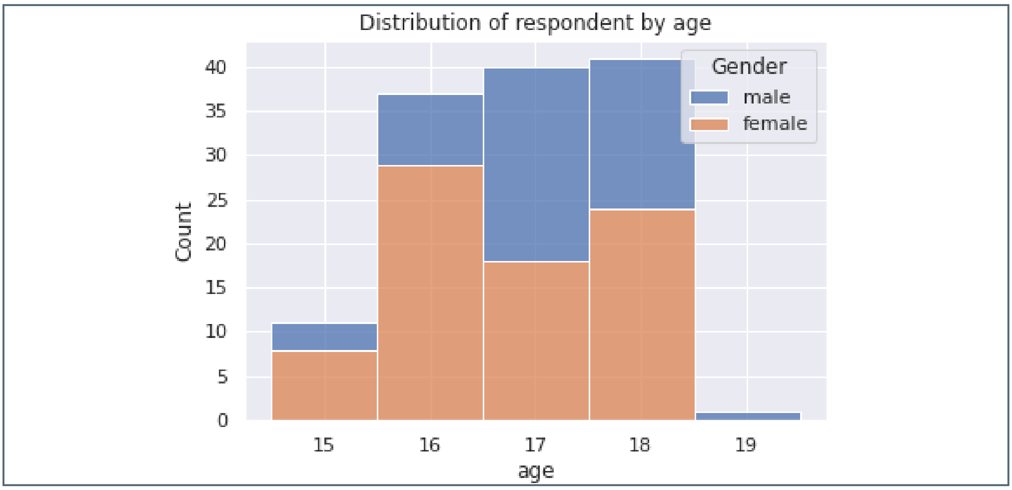

FIGURE 2: *Distribution of respondents by age and gender*

Source: own processing, 2023

The respondents' attitudes towards the selected topics (Covid-19, global warming, and the European Union) were obtained by summing their ratings for each statement shown in the first questionnaire, multiplying denialist statements' scores by -1. They answered six questions on each topic, thus they could obtain scores ranging from -12 to 12. A negative score indicates a denialist attitude and a positive score an alarmist attitude. The resulting distribution of players for the different topics is shown in Figure 3. In the graphs we can see that the distribution of views is different for each topic: while for global warming the majority of players have a fairly alarmist attitude, for Covid-19 their attitudes are mostly slightly denialist or slightly alarmist, and the European Union is perceived by the majority without a clear negative or positive attitude.

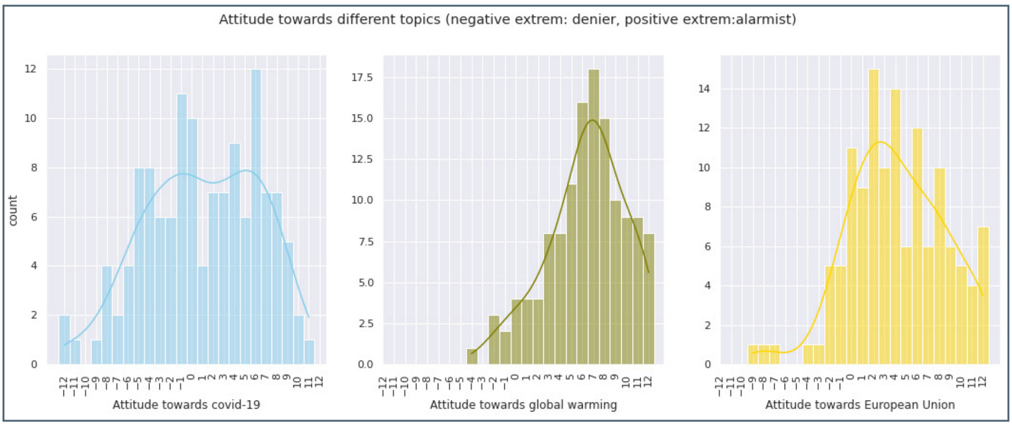

FIGURE 3: *Attitudes or respondents toward different topics. The negative extreme means a denier attitude and the positive extreme means an alarmistic attitude*

Source: own processing, 2023

The attitudes of the respondents were also tracked by age and gender (see Figure 4). The graphs indicate that fifteen-year-old boys are most likely to take a denialist attitude toward Covid-19, with this tendency turning to a mildly alarmist attitude with increasing age, for both boys and girls. This phenomenon is difficult to explain without further research, but we can assume that with increasing age, students are better informed about the topic of Covid-19 and therefore perceive the threats more clearly. On the other hand, we did not observe an improving success rate by age when determining the truthfulness of the articles, so this hypothesis still requires further and deeper research.

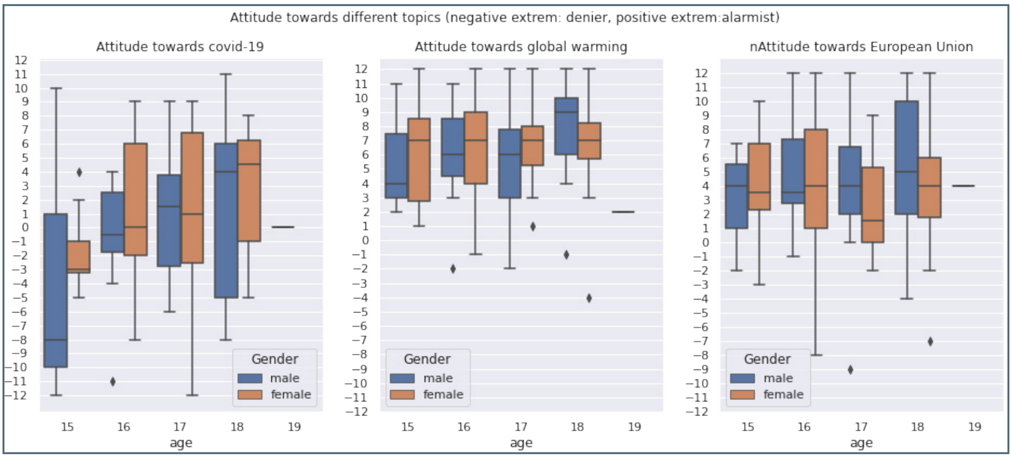

FIGURE 4: *Attitudes towards different topics split by age and gender*

Source: own processing, 2023

A slightly increasing age-related alarmist attitude can also be observed in the case of global warming, especially among boys, while girls tend to adopt an alarmist attitude irrespective of their age. In the case of the perceptions of the European Union, changes by age are minimal; one possible explanation for this phenomenon is the growing apathy of young people toward traditional politics.[27]

Based on the obtained data, we tested our hypotheses. Results for identical questions showed no significant improvement in either accuracy ($p = 0.85$) or confidence ($p = 0.98$) in determining the truthfulness of the articles displayed. On the other hand, in the case of the switched articles, we observed a statistically significant improvement in both accuracy ($p = 0.0002$) and confidence ($p = 0.0005$). The problem with the results for different articles is that the new articles may have been objectively easier to judge and we cannot positively claim that the improvement was due to the game, especially when considering the results for identical questions where we did not observe an improvement. A summary of the results is shown in Figure 5. In the graphs we can see a rather tendency toward worsening results for both determining the truthfulness of the news and for self-confidence. These results do not necessarily suggest that the game has a negative effect on players; on the contrary, we can assume that after playing, players were more cautious in determining the truthfulness of news and were more skeptical than before playing, which is appropriate behavior when reading unverified news from unknown sources. This phenomenon, however, requires further research.

[27] See: SLOAM, J.: New Voice, Less Equal: The Civic and Political Engagement of Young People in the United States and Europe. In *Comparative Political Studies*, 2012, Vol. 47, No. 5, p. 663-688.

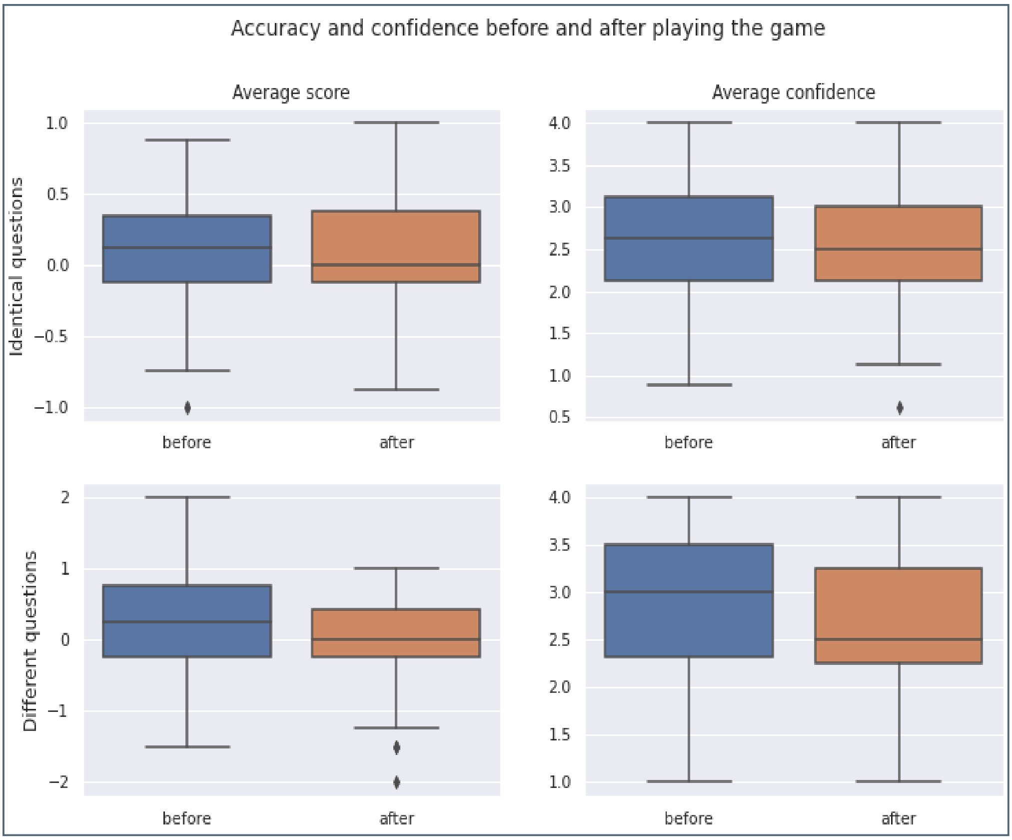

FIGURE 5: *Accuracy and confidence during the questionaries before and after playing the game*

Source: own processing, 2023

Based on the results by topic, it was found that students had most difficulty in determining the veracity of the articles about global warming, scoring a mean total score of -0.59 on a scale of -16 to 16 (4 questions for each topic, both before and after the game, and they could score -2 to 2 for each question), with a mean total score of 0.74 for Covid-19 and 1.72 for the European Union. These results suggest that the questions in the questionnaire were difficult, and for better results, it is advisable to repeat the experiment with a different set of questions.

We also looked at the correlation between attitude toward a topic and success in determining the truthfulness of articles. The results are shown in Figure 6. A slight positive correlation can be seen in the case of Covid-19, where an alarmist attitude is indicated by higher questionnaire scores. For the other two topics, we did not observe a similar phenomenon and there does not appear to be any correlation between attitude and success in determining the truthfulness of articles.

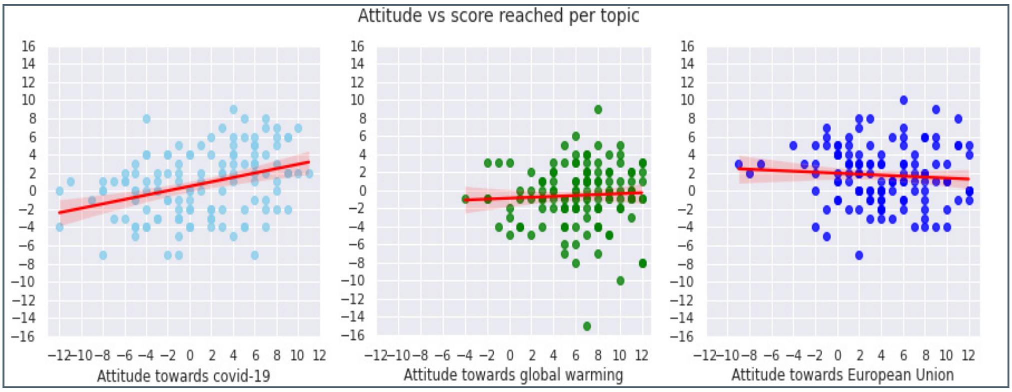

FIGURE 6: *Players' attitudes vs score reached in questionaries per topic*

Source: own processing, 2023

4 Discussion

In the experiment, we collected data to gain a better insight into the level of critical thinking of high school students in Western Slovakia, and at the same time, we verified the benefits of the *Follow Me* card game. Although we were unable to show satisfactory improvement after playing and thus could not support our hypotheses, we did gain valuable knowledge.

The data on attitudes suggest that high school students have a relatively strong perception of the threat of global warming, while for Covid-19 and the European Union we found a greater number of negative views. The "success" of global warming may also be due to the fact that the issue has not been the subject of sharp political debate in Slovakia (compared to the USA, for example), but a more or less uniformly alarmist view is being promoted. On the contrary, the other two topics have been more often used for polarization and are the subject of a lot of fake news in our area as well.

Among the limitations of the research is that (based on the results) some articles were too difficult to evaluate without the ability to search for information online, and therefore most respondents rated them as fake, for which they lost points, hence the rating of these articles did not provide fully relevant information. On the other hand, the fact that students were rather doubtful about most of the articles suggests that they are aware of the dangers of fake news and are therefore more likely to be suspicious early on and tend to label the news as false.

Another limitation of the research was the high level of detail in the articles displayed, due to which we were unable to measure the change in identifying fake news. This granularity may have made it easier for the students to remember the articles in question and their responses to them at the beginning, and they automatically gave the same answers in the post-play questionnaire without thinking or reading the articles again. This is also indicated by the fact that they spent on average ten seconds less on the articles on the second reading than on the first reading (average of 25.65 seconds vs. 14.52 seconds).

Despite the unfavorable statistical results, we were able to use the *Follow Me* game during the experiment to open up the topic of fake news and discuss current issues with students that are not always a topic in the traditional lesson. Our experiment took three classes (45 minutes each), but without the questionaries, the game is playable with debriefing within two classes without any time pressure, so it can be easily implemented into formal education as well.

During the experiment, we also observed the effectiveness of the mechanics of the *Follow Me* game. The topic of the game itself is close to high school students, as most of them use social networks on a daily basis, so the concepts of sharing news and collecting followers are familiar to them. Due to this, most of them had no problem immersing themselves in the game and focusing on achieving their in-game goals. The game offers a safe environment to experiment for sharing different news without players knowing whether they share true or false information.

The game represents quite accurately the principle of fact-checking. Players have the opportunity to select one article from their opponents during their round and apply fact-checking to it, i.e., use the included factsheet to verify whether it is a true news story or a hoax. This fact-checking is an important element of the game, as it allows players to gain or lose credibility, which has a direct impact on the number of their followers. At the same time, players may experience the sense of failure and disappointment when they find out that an article they thought was true is actually a lie. By being a game, this setback is only temporary, but may motivate players to be more careful in real life and to verify messages more carefully before sharing. Besides that, this mechanic teaches players about the use of fact-checking, which can be helpful for them in everyday life as well.

One of the important positives of the game is the detailed methodology for educators that helps to manage the debriefing session after the game has been played. This debriefing is primarily used to discuss the player's experience of the game and to point out parallels with the real world. The debriefing is carried out as a discussion with the students, where the educator does not give them direct answers to all the questions, but just tries to guide them, based on the game experience. A good example is a question about the characteristics of fake news, which the students were able to list due to the fact that during the gameplay they had had the opportunity to experience the difficulty of distinguishing between true and false information and had been forced to look for certain characteristics to guess the truthfulness of the articles in the game. So in this case, debriefing reinforces the inoculation effect, helps students to recapitulate the knowledge gained during the gameplay, and directs them to be cautious of fake news in everyday life as well. Based on our experience, the students were very active and open during these discussions, they were giving positive feedback on the game and they were able to point out the knowledge they could transfer from the game to everyday reality.

A possible problem with debriefing is that its effectiveness is conditioned by the good preparation of the educator, who should have a clear understanding of the issues and be technically and personally prepared to answer questions of various kinds and to address any differences of opinion among students in an assertive manner. For these purposes, the above-mentioned methodological manual created by the authors of the game is an excellent tool, containing explanations of basic concepts, examples of questions, references to other sources, and sample activities.

During the experiment, we were also able to map out some problematic aspects of the game design, which include the difficulty of the rules and a large number of different cards at the desk. The game may seem too complicated at first glance, but it is a suitable simulation of a social network where users are also overwhelmed with information. On the other hand, this means that players may have difficulty getting started and may lose interest before they even get into the game. Therefore it is crucial for the educator to intensively help the students to start the game and understand the basic rules. To this end, the authors of the game have also created a short video to present the rules, but in our experience, this was not entirely sufficient on its own, so we recommend briefly going through the rules with the students before playing and helping them to start the first round.

5 Conclusion

The mass spread of fake news poses an ever-increasing danger to society as a whole as well as to individuals. Fact-checking methods are not effective enough to prevent the spread of fake news and therefore the most effective solution seems to be prevention, the development of critical thinking, which makes it easier for people to detect fake news. Game-based learning, i.e., games that contain mechanics with an educational purpose, also contributes to the development of critical thinking. The key to success of these games is that they offer players a safe environment to experiment and learn. This knowledge acquired during gameplay can then be used by players in real-life situations.

In this paper, we worked with the *Follow Me* game and investigated its impact on players' critical thinking. For this reason, we conducted an experiment on 130 high school students. The experiment consisted of three questionnaires, playing the *Follow Me* game itself and a debriefing session after playing it, according to the methodologies prepared by the authors of the game. Although we were unable to show a significant improvement in the students' ability to recognize fake news due to the limitations of the experiment, the fact that the students tended to distrust and were skeptical of the news may be a light of hope. We also obtained valuable information on the attitudes of students in our region regarding three frequently discussed topics: Covid-19, global warming, and the European Union. We observed that students tended to take an alarmist attitude in the case of global warming, but for the other topics there were a higher number of respondents with negative attitudes.

At the same time, during the experiments, we tested the use of the *Follow Me* game in a formal educational process and found that the game is suitable for such use. It can be played in a traditional 45-minute lesson, and it is appropriate to make up two class periods for playing it in conjunction with debriefing. The game was able to engage the students, but at the beginning, they had problems understanding the rules, so increased attention from the educator at the beginning of the game is crucial. The debriefing after the game offers an excellent opportunity to address the topic of fake news from several perspectives and to start a discussion with the students.

This experiment provided us with useful information about the effectiveness of the game mechanics used in *Follow Me*, which could be used as a basis for creating new games on this and other themes in the future. In future work, it will be useful to focus on a larger sample of players with a modified data collection methodology for even more relevant results that could help to obtain more accurate information about the effectiveness of the *Follow Me* game. Another goal of the authors is to conduct a comparable experiment with other educational games in order to benchmark the results obtained and find the game mechanics that can be most effectively used to develop critical thinking.

Acknowledgement: The research was supported by the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences (VEGA, No. 1/0458/21) under the project entitled "Management of the "groundswell" concept by business entities in promotion of environmentally-friendly products in times of technology interference".

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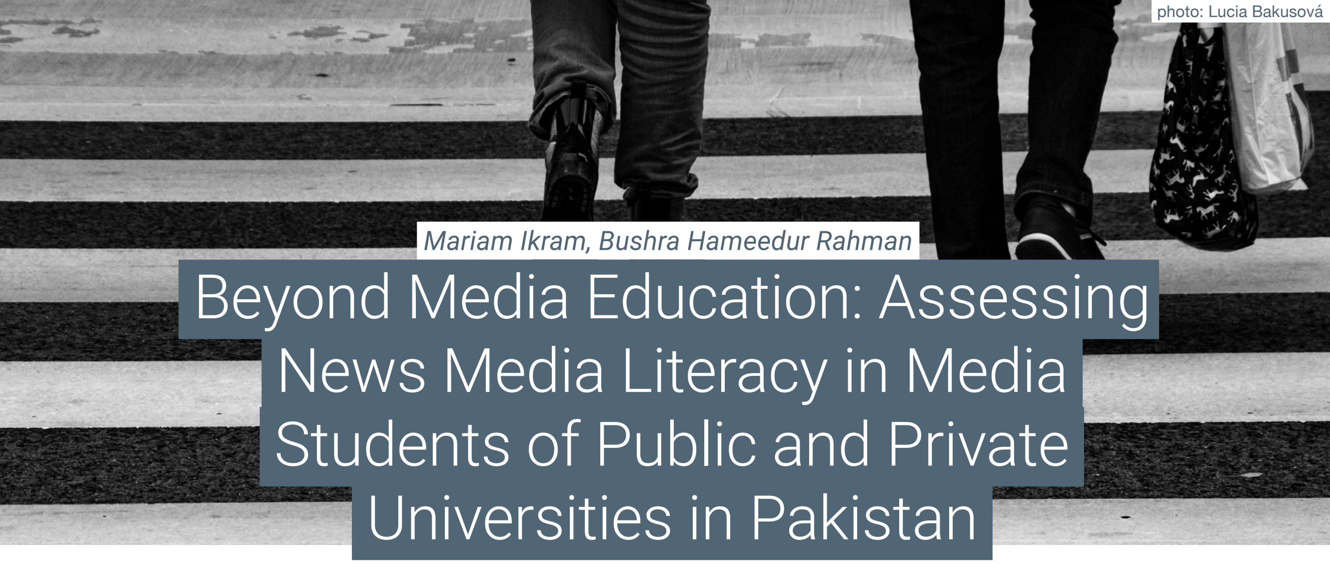

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Mariam Ikram, Bushra Hameedur Rahman

Beyond Media Education: Assessing News Media Literacy in Media Students of Public and Private Universities in Pakistan

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ABSTRACT

Infiltration of mass media has increased the exigency of tools necessary for countering the hazardous effects of mass media. Media literacy is considered a tool essential in the 21st century for a democratic society that aims to empower the audience and provides autonomy over mass media messages. Media education plays a significant role in educating media students about theoretical and practical knowledge about media industries. The researcher has employed the “Cognitive Model of Media Literacy” proposed by Potter (2004) and seven skills of media literacy suggested by Potter (2019), particularly as related to news content. News media is supposed to be highly objective, but highlighting some news while neglecting others raises questions about the objectivity of news media. The study intends to explore the standard of media education in Pakistan in imparting news media literacy among media students enrolled in BS and Master’s degree programs. To analyze the level of theoretical and practical knowledge of media students regarding news media and their level of news literacy skills, the researcher has collected data using a cross-sectional survey of 300 students (N=300) enrolled in two public and two private universities in Pakistan, including 200 media students and 100 non-media students. Moreover, through content analysis of the curriculum of media studies mentioned in the prospectus of BS and Master’s degree programs, the standard of media education in Pakistan is also assessed. The study’s findings suggest that media students are more news media literate than non-media students, highlighting the significance of media education. Similarly, consciously and excessively consuming news media also positively affects the level of news media literacy in media students. Moreover, this study suggests that while performing information processing tasks, media students are equipped with skills to perform the task of news filtering comparatively better than meaning construction tasks. However, content analysis of the curriculum reveals that the majority of the courses related to news content focus on theoretical and practical knowledge while neglecting the significance of incorporating analytical courses crucial to harness critical thinking skills. The findings elucidate that universities offering analytical courses in their BS and Master levels scored higher in their news media literacy than those not offering analytical courses. Therefore, the study suggests the incorporation of analytical courses at BS and Master level media education curricula to develop essential skills for performing meaning construction tasks effectively.

KEY WORDS

Analytical Courses. Critical Thinking Skills. Curriculum. Media Education. Media Literacy. News Media. News Media Literacy. News Literacy Skills.

1 Introduction

The inevitable role of media in the field of information, education, socialization, and entertainment is commendable. Among all the media contents, news media content is claimed to be the true representation of reality and provides factual information. News media plays a significant role in providing information to the audience about events around the world. It not only informs people but also educates citizens. However, an empirical study conducted by Schwarz[1] shows that news is not free from biasedness and that news content is constructed to serve the interest of news media organizations.

The pervasiveness and dominance of news media in Pakistan are offering a number of challenges to the audience. The credibility and authenticity of news have become mere fiction in the race between news media industries. Information influx destroys the audience's information processing, handling, retaining capacity, and analytical skills required to differentiate facts from fiction and truth from gimmicks.[2] So, in order to make people aware of hidden ideologies behind the creation of news content, components of media literacy are applied specifically to the news content, thus originating the concept of news media literacy.

News media literacy comes under the umbrella of Media literacy and is considered as a "sub-discipline" of media literacy, as pointed out by Mihailidis.[3] Broadly, News media literacy can be defined as the ability to identify credible and authentic information from the information flow and judge news content by using critical thinking skills.[4]

News media literacy has become vital for making citizens more vigilant and critical of news content. Empirical studies suggest that media literacy has become imperative and crucial in this media-saturated world. In order to transform citizens from "wired to wise"[5] and "couch potatoes to critical citizens"[6], media literacy is necessary.

The term media literacy, generally, and news media literacy, particularly, is in its infancy in Pakistan. In contrast, the rest of the world is conducting research and proposing a plan of action to make media literacy a part of the curriculum in schools. The study aims to analyze the news literacy level and news literacy skills of media students and evaluate the significance of the media education system in Pakistan in promoting news media literacy. The researcher intends to suggest media academicians and policymakers to design a plan or strategy in order to promote news media literacy, at least at the level of media studies. In addition to this, the researcher also identifies and understands knowledge gaps in media students regarding news media literacy and makes suggestions to address these gaps in media education.

1 See: SCHWARZ, F.: *Media Literacy and the News*. Zwolle : Windesheim School of Media in Zwolle, 2012.

2 VASSILIOU, A.: *What's Your News? How Newspapers and News Media Drive Media Literacy.* [online]. [2023-03-24]. Available at: <http://nieuwswijsheid.nl/wp-content/uploads/2016/08/2013-10-13_ENPA_Whats_your_news.pdf>.

3 MIHAILIDIS, P.: New Civic Voices & the Emerging Media Literacy Landscape. In *Journal of Media Literacy Education*, 2011, Vol. 3, No. 1, p. 5.

4 POWERS, E.: *Teaching News Literacy in the Age of New Media: Why Secondary School Students Should Be Taught to Judge the Credibility of the News They Consume*. [Master's Thesis]. St. Louis, MO : Washington University, 2010, p. 455, See also: VASSILIOU, A.: *What's Your News? How Newspapers and News Media Drive Media Literacy.* [online]. [2023-03-24]. Available at: <http://nieuwswijsheid.nl/wp-content/uploads/2016/08/2013-10-13_ENPA_Whats_your_news.pdf>; KLURFELD, J., SCHNEIDER, H.: *News Literacy: Teaching the Internet Generation to Make Reliable Information Choices.* Washington, DC : Brookings, 2014. [online]. [2023-03-24]. Available at: <https://www.brookings.edu/wp-content/uploads/2016/06/Klurfeld-SchneiderNews-Literacyupdated-7814.pdf>.

5 See: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004.

6 ROSENBAUM, J. E., BEENTJES, J. W. J., KONIG, R. P.: Mapping Media Literacy Key Concepts and Future Directions. In *Annals of the International Communication Association*, 2008, Vol. 32, No. 1, p. 343.

1.1 Media Literacy and Media Education

Since media literacy is a broad and diverse concept, no common definition, conceptual framework, or approach exists. In this modern era, the exponential growth of information and communication technologies has given impetus to other forms of literacies besides the general concept of literacy associated with reading and writing. Emerging forms of literacies include "computer literacy", "internet or cyber literacy", "new media literacy", "digital literacy", etc. Alam claims that the concept of media literacy is not novel in this era of technology. It is assumed that it evolved during the 1960s. Marshall McLuhan and John Culkin are considered the early proponents of Media literacy.[7]

Media literacy is a "multifaceted phenomenon"[8], and different definitions have emerged according to researchers' views belonging to different fields. Media literacy is usually associated with the acquisition of critical thinking skills.[9] The infiltration of mass media is giving pace to the importance of incorporating media literacy into the media education curriculum. Media literacy empowers the audience against the negative effects of media, thus providing them autonomy over the influence of media messages[10] and in developing critical thinking skills.[11]

Some scholars view media literacy and media education as akin to each other and stress that media education plays a vital role in imparting media literacy. In contrast, others claim that both are different approaches. Among the scholars, assuming media literacy and media education as two distinct branches, Lewis and Jhally view media education as a "textual approach", whereas media literacy is seen as a "contextual approach". So, they exert that media literacy is considered a reformative approach to media education and provides context to the text of media education.[12] Transformed media education is considered a vital component of the propagation of media literacy. Media literacy is also considered an "up-shoot of media education", an advanced form of traditional media education.[13]

Similarly, Mihailidis focuses on reforming media education. He argues that Media literacy is an up-shoot of media education that makes the student able to *"access, analyze, evaluate, critically think and produce media messages".* If these media literacy skills are not incorporated into media education, then media education will be failed to educate.[14] Banerjee and Kubey claim that "media literacy education" teaches us to understand the latent meanings of the media content and critically look into the media messages.[15]

7 ALAM, A.: *Media Literacy in Pakistan*. Jodhpur City, Rajasthan : Institute for Research, Advocacy and Development (IRADA), 2012, p. 4.

8 See: MARTENS, H.: Evaluating Media Literacy Education: Concepts, Theories and Future Directions. In *Journal of Media Literacy Education*, 2010, Vol. 2, No. 1, p. 1-22.

9 See: MASTERMAN, L.: *Teaching the Media*. London : Comedia, 1985.

10 HOBBS, R. et al.: Learning to Engage: How Positive Attitudes About the News, Media Literacy, and Video Production Contribute to Adolescent Civic Engagement. In *Educational Media International*, 2013, Vol. 50, No. 4, p. 242. See also: AUFDERHEIDE, P.: *Media Literacy: A Report of the National Leadership Conference on Media Literacy*. Washington, DC : The Aspen Institute, 1993; ŞIŞMAN, B., YURTTAŞ, Ö. U.: An Empirical Study on Media Literacy from the Viewpoint of Media. In *Procedia - Social and Behavioral Sciences*, 2015, Vol. 174, p. 798-804.

11 LIVINGSTONE, S. et al.: *Adult Media Literacy: A Review of the Research Literature*. London : London School of Economics and Political Science, 2005, p. 27; SCHMIDT, H.: Media Literacy Education at the University Level. In *The Journal of Effective Teaching*, 2012, Vol. 12, No. 1, p. 69.

12 See: LEWIS, J., JHALLY, S.: The Struggle Over Media Literacy. In *International Communication Association*, 1998, Vol. 48, No. 1, p. 109-120.

13 MIHAILIDIS, P.: New Civic Voices & the Emerging Media Literacy Landscape. In *The National Association for Media Litercay Education's Jounal of Media Literacy Education*, 2011, Vol. 3, No. 1, p. 4-5.

14 MIHAILIDIS, P.: *Beyond Cynicism: How Media Literacy Can Make Students More Engaged Citizens*. [Dissertation Thesis]. College Park, MD : Faculty of the Graduate School of the University of Maryland, 2008, p. 189.

15 See: BANERJEE, S. C., KUBEY, R.: Boom or Boomerang: A Critical Review of Evidence Documenting Media Literacy Efficacy. In VALDIVIA, A. N., SCHARRER, E. (eds.): *The International Encyclopedia of Media Studies*. Hoboken, NJ : John Wiley & Sons, 2013.

It is evident from the above-mentioned studies that previous researchers were unable to develop a common definition and conceptual framework of media literacy, and no consensus has been developed on the relationship between media literacy and media education. After reviewing the literature on media literacy, Potter suggests that there are seven common themes upon which all the scholars of media literacy can agree. First, the impact of a single media message cannot be ignored. Secondly, its impact can be observed on social institutions. Thirdly, people using mass media passively are more vulnerable to being affected by media messages. Fourthly, the purpose of media literacy is to provide autonomy to people and assist them in changing themselves from "wired to wise". The fifth common theme upon which scholars of media literacy agree is conscious development by the person if he/she agrees to develop. Another consensus is found that media literacy is multi-dimensional. The last theme upon which consensus is found is that acquiring skills is more important than acquiring knowledge to be deemed media literate.[16]

1.2 News Media Literacy and Skills

With the immense growth of information communication technologies, Cope and Flanagan note that students face information overload, which does not allow them to sift information and form their own decisions.[17]

Some scholars associate media literacy with news literacy.[18] Maksl et al. claim that news media literacy is the adoption of the model of media literacy in order to decode news media messages efficiently by keeping the journalistic practices of framing and the political economy of news media organizations, which shape the media content. He defines "news media literacy" as *"the knowledge and motivations needed to identify, appreciate and engage with quality journalism".*[19] According to Vraga and Tully, news media literacy promotes an understanding of individuals towards the process of news construction and the media's role in democracy. It makes them able to identify biased news content through critical thinking.[20] Similarly, Vassiliou asserts that news media literacy authorizes people to identify "facts from propaganda", "analysis from banter", and "important news from coverage".[21]

Some researchers define media literacy in terms of a specific set of skills that should be acquired in order to be deemed as media literate.[22] Klurfeld and Schneider define news literacy as the ability to judge the credibility and authenticity of news articles and sources by using critical thinking skills. While Schwarz defines news media literacy as *"the ability to critically evaluate, interpret and process as well as participate in news media and journalistic content to*

16 POTTER, W. J.: Review of Literature on Media Literacy. In *Sociology Compass*, 2013, Vol. 7, No. 6, p. 425.

17 See: COPE, J., FLANAGAN, R.: Information Literacy in the Study of American Politics: Using New Media to Teach Information Literacy in the Political Science Classroom. In *Behavioral & Social Sciences Librarian*, 2013, Vol. 32, No. 1, p. 3-23.

18 See: KLURFELD, J., SCHNEIDER, H.: *News Literacy: Teaching the Internet Generation to Make Reliable Information Choices*. Washington, DC : Brookings, 2014. [online]. [2023-03-24]. Available at: <https://www.brookings.edu/wp-content/uploads/2016/06/Klurfeld-SchneiderNews-Literacyupdated-7814.pdf>.

19 MAKSL, A., CRAFT, S., ASHLEY, S.: *Measuring News Media Literacy: How Knowledge and Motivations Combine to Create News-Literate Teens*. Washington, DC : McCormick Foundation, 2013, p. 5.

20 VRAGA, K. E., TULLY, M.: News Literacy, Social Media Behaviors, and Skepticism Toward Information on Social Media, Information. In *Information, Communication & Society*, 2021, Vol. 24, No. 2, p. 162.

21 VASSILIOU, A.: *What's Your News? How Newspapers and News Media Drive Media Literacy.* [online]. [2023-03-24]. Available at: <http://nieuwswijsheid.nl/wp-content/uploads/2016/08/2013-10-13_ENPA_Whats_your_news.pdf>.

22 SCHMIDT, H.: Media Literacy Education at the University Level. In *The Journal of Effective Teaching*, 2012, Vol. 12, No. 1, p. 67. See also: POTTER, W. J.: *The Skills of Media Literacy*. Santa Barbara, CA : Knoweldege Assets, 2014; LIVINGSTONE, S.: *The Changing Nature and Uses of Media Literacy*. London : The LSE Department of Media and Communications, 2003.

be active citizens in a democratic society".[23] Maksl et al. note that if the audience is completely aware of news production techniques, they are better positioned to analyze news content.[24]

1.3 Scale for Media Literacy Assessment

Like media literacy skills, there is a lack of consensus on the set of skills required in order to be deemed as news media literate. News Media literacy is a very diverse concept and "multi-dimensional"[25], so it is impossible to measure news media literacy on one scale.

A review of empirical studies reveals that only a few researches have been conducted to measure news media literacy. Furthermore, Cheung asserts that literature related to media literacy reveals that little has been researched on the media literacy skills possessed by media students when they enter and leave media education institutes. Also, more media literacy studies are carried out in the West compared to the East.[26]

Greater emphasis has been laid on the inclusion of critical analytical abilities and contextual approaches in media education. Many researchers conducted surveys to assess the audience's media literacy level and stressed that media literacy should be incorporated into the schools' curriculum. Only a few researches have been conducted which can suggest policies for the reformation of media education by incorporating media literacy. Maksl et al. have measured news media literacy. They designed a news media literacy scale based on Potter's *Theory of Media Literacy* and used it for news media only. The findings of their study suggest that news media literate teenagers are able to consciously process the news and possess knowledge about current affairs and the structure and ownership of news organizations.[27]

This study has explored new dynamics of media literacy by targeting news media content only, making its research related to news media literacy. It is evident from the literature that only a few researches have been conducted to evaluate media literacy in Pakistan. So the researcher attempts to evaluate the level of news media literacy of media students and assess the standard of media education in Pakistan. In addition, the researcher aims to explore the standard of media education provided at BS and Master levels in public and private universities by establishing a link between the knowledge about news media provided through media education and the inculcation of critical thinking skills in the form as specified by Potter.[28]

1.4 Objectives

The researcher intends to explore the following areas through this study.

1. To analyze the significance of media education at the BS and Master level in promoting news media literacy among media students.
2. To evaluate the standard of media education and the differences in the media education curriculum provided at public and private universities.

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[23] See: SCHWARZ, F.: *Media Literacy and the News*. Zwolle : Windesheim School of Media in Zwolle, 2012.

[24] See: MAKSL, A., ASHLEY, S., CRAFT, S.: Measuring News Media Literacy. In *Journal of Media Literacy Education*, 2015, Vol. 6, No. 3, p. 29-45.

[25] VRAGA, E. et al.: A Multi-Dimensional Approach to Measuring News Media Literacy. In *Journal of Media Literacy Education*, 2015, Vol. 7, No. 3, p. 48.

[26] CHEUNG, C.: Education Reform as an Agent of Change: The Development of Media Literacy in Hong Kong During the Last Decade. In *Comunicar*, 2009, Vol. 16, No. 32, p. 99.

[27] See: MAKSL, A., ASHLEY, S., CRAFT, S.: Measuring News Media Literacy. In *Journal of Media Literacy Education,* 2015, Vol. 6, No. 3, p. 29-45.

[28] See: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004. See also: POTTER, W. J.: *The Skills of Media Literacy*. Santa Barbara, CA : Knoweldege Assets, 2014; POTTER, W. J.: *Seven Skills of Media Literacy*. Santa Barbara, CA : Sage Publications, 2019.

3. To investigate the difference between public and private sector universities' media education curricula and its impact on media students' news media literacy scores.
4. To identify loopholes in media education hindering the development of the critical thinking abilities of media students and make suggestions to address these gaps.

2 Theoretical Framework

The researcher has employed the inclusive approach of Potter's "Cognitive Model of Media Literacy" to news content in particular. It focuses on possessing seven media literacy skills and stresses acquiring knowledge about media industries.[29]

Potter conceptualizes media literacy as *"at the foundation of media literacy, there is a set of five well-developed knowledge structures. We build these knowledge structures by using our skills to select information. Then we assemble those selections into meaningful designs. These knowledge structures inform our locus and provide context for the information-processing tasks."*[30] The media literacy model comprises four major factors, including knowledge structures, personal locus, competencies, and skills, that are considered information-processing tools; the fourth factor deals with information-processing tasks. He argues that knowledge structure is comprised of five elements, including knowledge about media content, media industries, media effects, the real world, and the self. According to him, these knowledge structures can be developed through seven media literacy skills, including analysis, evaluation, grouping, induction, deduction, synthesis and abstraction.

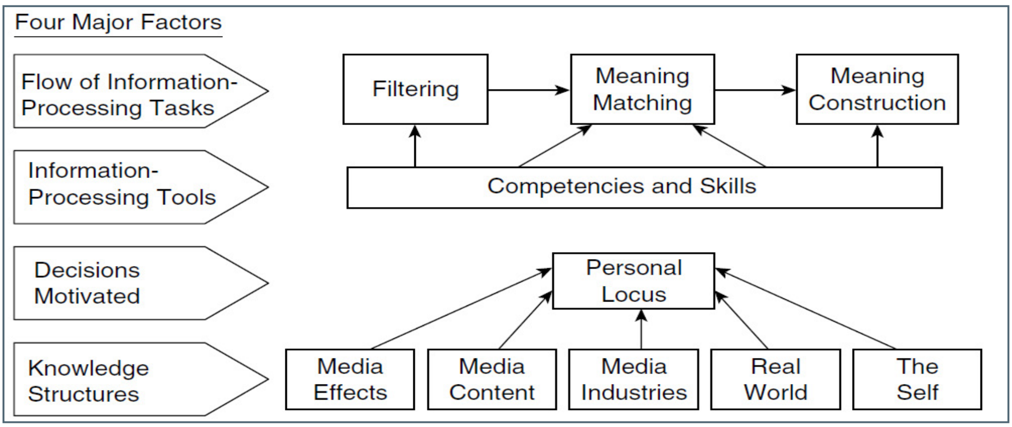

FIGURE 1: *The cognitive model of media literacy*

Source: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004, p. 68.

Potter elucidates that when a person is aware of their goals and drives while using media and consciously looks into the media content, then by using above mentioned seven skills, knowledge structures can be developed.[31] However, the researcher suggests that since the knowledge structure of media students is already developed, seven skills can be developed by critically utilizing the existing knowledge while consciously using media. The researcher adopted this theory specifically to measure news media literacy. As the researcher intends

[29] See: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004. See also: POTTER, W. J.: *The Skills of Media Literacy*. Santa Barbara, CA : Knoweldege Assets, 2014; POTTER, W. J.: *Seven Skills of Media Literacy*. Santa Barbara, CA : Sage Publications, 2019.

[30] POTTER, W. J.: *Media Literacy*. Thousand Oaks, CA : Sage Publications, 2005, p. 39.

[31] See: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004.

to analyze the role of media education in promoting news media literacy in media students, Potter's theory provides all those components that serve the research objectives.

Skill	Task
Analysis	Analysis is the skill used to dig beneath the surface of a message in search for particular elements or breaking down a message into meaningful elements.
Evaluation	Evaluate the credibility and authenticity of news media content with existing knowledge.
Grouping	Combine the elements by comparing and contrasting. Through Comparing, determine the similarity of the elements, while by contrast, determine which elements are different in some way.
Induction	Inferring a pattern across a small set of elements, then generalize it to the entire population.
Deduction	Deduction is using a few premises for logical reasoning toward a conclusion.
Synthesis	Synthesis is the assembling of pieces so that something new is created. That something new is a complex whole. Or the transformation of an older knowledge structure.
Abstracting	Abstracting is the skill of reducing a message into a shorter version that captures the essence of that message.

TABLE 1: *The seven skills of media literacy*

Source: POTTER, W. J.: *Seven Skills of Media Literacy.* Santa Barbara, CA : Sage Publications, 2019, p. 14.

This theoretical framework provides a foundation for this research, as the scale is designed according to its components. According to the proposed model of news media literacy, media education allows the students to understand news media industries and news media content. This understanding helps the students to critically look into the media content by using the seven media literacy skills proposed by Potter.[32] Using the seven skills of media literacy, students can perform information processing tasks of filtering and meaning construction effectively. In addition to knowledge structure and news media literacy skills, another factor drawn from Potter's model of media literacy is personal locus.

In light of the above-mentioned theory, the researcher has adopted components of media literacy proposed in the model of media literacy and applied them to news content and developed the following model for news media literacy.

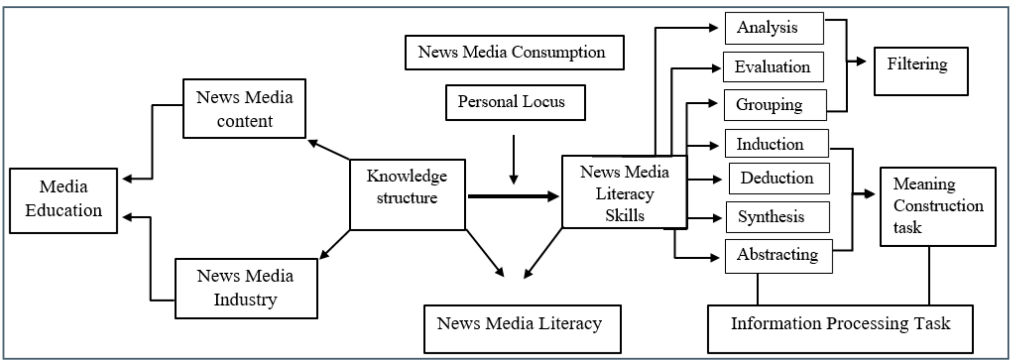

FIGURE 2: *Proposed model of news media literacy used in the study*

Source: own processing, 2023

[32] See: POTTER, W. J.: *Theory of Media Literacy: A Cognitive Approach*. Thousand Oaks, CA : Sage Publications, 2004. See also: POTTER, W. J.: *The Skills of Media Literacy*. Santa Barbara, CA : Knoweldege Assets, 2014; POTTER, W. J.: *Seven Skills of Media Literacy*. Santa Barbara, CA : Sage Publications, 2019.

3 Methodology

The researcher has employed two quantitative methods, i.e., survey and content analysis, and adopted mixed-method research design to provide an in-depth analysis.

In order to evaluate the level of news media literacy in media students and its correlation with media education, the researcher has used a cross-sectional survey method as an instrument to gather desired data from the targeted sample. The researcher designed a questionnaire based on Potter's "Cognitive Model of Media Literacy" specifically to measure news media literacy skills.

The researcher has selected those public and private universities whose department of media education was established at least more than ten years ago. Media students who are enrolled in two public universities, including Punjab University (PU) and University of Sargodha (UOS), and two private universities, including University of Management and Technology (UMT) and Superior University (SU), constitute the population of this research.

The research has selected a sample of 300 students, including 100 non-media students and 200 media students from public and private universities in Lahore and Sargodha, located in the Punjab province of Pakistan, through simple random sampling. The sample size of 300 students includes 75 students, comprising 25 non-media and 50 media students from each university.

In order to provide depth to the study and to evaluate the media education system of the selected four universities, the researcher has used quantitative content analysis of media studies curricula taught at BS and Master levels. In addition, the researcher has analyzed the courses related to news media and their course outlines mentioned in the prospectus and web pages of the universities under study. Through this quantitative research design, the researcher has investigated how the difference in curriculum among the universities under study affects the level of news media literacy of the media students.

3.1 Research Questions

RQ1: Is there a significant difference between news media literacy of media students and non-media students?
RQ2: Does news media consumption affect the level of news media literacy in media students?
RQ3: Is there a significant difference between news media literacy of media students enrolled in public and private universities? If yes, then,

RQ3a: Is there a significant difference in news media literacy scores among the media students enrolled in the four universities under study?

RQ4: How do news media literacy scores vary regarding knowledge structure and news media literacy skills among the media students enrolled in these four universities?
RQ5: Does the curriculum of media education at BS (Hons) and Master's level in public and private universities include courses for developing critical thinking abilities for imparting news media literacy skills along with theoretical and practical courses?

3.2 Hypotheses

H_1: Media students having strong knowledge structure about news media are likely to possess strong news media literacy skills.
H_2: Media students perform the information processing task of filtering comparatively better than the meaning construction task.
H_3: Media students who are more aware of their personal locus are more likely to possess news media literacy.

4 Results and Discussion

In order to test the hypotheses and find answers to the research questions according to the objectives of the study, appropriate statistical analyses like Independent samples t-test, Paired sample t-test, Pearson correlation, one-way ANOVA, and MANOVA are applied by using the Statistical Package for Social Sciences (SPSS) 21.

4.1 News Media Literacy Comparison Between Media and Non-Media Students

To compare the news media literacy score of media and non-media students, an independent samples t-test is applied.

RQ1: Is there a significant difference between news media literacy of media students and non-media students?

Dependent Variable	Student Type	N	M	SD	T	df	Sig. (2- tailed)
News Media Literacy	Media Students	200	154.18	16.890	5.532	290.66	.000
	Non-Media Students	100	145.60	9.895			

TABLE 2: *News media literacy of media and non-media students*

Source: own processing, 2023

Note: In order to analyze the difference in the scores of news media literacy between media and non-media students, an independent samples t-test is applied. The scores of news media literacy for media students (M = 154.18, SD = 16.890) and non-media students, (M = 145.60, SD = 9.895); t (290.66) = 5.532, *p*= .000 (two-tailed) are significantly different. However, the magnitude of the differences in the means is moderate (eta squared = .09).

The scores of news media literacy between media and non-media students indicated that there is a significant difference. Media students are more news media literate compared to non-media students. Hence, it can be inferred from the findings that media education plays a significant role in imparting news media literacy skills to media students.

The findings suggest that media education plays a significant role in making students aware of the evolution and historical development of the news media industries of Pakistan. They are aware of the founders and owners of news media giants in Pakistan. Similarly, knowledge structure about news media content is strong in media students. They are well aware of the different stages involved in the generation of news content and the influence of hidden ideologies on news construction. Therefore, media education provides insight to media students about the news media industry. Moreover, strong media education about news media empowers students with news media literacy skills. They analyze and evaluate the media content more efficiently, and they are able to group news media content on the basis of similarities and differences.

4.2 Correlation Between News Consumption and News Media Literacy

The Pearson correlation is used to investigate the association between news consumption and news media literacy.

RQ2: Does news media consumption affect the level of news media literacy in media students?

ST.	Measure	1	2
Media Students	News Media Consumption	_	.169*
	News Media Literacy	.169*	_

*p < 0.05

TABLE 3: *Association between news media literacy and news consumption of media students*

Source: own processing, 2023

Note: Using the Pearson product ~ moment correlation coefficient, the relationship between news consumption and news media literacy of media students is analyzed. A very small but positive association exists between the two variables, r = .169, n = 200, $p < .017$.

There is a small positive association between news media consumption and the scores of news media literacy of media students.

The results of this study reveal that those media students who excessively consume news media are news media literate compared to those who do not consume news media. Regular news media consumers can better analyze the media content and develop critical thinking, which helps them to develop news media literacy skills and build their knowledge structure. When a person regularly watches or reads news media, they can understand latent meanings and hidden ideologies of the media industries so that they do not abruptly make decisions. In fact, they critically analyze, evaluate, and group the news media content and then draw conclusions from it.

4.3 Association Between Knowledge Structure and News Media Literacy Skills

In order to examine the association between knowledge structure and news media literacy skills, the researcher has applied the Pearson correlation.

H_1: Media students having strong knowledge structure about news media are likely to possess strong news media literacy skills

ST.	Measure	1	2
Media Students	Knowledge Structure	_	.420**
	News Media Literacy Skills	.420**	_

**$p < 0.01$

TABLE 4: *Correlation between knowledge structure about news and news media literacy skills of media students*

Source: own processing, 2023

Note: The Pearson product ~ moment correlation coefficient is used to determine and investigate the relationship between knowledge structure about news and news media literacy skills of media students. There exists a medium but positive association between the two variables, r = .420, n = 200, $p < .000$.

There is a medium, positive correlation between knowledge structure and news media literacy skills of media students. Hence H_1 is accepted. It strengthens the claim that knowledge about news media industries, construction, and structure of news media content enhances news media literacy skills in media students. Knowledge structure empowers the individual to look critically into the media content and sharpen their news media literacy skills. In other words, it can be assumed that media education helps media students to build their knowledge structure and through which they can develop the seven media literacy skills that Potter proposes.

4.4 Comparison Between Information Procession Tasks

A paired samples t-test is applied to compare the performance of the media students on the information processing task of filtering and meaning construction task.
H_2: Media students perform the information processing task of filtering comparatively better than the meaning construction task

Information Processing Task	M	SD	t	df	Sig. (2-tailed)
Filtering Task	43.62	6.442	5.045	199	.000
Meaning Construction Task	41.30	4.279			

n= 200

TABLE 5: *Comparison between the information processing task of filtering and meaning construction task*

Source: own processing, 2023

Note: The performance of the media students on the information processing task of filtering and meaning construction task is assessed through a paired samples t-test. The scores of the media students on the information processing task of filtering (M= 43.62, SD= 6.442) are statistically significantly higher than the meaning construction task (M= 41.30, SD= 4.279), t (199) = 5.045, p = .000 (two-tailed). The magnitude of the difference between the two variables is moderate, eta squared (0.11).

Media students scored higher in performing the information processing task of filtering better than the meaning construction task. Hence H_2 is proved. Analysis of news media literacy skills of the media students reveals that it can be inferred from the findings that out of the seven skills suggested by Potter, media students are good at analysis, evaluation, and grouping, which are used for performing filtering tasks. In contrast, they are weak in the skills used for performing meaning construction tasks, including induction, deduction, synthesis, and abstracting.

4.5 Association Between Personal Locus and News Media Literacy

Pearson correlation is used to investigate the association between personal locus and news media literacy.
H_3: Media students who are more aware of their personal locus are more likely to possess news media literacy

Student Type	Measure	1	2
Media Students	News Media Literacy	_	.186**
	Personal Locus	.186**	_

**p < 0.01

TABLE 6: *Relationship between news media literacy and personal locus of media students*

Source: own processing, 2023

By applying the Pearson product ~ moment correlation coefficient, the relationship between news media literacy and the personal locus of media students is measured. A small but positive association exists between the two variables, r = .186, n = 200, p < .017.

There is a small positive association between Personal locus and the scores of news media literacy of media students, thus accepting H_3.

The results suggest that along with strong media education, it is necessary that media students should be aware of their aims and objectives while using news media. In order to be deemed as news media literate, media students should know the purpose behind using news media content, be aware of the need which they are trying to gratify from the news media, and what are the objectives they are trying to accomplish by watching the news. They should be an active consumer and transform themselves from wired to wise.

4.6 Comparison Between News Media Literacy of Media Students of Public and Private Universities

An Independent sample t-test is applied to investigate the difference in the scores of news media literacy between public and private universities.

RQ3: Is there a significant difference between the news media literacy of media students enrolled in public and private universities?

Independent Variable	Dependent Variable	Sector	N	M	SD	t	df	Sig. (2- tailed)
Media Students	News Media Literacy	Public	100	151.76	18.029	-2.042	198	.042
		Private	100	156.60	15.380			

TABLE 7: *Comparison of news media literacy of media students enrolled in public universities and private universities*

Source: own processing, 2023

Note. By applying an independent-sample t-test, the news media literacy scores for public and private media students are assessed. The scores for media students of public universities (M = 151.76, SD = 18.029) show a significant difference from media students of private universities (M = 156.60, SD = 15.380); t (198) = -2.042, *p* = .042 (two-tailed). The magnitude of the differences in the means is small (eta squared = 0.02).

The scores of news media literacy of media students enrolled in public and private universities showed that they were significantly different.

4.6.1 Level of News Media Literacy in the Media Students Among Universities

In order to analyze the scores of news media literacy of media students of each university and the standing of each university compared to other universities, the researcher has applied a one-way ANOVA test.

RQ3a: Is there a significant difference in news media literacy scores among the media students enrolled in the four universities under study?

Name of the Universities	N	M	SD	F	Df	Sig. (2-tailed)
Punjab University	50	162.64	15.207			
University of Sargodha	50	140.88	13.560	22.912	3	.000
University of Management & Technology	50	160.76	15.638			
Superior University	50	152.44	14.073			

TABLE 8: *Level of news media literacy in the media students in four universities*

Source: own processing, 2023

Note: One-way between-groups analysis of variance is applied to analyze the difference in news media literacy of the students among all four universities. The news media literacy scores of universities with F (3, 196) = 22.912, *p* = .000, confirm a statistically significant difference. Media students of Punjab University and University of Management and Technology scored highest in news media literacy, Superior University stood second, and University of Sargodha scored lowest.

On the broader level, findings reveal that media students of Punjab University and University of Management and Technology are highly news media literate as compared to the media students of Superior University and University of Sargodha. It can be assumed that Punjab University ranked highest among public universities, whereas the University of Management and Technology ranked highest among private universities.

The reason behind this hierarchy can be understood from the fact that Punjab University is one of Asia's largest universities and considered as Pakistan's oldest university, established in 1882. As Ashraf and Chaudhry's study reveals that the department of mass communication in Punjab University is the *"oldest seat of learning, and it is positioned at the top in Pakistan".*[33] On the other hand, the University of Management and Technology was established in 1990, older than the Superior University in 2000 and the University of Sargodha in 2002. University of Management and Technology is older than the remaining two universities, possesses a creative road map of BS and Master's curriculum for media students, and provides better opportunities for students to interact with media professionals.

High socio-economic status and relevant social contacts[34], suggested by Donohue et al., can also be assumed as the basic reason behind the difference in news media literacy scores. It can also be considered as an important factor contributing to the level of news media literacy. As students enrolled in University of Management and Technology come from high socio-economic status because it is one the most expensive universities, so they have better opportunities in terms of technology, access to the media world, and contacts with media practitioners. Hence, this ultimately increases their understanding of news media and make them more news media literate than other universities.

4.7 Difference Between the Media Students' Knowledge Structure and News Media Literacy Skills

To investigate the difference between the knowledge structures and news media literacy skills of media students enrolled in universities, the researcher has applied MANOVA.

RQ4: How do news media literacy scores vary regarding knowledge structure and news media literacy skills among the media students enrolled in these four universities?

Dependent Variable	Source	N	Mean	SD	F	df	Sig. (2-tailed)
Knowledge Structure	Punjab University	50	117.24	21.640	17.854	3	0.00
	University of Sargodha	50	91.19	23.531			
	University of Management & Technology	50	119.52	21.954			
	Superior University	50	106.48	19.203			

33 ASHRAF, A., CHAUDHRY, N. I.: Media Education in Pakistan: Curricula, Facilities and Practices in Public Sector Universities. In *International Journal of Humanities and Social Science*, 2013, Vol. 3, No. 20, p. 190.

34 DONOHUE, G. A. et al.: Mass Media and the Knowledge Gap a Hypothesis Reconsidered. In *Communication Research*, 1975, Vol. 2, No. 1, p. 13.

News Media Literacy Skills	Punjab University	50	112.32	9.427	12.866	3	.000
	University of Sargodha	50	101.74	7.666			
	University of Management & Technology	50	109.46	10.100			
	Superior University	50	106.74	8.091			

N = 200
Wilk's Lambda (*p* = 0.00)

TABLE 9: *Comparison between the knowledge structure and news media literacy skills of media students*
Source: own processing, 2023

Note: A one-way between-groups multivariate analysis of variance is conducted to analyze the difference among universities on the basis of knowledge structure and news media literacy skills. Two dependent variables are used: knowledge structure and news media literacy skills. The source of the independent variable was the universities under study. Regarding the combined dependent variables, F (3, 390) ~ 11.322, *p* ~ .000; Wilks' Lambda ~ .725; partial eta squared ~ .148, there is a statistically significant difference among universities. Separate results of the dependent variable show that the differences reaching statistical significance are knowledge structure, F (3, 196) ~ 17.85, *p* ~ .000, partial eta squared ~ .215 and News Media Literacy Skills, F (3, 196) ~ 12.86, *p* ~ .000, partial eta squared ~ .165.

The knowledge structure of media students enrolled in Punjab University, University of Management & Technology, and Superior University is the same, whereas the University of Sargodha scored the lowest. News media literacy skills of media students of Punjab University and University of Management & Technology scored highest, and Superior University is higher than University of Sargodha.

4.8 Curriculum Analysis of Media Studies BS (Hons) Taught in the Four Universities

In order to evaluate the curriculum of media education offered at BS and Master Level in public and private universities, content analysis was employed, and the findings are presented in the following tables.

The researcher has analyzed the curriculum of BS (Hons) in media studies taught in the four universities taken under study through quantitative content analysis.

RQ5: Does the curriculum of media education at BS (Hons) and Master's level in public and private universities include courses for developing critical thinking abilities for imparting news media literacy skills along with theoretical and practical courses?

Name of the universities	Courses at BS level	Courses related to news media *f%*	Theoretical courses *f%*	Practical Courses *f%*	Critical courses *f%*
Punjab University	42	14 (33.3%)	6 (42.9%)	7 (50%)	1 (7.1%)
University of Sargodha	42	14 (33.3%)	7 (50%)	7 (50%)	-
University of Management & Technology	42	13 (31%)	6 (46.2%)	6 (46.2%)	1 (7.6%)
Superior University	40	14 (35%)	7 (50%)	6 (42.9%)	1 (7.1%)

TABLE 10: *Frequencies of the courses at BS (4 years degree program) in the universities*
Source: own processing, 2023

Note: The content analysis of the course outlines of BS (4years degree program) in the universities under study reveals that 42 courses are taught at BS level at Punjab University, University of Sargodha, and University of Management and Technology, whereas 40 courses are taught at Superior University. The researcher has not included final research projects, theses, or internships in the total number of courses. The analysis of the course outline of BS (4 years degree program) suggests that the number of courses related to news media or journalism, including print and electronic media, at Punjab University, are 14 out of 42, constituting 33.33% of the course outline. Punjab University offers 6 out of 14 theoretical courses constituting 42.85%, 7 out of 14 practical courses constituting 50%, and 1 out of 14 critical course, constituting 7.14% of the courses related to news media.

Similarly, the analysis of the course outline of BS (4 years degree program) suggests that the number of courses related to news media or journalism, including print and electronic media in University of Sargodha are 14 out of 42, constituting 33.33% of the course outline. University of the Sargodha offers 7 out of 14 theoretical courses constituting 50%, and 7 out of 14 practical courses constituting 50% of the courses related to news media. However, it does not offer any critical course related to the news media at the BS level.

Likewise, the analysis of the course outline of BS (4 years degree program) suggests that the number of courses related to news media or journalism, including print and electronic media, in University of Management and Technology are 13 out of 42, constituting 31% of the course outline. University of Management and Technology offers 6 out of 14 theoretical courses constituting 46.2%, 6 out of 14 practical courses constituting 46.2%, and 1 out of 13 critical courses constituting 7.69% of the courses related to news media.

In the same way, the analysis of the course outline of BS (4 years degree program) suggests that the number of courses related to news media or journalism, including print and electronic media, at Superior University are 14 out of 40, constituting 35% of the course outline. Superior University offers 7 out of 14 theoretical courses constituting 50%, 6 out of 14 practical courses constituting 42.85%, and 1 out of 14, critical courses constituting 7.14% of the courses related to news media.

Name of the universities	Courses at Master level	Courses related to news media *f%*	Theoretical courses *f%*	Practical Courses *f%*	Critical courses *f%*
Punjab University	21	6 (28.6%)	2 (33.3%)	3 (50%)	1 (16%)
University of Sargodha	20	4 (20%)	2 (50%)	2 (50%)	-
University of Management & Technology	21	5 (23.9%)	3 (60%)	2 (40%)	-
Superior University	20	5 (25%)	3 (60%)	2 (40%)	-

TABLE 11: *Frequencies of the courses at Master (2 years degree program) in the universities under study*

Source: own processing, 2023

Note: The analysis of the course outline of the Master (2 years degree) program proposes that the number of courses related to news media or journalism, including print and electronic media in Punjab University are 6 out of 21, constituting 28.6% of the course outline. Punjab University offers 2 out of 6 theoretical courses constituting 33.33%, 3 out of 6 practical courses constituting 50%, and 1 out of 6 critical course constituting 16% of the courses related to news media.

Similarly, the analysis of the course outline of the Master (2 years degree) program describes that the number of courses related to news media or journalism, including print and electronic media, in University of Sargodha are 4 out of 20, constituting 20% of the course outline. University of Sargodha offers 2 out of 4 theoretical courses constituting 50%, and 2 out of 4 practical courses constituting 50% of the courses related to news media. However, it does not offer any critical course related to news media at the Master level.

Likewise, the analysis of the course outline of the Master (2 years degree) program shows that the number of courses related to news media or journalism, including print and electronic media, at University of Management and Technology is 5 out of 21, constituting 23.9% of the course outline. University of Management and Technology offers 3 out of 5 theoretical courses constituting 60%, and 2 out of 5 practical courses constituting 40% of the courses related to news media. However, no course related to the development of critical thinking abilities is offered.

In the same way, the analysis of the course outline of the Master (2 years degree) program reveals that the number of courses related to news media or journalism, including print and electronic media, in Superior University are 5 out of 20, constituting 25% of the course outline. Superior University offers 3 out of 5 theoretical courses constituting 60%, and 2 out of 5 practical courses constituting 40% of the courses related to news media. It does not offer any course related to critical analysis of news content.

5 Conclusion

The growing infiltration of mass media has given pace to the inclusion of media literacy in media education[35] and in the curriculums of schools, as it is considered an indispensable 21st-century skill[36] that is needed for the propagation of democracy and active citizenship. In order to conclude the findings, the study claims that media students are more news media literate than non-media students. The study confirms the significance of media education in the propagation of news media literacy.

Media education sharpens the critical abilities of media students and enhances their news media literacy skills. It plays a significant role in building a strong knowledge structure about the historical development of news media industries, how news media content is generated, and what factors influence the construction of news media. So it enhances their ability to analyze the media content in terms of its structure and placement, which helps them evaluate news' credibility and authenticity. Hence, it sharpens the analysis, evaluation, and grouping skills needed for the information processing task of filtering in media students. On the other hand, the results indicate that media students are not able to interpret news content and infer meanings from news media, hence are weak in the information processing task of meaning construction. The findings of the study conducted by Memon et al. to assess the news literacy of students of the Sindh province of Pakistan also note that most students are aware of news production techniques.[37]

Furthermore, generally, the results of the study indicate that media students of private universities possess strong news media literacy as compared to the media students of public universities. On the other hand, detailed analysis reveals that news media literacy scores of media students enrolled in Punjab University are highest in public universities, while in private universities, University of Management and Technology scored highest.

Additionally, the results show that media students are more adept in performing the information processing task of filtering as compared to the meaning construction task. One of the reasons behind it can be inferred from the fact that the curriculum of the media education

35 BRYNILDSSEN, S.: *A Review of Trends in Journalism Education.* [online]. [2023-03-24]. Available at: <https://files.eric.ed.gov/fulltext/ED470713.pdf>.

36 VASSILIOU, A.: *What's Your News? How Newspapers and News Media Drive Media Literacy.* [online]. [2023-03-24]. Available at: <http://nieuwswijsheid.nl/wp-content/uploads/2016/08/2013-10-13_ENPA_Whats_your_news.pdf>.

37 MEMON, B. et al.: News Literacy and Content Contribution: A Survey of University Students in Pakistan. In *International Journal of Media and Information Literacy*, 2021, Vol. 6, No. 1, p. 174.

offered at BS (Hons) and Master degree programs focuses on imparting theoretical and practical knowledge on news media, but neglecting the significance of critical courses in the curriculum. The results suggest that those universities which are offering critical courses such as media seminars at BS and Master levels scored higher in their news media literacy compared to those universities which do not offer media seminar at BS and Master levels. So the inclusion of critical courses like media seminars can increase the news media literacy of media students and enhance the critical thinking abilities necessary for news media literacy skills. In order to cope with the challenges of the infiltration by news media, media students, in particular, and the audience, in general, should be empowered with critical thinking skills so that they can interpret and generalize the news media content more appropriately. So, in order to be deemed as media literate, a person should adopt a *"holistic, critical and contextual perspective".*[38]

Similarly, the study's results propose that a conscious and active mode of consuming news media, i.e., a person aware of their desires and motivations for the news and the number of hours spent on news media, also affects the scores of news media literacy. So, media consumption or usage of media should also be considered an important component in the model of media literacy. By watching news media regularly, the critical thinking skills of media students are enhanced, enabling them to relate their theoretical knowledge with the real world, hence making them news media literate compared to others who consume less news media.

Succinctly, formal media education plays a significant role in imparting media literacy. So the importance of media education in developing media literacy cannot be ignored, and it should be considered a vital component of the media literacy model.

5.1 Suggestions and Recommendations

The researcher suggests the following recommendations for the propagation of news media literacy and the improvement of media education in Pakistan. Firstly, the course outline shows that courses taught at BS (Hons) and Master levels in these universities are media-centric, which means that they teach the students about the evolution of news media industries, the working of media organizations, and the creation of news media content. It does not include audience-centric courses which can empower the students with critical thinking skills in order to cope with the negative influence of news media content. Courses related to meaning construction tasks should be introduced into the curriculum so that media students can become active consumers of news media and make decisions wisely.

Secondly, the study results suggest that Pakistan's media education needs to be upgraded according to the international standards of media education. Besides teaching courses related to the development and working of media industries, and content generation, courses related to the meaningful deconstruction of news content and how to avoid faulty inductions and deductions should be taught. Contextual-based[39] media education will develop media literacy skills in media students through which they can perform meaning-construction tasks more effectively. Critical thinking skills-based courses should be introduced into the curriculum to polish and inculcate critical thinking skills in media students. Along with theoretical and practical courses, critical courses like media discourse analysis, media debates, narrative building, political-economy of mass media[40], and media critique should be included in the curriculum at BS as well as Master

38 DURAN, R. L. et al.: Holistic Media Education: An Assessment of the Effectiveness of a College Course in Media Literacy. In *Communication Quarterly*, 2008, Vol. 56, No. 1, p. 51.

39 See: LEWIS, J., JHALLY, S.: The Struggle Over Media Literacy. In *International Communication Association*, 1998, Vol. 48, No. 1, p. 109-120.

40 DURAN, R. L. et al.: Holistic Media Education: An Assessment of the Effectiveness of a College Course in Media Literacy. In *Communication Quarterly*, 2008, Vol. 56, No. 1, p. 52.

level. Zainab asserts that media literacy facilitates audiences of all ages to interpret media content correctly and urges policymakers to formulate a media literacy policy in Pakistan.[41]

In this media-saturated world, the significance of media literacy is irrefutable. Media literacy is a very novel term in Pakistan, whereas, at the international level, countries have designed policies for the inclusion of media literacy in the curriculum at the level of K-12. Organizations like UNESCO[42], *Ofcom*[43], and the European Union[44] have vested their efforts in the propagation of media literacy.

While keeping in mind the significance of media literacy, the researcher makes the following recommendations for future research:

1. More research can be conducted in order to assess the level of media literacy of media students in particular and the audience in general.
2. Task-based activities and focus groups can be conducted to measure media literacy.
3. Like news media literacy, media literacy related to other media contents such as advertisements and entertainment can be assessed.
4. Information communication technologies offer challenges to the audience, "new media literacy", in general, and "social media literacy", in particular, should be measured, aiming to suggest policies for the dissemination of new media literacy.

5.2 Limitations of the Study

This study has a few limitations which should be kept in mind for future research. Limitations mainly arise from the sample. The selection of universities from the public sector limits the results to being generalized on the media education of public sector universities. The researcher aimed to compare public and private universities situated in urban and suburban areas, but unfortunately, there is no private University in Sargodha offering mass communication. Moreover, only Punjab University offers media education among public universities in Lahore. Other public universities offering media education are women's universities, so to keep gender balance, the researcher has chosen the University of Sargodha. For generalization, a comparative analysis of more universities could have been added for evaluating media education at public and private sector universities.

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Covid-19 as a Black Swan. University Education Adaptation to Online Learning in the Second Wave of the Coronavirus Pandemic from the Perspective of Students and Academics

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ABSTRACT

In 2020 and 2021, modern society faced a historically unprecedented situation in the field of education. Education systems worldwide underwent a massive transformation from conventional forms of face-to-face learning to distance learning alternatives. This forced transformation of teaching, triggered by the global COVID-19 pandemic, has been a major test of resilience and adaptability for universities and other academic institutions. This emergency situation, and the way it was handled, was the subject of empirical study by the University of Finance and Administration in the form of a questionnaire-based survey focused concurrently on students and academics during the 2020/2021 academic year, during what has been referred to as the second wave of the coronavirus pandemic. We observed the attitudes of students and academics, then broke these down to greater levels of detail through mutual confrontation in the areas of evaluating the quality of online education, the decreasing or increasing levels of interest in courses, the level of communication skills of educators, or their availability during online office hours. We also explored the key question of the role and significance of the absence of physical interactions that characterizes distance learning. The empirical data point to ambivalence in the perceptions of online learning in both populations studied. While, on the one hand, there are clear collective expressions of confidence in the communication skills of educators, partly in the overall quality of the online instruction they provide and partly in their willingness to continue to enhance it in subsequent semesters, on the other hand, the expectations of students were not fully met in certain subjects, which was marked by a palpable decline in interest. One criterion that was critical for the emotional acceptance of online learning is the absence of physical interaction and presence in the school environment. It would therefore appear that the ideal model for future education is a combination of full-time and distance learning that would combine their respective benefits, while eliminating their perceived shortcomings.

KEY WORDS

Academics. Ambivalence. COVID-19. Education. Online Learning. Questionnaire Survey. Students. University.

1 Introduction

According to the London daily *The Times*, one of the most influential intellectual texts to emerge in the last sixty years is Nassim Taleb's *The Black Swan: The Impact of the Highly Improbable*. This bestselling book by a Lebanese-born American academic and investment advisor has inspired fundamental changes in modern thinking, highlighting the human mind's inability to predict future events and developments, its failure to understand an overly complex and ever-changing reality, the inertia of thought, and its unpreparedness to handle unexpected situations and turning points. According to Taleb, we are living in an era of black swans.[1]

The COVID-19 pandemic is an event of global scale, as well as being a source of hard-to-predict step change, particularly in life's social and economic structures, and of a series of accompanying transformations in power, politics, culture, and technology. In this context, the COVID-19 pandemic meets the defining characteristics of a black swan: these typically manifest as the unpreparedness of societies to face unexpected threats, the inability to predict the consequences of these threats, the promotion of chaotic and ineffective measures, growing uncertainty, and social changes of a non-linear and stepwise character.

Against the backdrop of the uncontrolled spread of COVID-19, national governments have introduced various restrictive, broad-based epidemiological measures and related legislation over the past two years that dramatically limit the social contact and physical mobility of their populations. These measures were particularly noticeable in 2020 and persisted at varying degrees of intensity in 2021. As of the beginning of 2022, the Czech Republic is preparing for a sixth pandemic wave related to the Omicron variant.

In the Czech Republic, as in other European countries, the first government measures were implemented during March and April 2020 in response to the very obvious and rapidly deteriorating pandemic situation. On 13th March 2020, these governmental measures, introduced by the Ministry of Health of the Czech Republic, were also applied across the board to the education system.

Given the rapid sequence of events, and with no option to prepare systemic changes in the organization of teaching, institutions of higher learning in various parts of the world are transforming standard contact teaching based on intensive regular face-to-face meetings between teachers and students into distance forms of online instruction.[2] It is estimated that approximately 200 million university students worldwide have been affected by the coronavirus pandemic.[3] The *European University Association* (EUA) emphasizes that the COVID-19 pandemic has affected all student populations.[4] Continuous monitoring reports on the current status of the global education system affected by the coronavirus pandemic are published by UNESCO. As of December 2020, a total of 877,622,671 students worldwide experienced restrictions in their learning due to school closures resulting from COVID-19 (as of 27th Jan 2022, 54,037,980 students were similarly affected worldwide, accounting for approximately 3.4% of all students globally).[5]

1 See: TALEB, N. N.: *The Black Swan: The Impact of the Highly Improbable*. New York, NY : Random House, 2007.

2 KHLAIF, N. Z., SALHA, S., KOURAICHI, B.: Emergency Remote Learning During COVID-19 Crisis: Student' Engagement. In *Education and Information Technologies*, 2021, Vol. 26, No. 6, p. 7034.

3 FARNELL, T., SKLEDAR MATIJEVIČ, A., ŠKUNANEČ SCHMIDT, N.: *The Impact of COVID-19 on Higher Education: A Review of Emerging Evidence (NESET Report).* Luxembourg : Publications Office of the European Union, 2021. [online]. [2023-01-27]. Available at: <https://nesetweb.eu/en/resources/library/the-impact-of-covid-19-on-higher-education-a-review-of-emerging-evidence>.

4 BÜHRMANN, A. D., BUNESCU, L.: *Approaches in Learning and Teaching to Promoting Equity and Inclusion.* Brussels, Geneva : European University Association, 2021. [online]. [2023-01-27]. Available at: <https://eua.eu/resources/publications/959:approaches-in-learning-and-teaching-to-promoting-equity-and-inclusion.html>.

5 *Global Monitoring of School Closures by COVID-19*. [online]. [2023-01-27]. Available at: <https://en.unesco.org/covid19/educationresponse>.

And yet it was not merely the area of education itself that was restricted, but all other physical contact students had with their schools as well, particularly in the interrelated areas of learning support, advisory services, libraries, and dining. Universities thus underwent a radical transformation of communication and collaboration systems at various levels of the relationship between university management, academic staff, administration, and students in what is referred to as the first wave of the coronavirus pandemic, which took place in the middle of the 2020 summer term. The adaptation of schools at different levels of the education system in the Czech Republic varied widely, with different schools responding in different ways: some schools introduced online learning faster, others more slowly; schools differed in the extent, and particularly the format in which they provided online learning; and in general the approach of the schools to providing alternatives to contact teaching varied as well. This was manifested by the introduction of their own innovative elements and systemic approaches, with differences in their level of creativity and the implementation of different communication platforms and distance learning tools. Students at different types of schools were thus exposed to a diverse distance learning environment emerging spontaneously with a rapid pace of change and with no chance for preparation, even in schools that had had little or no experience thus far with these forms of education.

Some schools preferred a much greater emphasis on self-study and communicated with students at varying intervals in terms of assigning homework, presenting lectures, and providing students with additional study materials and specialized resources for self-study purposes. However, some recent sociological surveys suggest that self-study was experienced negatively by students due to feelings of increased workload, stress, and frustration.[6] Other schools combined a self-study regimen, assigning homework and checking coursework on a continuous basis, while implementing online lectures in parallel. This often applied only to certain selected subjects in the curricula, due in part to a lack of IT tools, including the technological infrastructure and resources necessary for online learning in a home office environment. It should be emphasized that the availability of IT technology had already been limited in the commercial network at this time due to rapidly increasing interest in IT equipment not only from schools, but also from companies that were widely introducing remote work and generally intensifying the digitization of corporate communications, which created demand for suitable equipment in the form of webcams, microphones, laptops, etc.

During the first wave of the COVID-19 pandemic, the educational process of universities was rather inconsistent, yet it clearly incorporated elements of improvisation and spontaneity, measures that varied in their degree of creativity, and hybridization of instruction combining different methods of learning, sharing of study materials, self-study, and testing via online channels. The transition to distance learning was an awkward one at Czech universities during the spring wave of the 2020 pandemic, which served more as an involuntary pilot to prepare schools for what could be expected from them at the beginning of the following academic year. Unfortunately, these skeptical expectations fully came to pass, and the entire academic year 2020/2021 was conducted in a continuous mode of online teaching at all colleges and universities in the Czech Republic, either without continuous contact teaching or without any contact teaching at all (apart from limited options for face-to-face testing in December 2020 and January 2021).

The second wave of the coronavirus pandemic allowed for the implementation, albeit quite involuntarily, of continuous online education throughout the academic year, a situation that is historically unprecedented in the Czech educational space (and presumably elsewhere). It is in this specific situation that we decided to empirically identify, with the help of a questionnaire

6 *Vysokoškolští studenti během první vlny pandemie koronaviru.* [online]. [2023-01-27]. Available at: <https://www.soc.cas.cz/sites/default/files/soubory/tz_20200924_vysokoskolsti_studenti_behem_prvni_vlny_pandemie_koronaviru.pdf>.

survey, in the academic year 2020/2021, the attitudes and opinions of students and educators on selected circumstances of online learning and its importance, benefit, and effectiveness in the process of academic education.

The objective of this study is to empirically assess the attitudes and opinions of students and educators towards online teaching in the second wave of the COVID-19 pandemic at the University of Finance and Administration in Prague, the first private university of economics in the Czech Republic. Based on empirical data, we make predictions about the potential for student interest in forms of online learning in subsequent stages of their studies and assess their other experiences with online learning as an alternative form of conventional teaching, as well as those of the professors. The attitudes of students and academics are thereby exposed to mutual confrontation when evaluating the quality of online education, the decreasing or increasing levels of interest in course subjects, the level of communication skills of the professors, or the availability of professors during online office hours. We also pursued the key question of the role and importance of the absence of physical interaction during distance learning.

Based on our sociological findings, we seek to rationalize the strategic decision-making of university management for introducing online teaching as a form of education parallel to the standard contact mode of study. By comparing the attitudes of students and educators towards the circumstances of online teaching, we have drawn conclusions about the degree of consistency – or inconsistency – in the cognitive and emotional attitudes of the student and academic populations towards online teaching. This comparison also juxtaposes educators' statements regarding their own approach to teaching (e.g., self-assessment of their communication skills) and students' reflections on the real effects and quality of online instruction provided. At the same time, analyzing this empirical data can further develop the argument about the strengths and, conversely, the weaknesses of online teaching and can specifically contribute to addressing the more general issues of increasing the sustainable implementation of online teaching in a university setting.

2 Literature Review

In March 2020, there was an unprecedented reduction in contact education worldwide. Education systems of all types and forms around the world adapted to online forms of knowledge transfer and verification due to the coronavirus pandemic. This situation has prompted research interest in identifying, describing, understanding, and explaining the various circumstances and processes associated with such a radical and sudden change on such a massive scale. The first empirical studies began to appear in the past two years, reporting on a number of topics, problems, and issues in the areas of educational policy, pedagogy, or the psychology and sociology of education. These consist predominantly of case studies illustrating specific situations and conditions of online education at different universities in different parts of the world. However, these individual research contributions do not operate in isolation, but instead, they collectively create a relatively comprehensive perspective on the transformation of education during the COVID-19 pandemic, from which more universal principles and general rules and trends can be derived regarding the functioning and effectiveness of online education.

Osborne and Hogarth empirically studied various factors in the differences between online learning and conventional face-to-face teaching, focusing on differences in students' expectations and experiences with the realities of online teaching. Based on their own findings and related empirical evidence from similar investigations, they propose strategies and methods (e.g., the appropriate formulation of a combination of asynchronous and synchronous instruction) for motivating students to actively participate in virtual learning environments and facilitating interactivity.[7] Kohnke and Moorhouse conducted a qualitative research at a major university in Hong Kong (Hong Kong Baptist University) in which they analyzed in detail the experiences of nine selected educators with instruction via videoconferencing. They reached the conclusion that these experiences sharply polarized their sample of respondents into distance learning optimists and skeptics. The optimists consider videoconferencing to be an effective form of knowledge transfer, full of positive effects, while the skeptics are highly critical of this communication platform, having adopted it as a necessary evil.[8] Similarly ambivalent attitudes towards online learning are noted by Modrzyński, Zajdel, and Michalcewicz-Kaniowska, based on sociological findings at the University of Science and Technology in Bydgoszcz, Poland. Based on an exhaustive questionnaire survey of the student and academic population of this university, they identified both the significant future potential of online learning and critical attitudes related, for example, to the impossibility of achieving the full scope and quality of practical and laboratory exercises. At the same time, the authors of the study also identified clear resistance to the idea that online teaching should completely displace conventional face-to-face teaching.[9] Similar conclusions were reached by Kawasaki, Yamasaki, Masuoka, Iwasa, Fukita, and Matsuyama at the Hiroshima University in an experimental study that compared the effectiveness of a nursing course taught using emergency remote teaching to one that used conventional face-to-face teaching. The experiment was conducted by comparing a sample of 46 female students attending a course conducted using the traditional face-to-face method and 56 female students attending a course conducted virtually. Again, the high potential of online teaching and its comparable effectiveness to face-to-face teaching was confirmed; and yet once again there are findings related to the ambivalent nature of the online form of education, as the non-contact form of teaching very fundamentally limits the practical training of manual nursing skills.[10] An extensive sociological investigation was carried out at the University of Latvia by Baranova, Nimante, Kalnina, and Olesika. Data collection took place in two phases: the first one in the spring of 2020, and the second one at the same time one year later. Their survey included a total of 2,248 students across 13 faculties and focused on students' reflections on numerous different dimensions of their own experiences with online learning. It demonstrated in both the first and second phases of the survey that the forced conversion from conventional face-to-face learning to virtual learning was positively received by the majority of students and generally rated as high-quality and useful.[11]

Gouëdard, Pont, and Vennet use empirical data available from OECD countries to analyze the transformation of educational institutions during the coronavirus pandemic, evaluating the implementation of various systemic measures by school institutions to enable continuity of the educational process. They also present various practical recommendations based on these analyses that are intended to strengthen the resilience of schools in times of similar crises and to orient the design of strategic measures of school educational systems in their

7 OSBORNE, S., HOGARTH, K.: Mind the Gap: The Reality of Remote Learning During COVID-19. In *Accounting Research Journal*, 2021, Vol. 34, No. 3, p. 331-332.

8 See: MOORHOUSE, B., KOHNKE, L.: Thriving or Surviving Emergency Remote Teaching Necessitated by COVID-19: University Teachers' Perspectives. In *The Asia-Pacific Education Researcher*, 2021, Vol. 30, No. 3, p. 279-287.

9 MODRZYŃSKI, P., ZAJDEL, M., MICHALCEWICZ-KANIOWSKA, M.: Conditions and Potential for Remote Student Teaching. In *European Research Studies Journal*, 2020, Vol. 23, No. 1, p. 860.

10 KAWASAKI, H., YAMASAKI, S., MASUOKA, Y., IWASA, M., FUKITA, S., MATSUYAMA, R.: Remote Teaching Due to COVID-19: An Explorations of Its Effectiveness and Issues. In *Journal of Environmental Research and Public Health*, 2021, Vol. 18, No. 5, p. 2672.

11 BARANOVA, S., NIMANTE, D., KALNINA, D., OLESIKA, A.: Students Perspectives on Remote On-Line Teaching and Learning at the University of Latvia in the First and Second COVID-19 Period. In *Sustainability*, 2021, Vol. 13, No. 21, p. 11890.

various dimensions more closely with sustainability and further development.[12] One interesting case study on the effectiveness of distance education is presented by Son, Anh, Jaafar using the example of the FPT University in Vietnam. The authors of this study confirm that, despite existing theories and commonly available practical methodologies for online distance learning, the forced conversion of standard face-to-face teaching to its online equivalent during the COVID-19 pandemic remains a very complex process. The reason is that it requires many changes to be made in parallel over a relatively short time and without the possibility of more thorough preparation. The factors of educators' competence, communication skills, and practical skills play a key role in the process of implementing distance learning as a meaningful and adequate alternative to contact teaching. Equally important is the willingness, readiness, and motivation of students to accept this form of education and to use it effectively for their own development. Based on a questionnaire survey monitoring the opinions and attitudes of the student population towards the process and content of distance learning, the findings of the authors address numerous complications in the process of distance learning. In addition, they challenged the original research hypothesis that students would, on average, achieve worse grades in distance learning assessments than they did in the standard mode of teaching and examination during 2019. This points to success in the implementation of distance learning as well as appropriate preparation, implementation, and especially verification of distance testing.[13] The authors Gillis and Krull empirically examined the effectiveness of instructional techniques implemented as part of the conversion to distance learning. At the same time, the authors of the study tracked student perceptions by race, gender, and socioeconomic status of the barriers to this transition needing to be overcome. The authors concluded that most students did experience these barriers and perceived the transition to distance learning as a complication in many aspects. The students' feedback clearly reports higher levels of anxiety, loss of concentration, mental distraction, and reduced motivation to study. These negative experiences are most commonly identified in the population of non-white females and first-year students.[14] A larger international study of sociological research, the School Barometer survey, is presented by Huber and Helm. This questionnaire-based survey tracks the rapid changes in the education systems of Germany, Switzerland, and Austria during the spring of 2020. This empirical study is not only unique in its scope, but also in the expansion of respondent groups to include academics, students, parents, school administrators, school staff, and the many other people who support school functions and participate in education activities. The authors acknowledge certain limitations of the results obtained and also point out the methodological limitations of this quantitative research, but nevertheless present a series of findings that are applicable to educational policy, pedagogical practice, and other similar research projects.[15]

Among the more important sociological research conducted in the Czech Republic in 2020 and 2021, we note the activities of the Institute of Sociology of the Czech Academy of Sciences and the Faculty of Social Sciences of Charles University, who participated in the Antwerp University COVID-19 *International Student Well-Being Study* (C19 ISWS).[16] A total of

[12] GOUËDARD, P., PONT, B., VIENNET, R.: *Education Responses to COVID-19: Implementing a Way Forward. OECD Working Paper No. 224.* Paris : OECD iLibrary, 2020. [online]. [2023-01-27]. Available at: <https://doi.org/10.1787/8e95f977-en>.

[13] See: SON, T. N., ANH, N. B., JAAFAR, J.: An Analysis of the Effectiveness of Emergency Distance Learning Under COVID-19 at FPT University. In *CCRIS'20: Proceedings of the 2020 1st International Conference on Control, Robotics and Intelligent System*. New York, NY : Association for Computing Machinery, 2021, p. 136-143.

[14] GILLIS, A., KRULL, M. L.: COVID-19 Remote Learning Transition in Spring 2020: Class Structures, Student Perceptions, and Inequality in College Courses. In *Teaching Sociology*, 2020, Vol. 48, No. 4, p. 286-287.

[15] HUBER, G. S., HELM, CH.: COVID-19 and Schooling: Evaluation, Assessment and Accountability in Times of Crises – Reacting Quickly to Explore Key Issues for Policy, Practice and Research with the School Barometer. In *Educational Assessment, Evaluation and Accountability*, 2020, Vol. 32, No. 2, p. 240-241.

[16] *COVID-19 International Student Well-being Study.* [online]. [2023-01-27]. Available at: <https://www.uantwerpen.be/en/research-groups/centre-population-family-health/research2/covid-19-internation>.

27 European countries have been participating in this initiative to empirically monitor college and university student populations in order to identify the consequences of pandemic measures, not only on fields of study but also on mental well-being and other indicators of quality of life and everyday experience. Participation in this research initiative was confirmed by 7 Czech universities, where a total of 6,497 questionnaires were collected and evaluated. In Slovakia, a more significant sociological survey of the student population was also carried out at the time of the first wave of the coronavirus pandemic, at such institutions as Comenius University in Bratislava.[17]

3 The Potential of Online Education and Its Main Challenges

A review of available empirical studies from different parts of the world referencing the forced and relatively rapid transformation of universities from conventional face-to-face teaching to virtual online connectivity environments in 2020 and 2021 tends to reinforce a positive belief in the global and local resilience of universities and the adaptability and flexibility of academic and student populations. In a very short time, the coronavirus pandemic forced universities to transform their forms of education and convert contact learning to a digital environment. However, in no case has there been any massive failure, paralysis, or even crippling of university functioning. In fact, many universities already had had distance learning formats in place to varying degrees and to varying extents, often applying them as forms of teaching parallel to conventional teaching. Sociological studies mostly indicate a more general trend toward accepting and developing online learning as a suitable and effective platform for education, but in combination with the traditional methods and approaches of contact teaching. At the same time, these studies point to certain trends toward hybridization of learning, where the advantages of conventional and distance forms of learning are combined in different ways.

And yet distance forms of education face several major challenges in the wake of their global and forced introduction into the university education system.[18]

The first is a technological challenge, as it requires that internet connectivity be available and reliable and that sufficient university technology and communications infrastructure be provided. However, not all universities meet these requirements, especially in economically less developed regions. The technological challenge is not only a question of the capacity and standard of equipment and the preparedness of universities, but also a matter of the economic means of students and their families. Insufficient internet coverage, and the financial unavailability of information and communication tools, are among the main constraints. Furthermore, the technological pillar of distance education is potentially limited by low levels of digital literacy. Especially for the older generation of academics, the transition to digital forms of education is more complicated, as they often promote conservative attitudes and demonstrate reluctance to abandon traditional forms of teaching.

The second challenge is pedagogical. This includes, in particular, the ability to provide learning materials of sufficient quality in an interactive form and to use multimedia teaching tools effectively. However, this requires a certain level of digital literacy. It is this very interactivity through multimedia tools that is a prerequisite for engaging students in learning and enhancing their active participation in the learning process. It is a challenging pedagogical task to concurrently motivate students and maintain their interest in collaboration. Educators should therefore provide students with the widest possible opportunities for feedback and ensure a reliable and fair system for verifying the knowledge and skills acquired.

[17] *Vyhodnotenie prieskumu o dištančnej výučbe 2020 – študenti*. [online]. [2023-01-27]. Available at: <https://uniba.sk/fileadmin/ruk/cit/e-learning/20200615_distancne_vzdelavanie_anketa_studenti.pdf>.

[18] FERRI, F., GRIGONI, P., GUZZO, T.: Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations. In *Societies*, 2020, Vol. 10, No. 4, p. 86.

The third challenge is social. The home study or teaching environment should provide sufficient space, peace, and comfort. The material conditions and overall facilities should be sufficient to the needs of distance education. And yet the necessary absence of face-to-face social contacts is becoming an even greater barrier of a non-material character. It is precisely this lack of physical contact that has emerged as one of the most important criteria in critical assessments of distance learning.[19] Here, a social and psychological need for sharing emotions, actual physical contact, and informal face-to-face conversation is expressed.

We anticipate that online learning may be promoted and implemented at universities in the future to a much greater extent and intensity than was the case before the experience of the coronavirus crisis. It may even become a preferred and sought-after platform for transferring information, sharing knowledge, and testing that knowledge in the academic environment and student population. According to Duffin, prior to the 2016 coronavirus pandemic, the US university population had already empirically demonstrated a strong positive attitude among nearly 81% of university students towards digital learning technologies as an effective learning platform to improve their learning outcomes.[20] Similar studies support the assumption that participants in online courses achieve comparable or better learning outcomes compared to participants in face-to-face courses.[21] According to a recent sociological survey conducted at the University of Lithuania, the proportion of students who believe that online learning can provide them with a full-fledged education has increased significantly year-on-year. While 54% of the university students espoused this view in 2020, in 2021 it was now the case for 84% of the respondents.[22] The significant level of preference for online learning among university students in later stages of study during the second wave of the coronavirus pandemic was further confirmed by an empirical study by Roubal[23]. Positive attitudes from academics and students towards online learning have also been identified in other empirical studies, contributing to belief in the growing potential of more firmly and permanently embedding online forms of learning in university settings in the future.[24] Indeed, it can be assumed of some schools who gained their first major experiences of widespread adoption of online learning during the first and especially the second wave of the coronavirus pandemic that they will be motivated to further strengthen and petrify it in their curricula. This may also lead (and in many schools has already led) to greater efforts to expand distance learning curricula offerings and applications for accreditation.

At the same time, the trend toward reducing contact teaching in favor of distance learning is reinforced by an interesting ecological argument. Moreover, there is ample factual data available in professional discourse on the negative ecological impacts of contact teaching and on instruction based on digital platforms as much more environmentally friendly. *"In a country such as the United Kingdom, taking into account factors such as residential energy consumption, campus expenses, and travel between residence and university, an online teaching model could help to reduce an estimated 88% of energy consumption and 83% of the carbon*

19 FERRI, F., GRIGONI, P., GUZZO, T.: Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations. In *Societies*, 2020, Vol. 10, No. 4, p. 86

20 DUFFIN, E.: *E-Learning and Digital Education – Statistics & Facts*. [online]. [2022-01-27]. Available at: <https://www.statista.com/topics/3115/e-learning-and-digital-education>.

21 PAUL, J., JEFFERSON, F.: A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course from 2009-2016. In *Frontiers in Computer Science*, 2019, Vol. 1, no paging. [online]. [2022-01-27]. Available at: <https://doi.org/10.3389/fcomp.2019.00007>.

22 BARANOVA, S., NIMANTE, D., KALNINA, D., OLESIKA, A.: Students Perspectives on Remote On-Line Teaching and Learning at the University of Latvia in the First and Second COVID-19 Period. In *Sustainability*, 2021, Vol. 13, No. 21, p. 11890.

23 ROUBAL, O.: The Identification of University Students with Online Teaching in the Second Wave of the Covid-19 Pandemic. In HOSSOVÁ PROSTINÁKOVÁ, M., RADOŠINSKÁ, J., SOLÍK, M. (eds.): *Megatrends and Media 2021: Home Officetainment.* Trnava : FMK UCM, 2021, p. 343.

24 MODRZYŃSKI, P., ZAJDEL, M., MICHALCEWICZ-KANIOWSKA, M.: Conditions and Potential for Remote Student Teaching. In *European Research Studies Journal*, 2020, Vol. 23, No.1, p. 861.

footprint".[25] Authors Versteijlen, Salgado, Groesbeek, and Counotte state that *"the student travel-related emission value of a face-to-face model is about 1500 kg CO_2 and the value of an online model about 25 kg CO_2* per student per year*"*.[26] Similar environmental and ecological arguments in the era of *Green Deal* advocacy can make a major contribution to further strengthening online learning in a university setting and beyond.

4 The Ambivalent Nature of Online Education

Sociological studies monitoring the circumstances of online learning in various universities around the world often implicate its ambivalent quality. The student and academic populations of universities often experience virtual learning as simultaneously effective, beneficial, and comfortable, yet also unreliable, complicated, and preventing the authentic experience and shared emotionality created by the reciprocity of physical contact.[27] Such attitudes towards distance learning are well illustrated, for example, by a study by Polish authors who empirically identify positive and negative determinants of online learning among students and academics.[28] Both studied populations rate the comfort of learning from home positively, yet at the same time consider online learning uncomfortable in terms of possible health risks generated by prolonged sitting at the computer and headaches. According to the respondents, savings on time spent commuting to school is identified as another positive determinant, and yet too much time spent on the computer is identified as a negative determinant.

Against a background of similar empirical studies[29] and our own pedagogical experience, the following positive and negative dimensions of online learning can be considered in more general terms.

The first potential positive are the financial and time savings. Online lectures allow for teaching without the in-person presence of teachers. At the various branches of regional schools in particular, this reduces the financial costs of posting teachers and providing accommodations. Non-economic benefits are also evident in the form of time savings in eliminating the travel of academics between academic facilities. Online lectures are then delivered centrally to larger numbers of students in connected study groups, which also places pressure on teaching hours and achieves an incremental reduction in the financial cost of the teaching provided. The potential for financial savings can be seen not only on the part of the universities, but also on the part of the students and, to some extent, the academics. Distance learning conducted from home means significant financial savings on transport. Furthermore, students do not only find savings in the cost of transportation, but also in the cost of accommodations. In addition, distance learning students can take advantage of online lectures from their places of employment and can flexibly arrange the fulfillment of their study obligations and work commitments. They do not have to take holidays, which contact teaching sometimes requires. Furthermore, there is the option for universities to provide students with video recordings of lectures, allowing students unlimited access to those courses they are unable to follow online for time reasons.

[25] JARILLO, P. M., PEDROZA, L., GER MORENO, P., BOCOS, E.: Challenges of Online Higher Education in the Face of the Sustainability Objectives of the United Nations: Carbon Footprint, Accessibility and Social Inclusion. In *Sustainability*, 2019, Vol. 11, No. 20, p. 5580.

[26] VERSTEIJLEN, M., SALGADO, F. P., GROESBEEK, M. J., COUNOTTE, A.: Pros and Cons of Online Education as a Measure to Reduce Carbon Emissions in Higher Education in the Netherlands. In *Current Opinion in Environmental Sustainability*, 2017, Vol. 28, p. 82.

[27] BIJEESH, N.: *Advantages and Disadvantages of Distance Learning*. [online]. [2023-01-27]. Available at: <https://www.indiaeducation.net/online-education/articles/advantages-and-disadvantages-of-distance-learning.html>.

[28] MODRZYŃSKI, P., ZAJDEL, M., MICHALCEWICZ-KANIOWSKA, M.: Conditions and Potential for Remote Student Teaching. In *European Research Studies Journal*, 2020, Vol. 23, No. 1, p. 860-862.

[29] SADEGHI, M.: A Shift from Classroom to Distance Learning: Advantages and Limitations. In *International Journal of Research in English Education,* 2019, Vol. 4, No. 1, p. 83-84.

Conversely, a negative determinant from the perspective of universities may be the financially costly investment in digital infrastructure and communication equipment. This applies not only to technical equipment in the form of computers, laptops, webcams, and microphones, but also to the licensing of communication platforms. And yet investments in technical equipment are also expected on the part of individual students and teachers. Various hidden costs are required, ranging from energy consumption to the need to purchase different technological and communication equipment. At the same time, studying and teaching from home may not provide nearly as much space, comfort, and peace of mind. The capacity of home study or teaching is also limited by the fact that it is often combined with work from home or distance learning by other household members.

The second positive determinant from the student perspective is the availability of instructors outside of lectures/instruction and the use of digital connectivity even at times outside the standard schedule and office hours. This enables students to make better and more frequent use of post hoc consultation and to draw on supplemental support from academics in a variety of one-to-one consultations, as well as the provision of study materials from the comfort of home without the need to commute.

The negative aspect here remains the absence of physical contact and face-to-face meetings, which are generally seen as irreplaceable and difficult to compensate using contacts of a virtual nature. This does not merely reflect the mutual need for physical contact among students and academics, but also the need for both groups to meet together. Absent is the opportunity to share experiences, affirm social bonds, and experience interpersonal relationships.

The third positive determinant is the improvement of one's own digital competencies and skills. This not only facilitates the emotional acceptance of digital forms of learning, i.e. overcoming prejudices, but also prompts a further deepening and broadening of these skills in order to discover the potential of this form of knowledge sharing.

The unreliability of digital connectivity, technical difficulties, and the unavailability or disruption of internet connections can be identified as negative aspects. At the same time, the willingness and potential to improve digital competencies sometimes has its limits, especially among older academics who prefer conservative and proven teaching methods and forms of communication.

5 Study Design

We conducted an anonymous survey of students and academics at the University of Finance and Administration in Prague in two successive stages. The University of Finance and Administration has been one of the largest private universities in the Czech Republic since 2000 and one of the largest universities in the Czech Republic since 2009. It has generated over 20,000 graduates and currently hosts nearly 2,500 students at the Faculty of Economic Studies and the Faculty of Legal and Administrative Studies.

We sought to use a standardized questionnaire to collect empirical data reflecting the attitudes and opinions of students and academics toward online learning during the second wave of the coronavirus pandemic. The first survey was conducted among students at the end of the winter semester 2020 and a follow-up survey was conducted among academics at the end of the summer semester 2021. We gained some insights about the attitudes of students and academics toward online teaching from the first wave of the coronavirus pandemic during the period April to June 2020. At the time, we operated solely from the experiences and informal reactions of those students and academics. And yet these suggested some polarization of opinion in terms of positive and negative experiences of online learning and, to varying degrees, to online learning as an accepted alternative to contact teaching. For this reason, we did not wish to rely for the case of our university solely on the incomplete and informal responses from the spring of 2020, and moreover from a limited number of students and academics, and therefore decided to conduct a systematic survey. In the first phase of the survey, we had addressed the questionnaire to students of all forms, degrees, and types of study; in the second phase of the survey, we asked a total of 105 academics to complete an anonymous questionnaire. Thus, all officially enrolled students at our university and all academic staff lecturing in the academic year 2020/2021 were contacted.

5.1 Methods

The data was collected using a quantitative research method via a standardized anonymous questionnaire technique. A link with a cover letter and access to the questionnaire was sent to all students and academics at the university. The invitation to complete the questionnaire was repeated every 10 days after the first invitation to complete the questionnaire. The average time to complete the questionnaire was approximately 11 minutes for students and 13 minutes for academics. The data was then statistically processed in SPSS and subjected to further interpretation.

5.2 Characteristics of the Study Population

A total of 2,455 students (and 105 academics) in the degree programs of Marketing Communications, Economics and Management, Finance, Applied Computer Science, Security and Legal Studies, Criminal Justice and Forensic Science, Law in Business, Regional Studies, and Public Administration were given the opportunity to complete the questionnaire. In addition, the study programs of Marketing Communication and Economics and Management are taught in English, and the study program Finance is also taught at the doctoral level.

The questionnaire was opened by a total of 1,181 students (i.e., 48.1% of the core group), and a fully completed questionnaire was received from 684 of them (i.e., 27.8% of the core group). Partially completed questionnaires were also used in the processing of the data, and as such a total of 723 questionnaires (i.e., 29.4% of the base set) were processed in the statistical analysis. In the case of academics, 75 (71.4%) of the 105 professors contacted opened the questionnaire, and a total of 47 (44.7%) of them were usable for statistical processing purposes.

5.3 Data Collection Technique

The empirical data was collected using standardized questionnaires with an estimated completion time of 15 minutes. According to our experience from the pilot survey, this is a time limit beyond which the willingness of respondents to complete questionnaires decreases substantially. The research questionnaires for students and academics contain a total of 25 substantive questions, of which 10 questions track more general views on the coronavirus crisis and their own experiences and expectations of future social and economic developments. The other 13 questions focus on an evaluation of the specific parameters of online learning, and the last 2 questions are identification questions. The validation of the questionnaires was carried out in early November on a sample of 30 respondents (in the case of students) and in early April on a sample of 5 academics. The questionnaires were further modified and some questions were refined and added.

5.4 Distribution of the Questionnaire

The link to the questionnaire was sent with a cover letter to all students and academics of the University, on two separate dates each time in order to increase the return rate of the completed questionnaires. In the case of students, they were approached to complete the questionnaire first on 24th Nov and then in the second phase on 4th Dec 2020 (in the case of academics, first on 4th May and then on 14th May 2021).

5.5 Data Processing and Use

The data was processed in SPSS software; the open-ended questions were then extracted from the system file and recorded on a total of 47 standard pages. Two types of graphs are used in the text for quicker reference, with bar charts in the case of students and pie charts in the case of academics. Due to the smaller number of respondents in the case of academics, the resulting frequencies in percentages are rounded.

The main output of this sociological survey is a detailed research report, intended for university management, faculty, and departmental leadership in order to evaluate the quality of online teaching in the winter and summer semesters of the academic year 2020/21 and to make further strategic decisions for the implementation of online teaching in the subsequent period. We anticipate that online teaching will become more and more heavily promoted and will coexist to varying degrees with contact teaching following the experience of its forced blanket introduction as a result of the coronavirus crisis.

The data collected serve not only the internal needs of university management policy and decision-making or for the self-reflection of the educators themselves, but as a valuable research matrix for empirical research on student and academic populations and their attitudes towards the emergency situation of schools who have transformed their education and learning support systems relatively rapidly in the past 2 years of their operations.

5.6 Research Questions

In this section, we focus on an analysis of a few selected questions from the survey, explicitly aimed at ascertaining the views of students and academics on the extent of the effectiveness of online learning and its emotional acceptance as an adequate alternative to contact learning. At the same time, the choice of the analyzed questions was determined by the possibility of mutual confrontation of student and academic attitudes. We empirically measured the respondents' attitudes and opinions in terms of the degree of agreement with different statements (a, b) and formulated the following research questions RQ1-RQ6.

RQ1: Does online learning reduce the quality of higher education?

a) Students – *"Online learning generally reduces the quality of higher education."*
b) Academics – *"Online learning generally reduces the quality of higher education."*

RQ2: Is online teaching a more preferable form of knowledge sharing than in-class teaching in upcoming semesters?

a) Students – *"I would prefer online teaching to in-class teaching in upcoming semesters."*
b) Academics – *"I would prefer online teaching to in-class teaching in upcoming semesters."*

RQ3: Is there reduced student interest in certain subjects as a result of online teaching?

a) Students – *"I feel reduced interest in certain subjects when taking classes online."*
b) Academics –*"I perceive reduced student interest in certain subjects when teaching online."*

RQ4: Are physical interactions truly irreplaceable in higher education?

a) Students – *"There is no substitute for personal contact with the teacher."*
b) Academics – *"There is no substitute for personal contact with students."*

RQ5: Do teachers have sufficient communication skills?

a) Students – *"My teachers generally have good communication skills."*
b) Academics – *"I think I have generally good communication skills when interacting with students."*

RQ6: Are teachers available during their online office hours?

a) Students – *"My teachers are sufficiently available during office hours."*
b) Academics – *"I try to be sufficiently available to students during office hours."*

6 Data

Students' basic attitudes toward online learning were monitored using their level of agreement with the statement "*Online learning generally reduces the quality of higher education*".

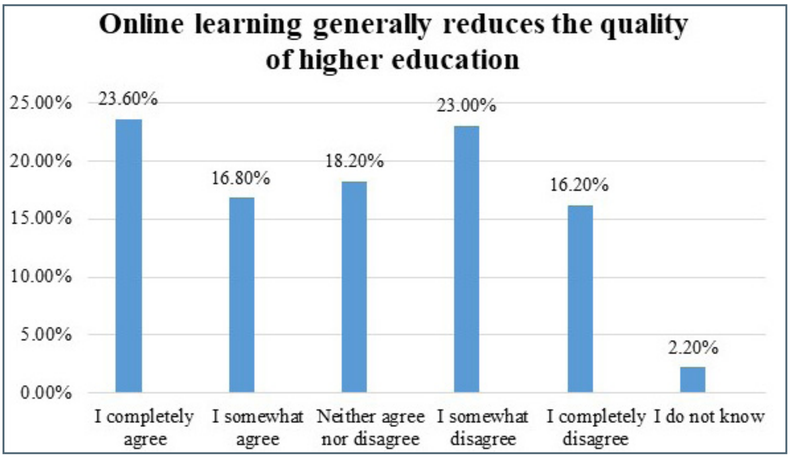

FIGURE 1: *"Online learning generally reduces the quality of higher education",* ***students,*** *overall response frequency in %*

Source: own processing, 2022

Figure 1 shows an even distribution of the proportion of responses expressed as a measure of agreement with the statement that online learning reduces the quality of higher education. The student population is far from unified on this issue; in fact, it is roughly equally divided into supporters and skeptics of online teaching, with approximately 40% of students on each side of these polarities. One in five student responses tended toward the middle answer of "I don't know". However, a cross-check of the values of student and academic responses (Figure 2) suggests a higher degree of skepticism in this question on the part of instructors, with a roughly 10% higher proportion of negative attitudes compared to the proportion of similar student responses. It is also interesting to compare the values of the neutral responses with each other: 13% of the lecturers did not find a clear answer to this question, while only about 2% of the students identified with a neutral answer. Thus, the perspectives of students and academics diverge slightly in this part of the evaluation of the quality and benefits of online teaching in higher learning, pointing to a higher level of confidence on the part of the students toward online teaching as an adequate alternative to contact teaching. The academics here show slightly more conservative attitudes and a slightly higher level of skepticism toward online learning options.

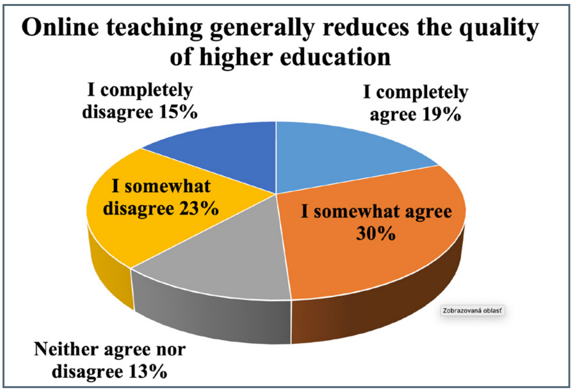

FIGURE 2: *"Online learning generally reduces the quality of higher education", academics, overall response frequency in %*

Source: own processing, 2022

It is useful to analyze this statement further by the type of study (full-time vs. combined). As we can see in Figure 3 (the higher the mean, the stronger the disagreement with the statement), students in combined studies rate online learning significantly more positively compared to their full-time colleagues. They are much less convinced that online teaching reduces the quality of higher education. This can be partly explained by the fact that the students in the combined study form consider distance learning and less intensive face-to-face interaction with teachers a normal part of their studies and their own learning path. They consider the minimization of personal contacts with teachers, with the predominance of self-study supported by online consultations, to be a natural situation that does not interfere with or reduce the quality of their studies. On the other hand, full-time students are more prone to reject online learning or to show stronger skepticism, as their university studies usually immediately follow their studies at secondary schools where student-teacher interactions were an everyday practice. Thus, from this perspective, the transformation of contact teaching into online learning may appear more dramatic, suspect, and potentially unreliable. Moreover, their expectations on entering university did not anticipate as much non-in-person teaching as in the case of the students in the combined study form, where less frequent "live" interactions were anticipated.

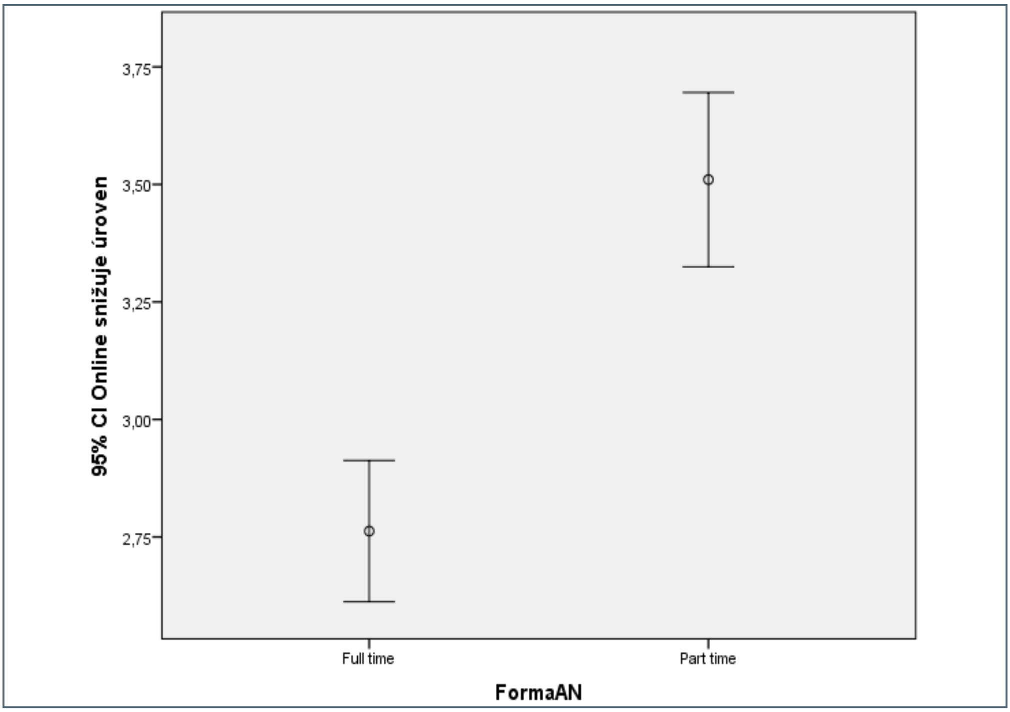

FIGURE 3: *"Online learning generally reduces the quality of higher education", students, overall averages by form of study*

Source: own processing, 2021

One important part of this research was to identify future preferences for learning formats. Therefore, we were also interested in the level of agreement with the statement *"I would prefer online teaching to in-class teaching in upcoming semesters"*.

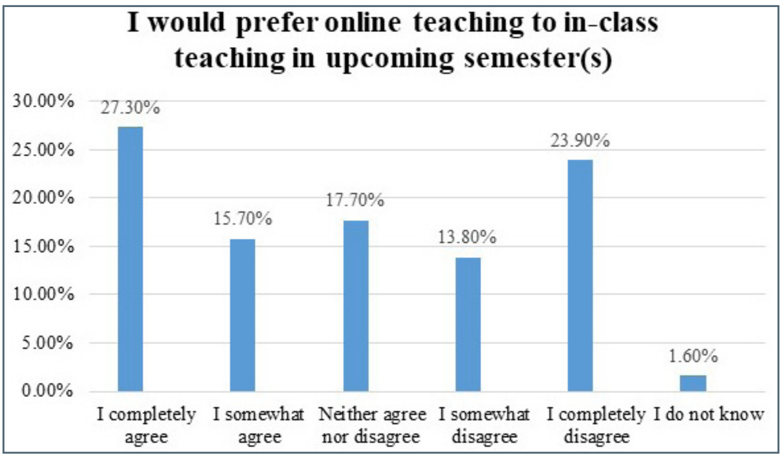

FIGURE 4: *"I would prefer online teaching to in-class teaching in upcoming semesters", students, overall response frequency in %*

Source: own processing, 2022

As can be seen in Figure 4, in this question as well, students do not show any significant trend in their opinions toward any one of the possible polarities, differentiating students into supporters of online teaching on the one hand and skeptics on the other. The distribution of responses here is very similar to the distribution of responses in the question on beliefs about the relationship between the quality of higher education in the in-person and online distance learning formats. Nevertheless, there is moderate optimism and a greater degree of friendliness evident toward the possibility of future implementation of online learning at the expense of contact learning, which implies not only a certain tolerance toward online learning, but also an acceptance of it as a full-fledged form of university knowledge sharing in future studies.

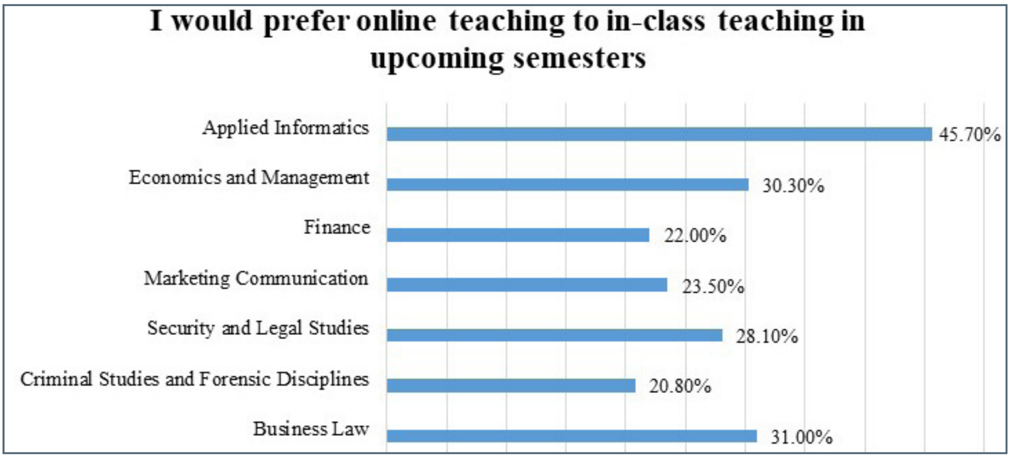

FIGURE 5: *"I would prefer online teaching to in-class teaching in upcoming semesters", students, total response frequency in %*

Source: own processing, 2022

The degree of willingness to opt for online teaching over standard face-to-face teaching in upcoming semesters can also be shown in greater detail for students according to the different study programs. These findings can facilitate any decisions about the future implementation of distance learning in the different study programs. Figure 5 shows that preferences for online learning are related to field of study. Future online study is the most attractive option for students of the Applied Computer Science program, followed by Economics and Management and Law in Business. On the other hand, the lowest interest is observed in those study programs where the focus of individual courses implies different practical and laboratory exercises, which are best implemented as part of personal interaction between students and lecturers. The Marketing Communication study program includes training in soft skills and communication skills and other competencies based on content shared face-to-face. Similarly, students in the Criminal Justice and Forensic Science disciplines do not identify by far with the notion that contact-based interactive learning should give way to distance learning, which does not allow for hands-on criminal justice practice focused, for example, on crime scene examination or trace identification and analysis.

In the case of academics (Figure 6), their overall preference for online teaching over contact teaching is limited compared to student attitudes. There is a higher overall level of reluctance to accept online teaching as the primary form of learning in the future. The proportion of positive attitudes toward strengthening online teaching in future semesters is approximately one-third stronger among students than among academics. Even in this mutual comparison, academics show not only a greater degree of overall skepticism toward online teaching, and perhaps nostalgia for traditional forms of contact teaching, but also a much greater degree of indecision and uncertainty on this issue (15% of the academics responded "I don't know").

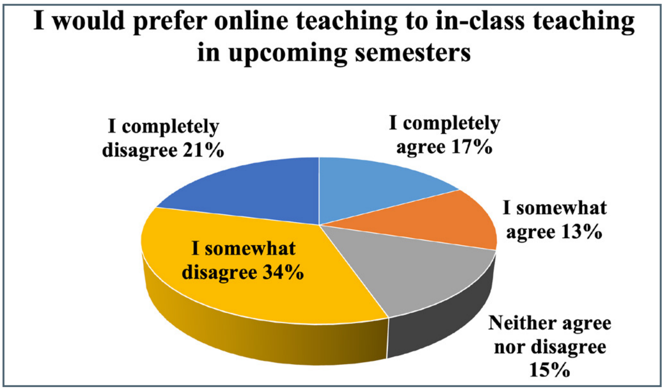

FIGURE 6: *"I would prefer online teaching to in-class teaching in upcoming semesters", academics, overall response frequency in %*

Source: own processing, 2022

In the context of questions ascertaining the level of confidence in the quality of online instruction and shared preferences for its implementation for future academic terms, we also looked at the potential for a decrease in student interest in the courses taught due to the absence of physical interaction. It can be assumed that online instruction may actually reduce the attractiveness of courses and suppress the overall potential for interactive dynamics in learning. An indicator of this is decreased student interest in certain subjects where the online form of learning does not meet the needs of students and does not meet the criteria of their expectations. This assumption of ours has been partially confirmed.

Almost 45% of the students share a feeling of reduced interest in certain courses and one in four students identify very strongly with this feeling (Figure 7). Looking at this in greater detail, we see that this feeling is shared by the students who also expressed the most skeptical attitudes toward the future introduction of online learning to the detriment of face-to-face learning. This is particularly the case for full-time students of the Criminology and Forensic Science, Marketing Communications, and Finance programs, where course content is often based on interactions and practical exercises. These findings are not very consistent with the problem of declining student interest in courses as perceived by academics (Figure 8). The real feelings of students of decreased interest in some subjects are not entirely echoed by the feelings of academics, who have slightly more optimistic beliefs. While approximately 44% of the students realistically experience reduced interest in certain subjects, in the case of academics, a total of 33% of the lecturers experienced this feeling. Here, again, we observe a relatively higher proportion of neutral responses (19%) in the case of academics.

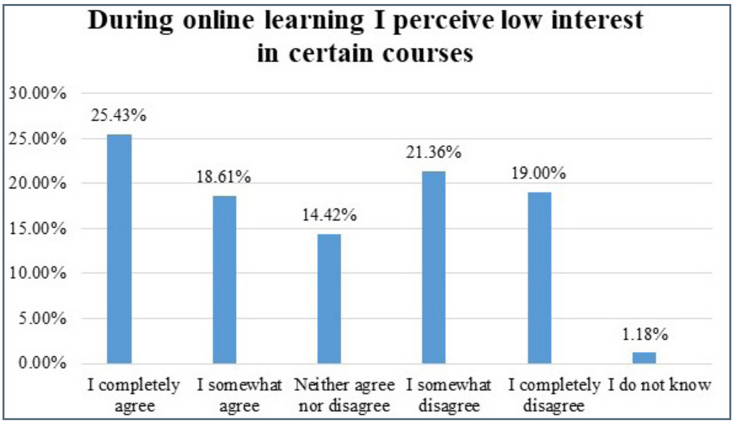

FIGURE 7: *"I feel reduced interest in certain subjects when taking online classes", students, total response frequencies in %*

Source: own processing, 2022

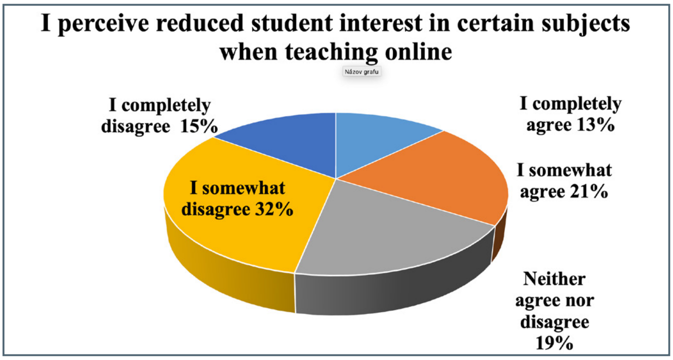

FIGURE 8: *"I perceive reduced student interest in certain subjects when teaching online", academics, total response frequencies in %*

Source: own processing, 2022

Reduced student interest in some subjects may be related to a lack of personal contact with the instructor as well as their communication skills. Therefore, in the next part of the survey we focused on these two important circumstances of online learning.

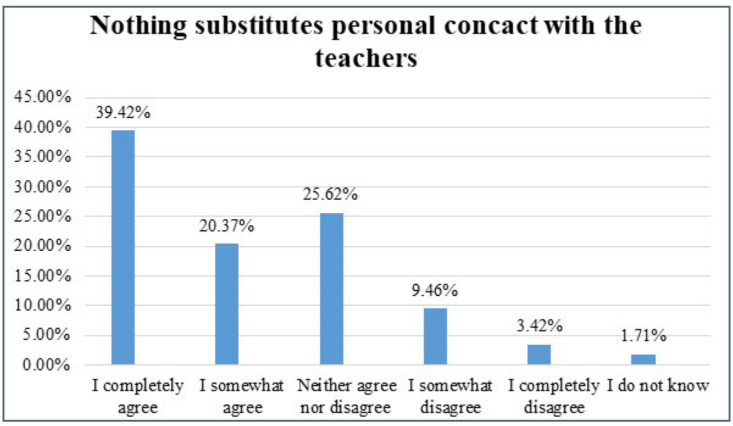

FIGURE 9: *"There is no substitute for personal contact with the teacher", students, total response frequencies in %*

Source: own processing, 2022

The need for mutual physical interaction is clearly evident in the results of the responses for both students and academics. In other words, the absence of such interactions is perceived as a shortcoming by the majority overall and may act as one of the main factors limiting the benefits of online learning, as well as the willingness to experience it more positively and embrace it emotionally. Here too, however, we see some differences in the values of the responses from students compared to those of academics. While the response rate for the students is around 60% (Figure 9), full or partial agreement with the statement regarding the irreplaceability of mutual physical interactions is expressed by around 70% of the academics (Figure 10). Approximately one in four students are ambivalent about this question. This also suggests that students are relatively adaptive and consider face-to-face contact with the instructor to be something that can be flexibly replaced with virtual contact in certain situations.

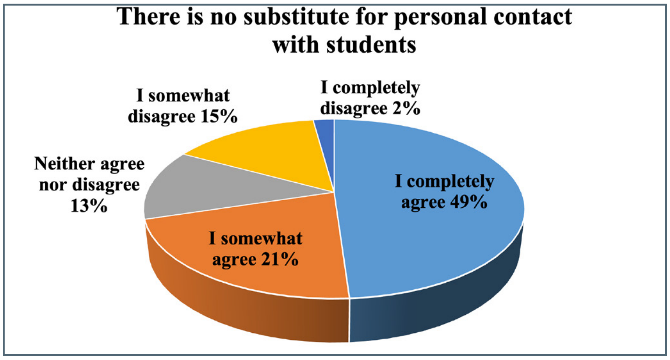

FIGURE 10: *"There is no substitute for personal contact with students", academics, total response frequencies in %*

Source: own processing, 2022

Another important part of our survey was the question of the communication skills of instructors. We were interested not only in how students evaluate the communication skills of their instructors, but also how the instructors themselves evaluate their own communication skills. Thus, we tried to juxtapose the external objective view of the students (Figure 11) and the subjective self-reflection of the instructors (Figure 12).

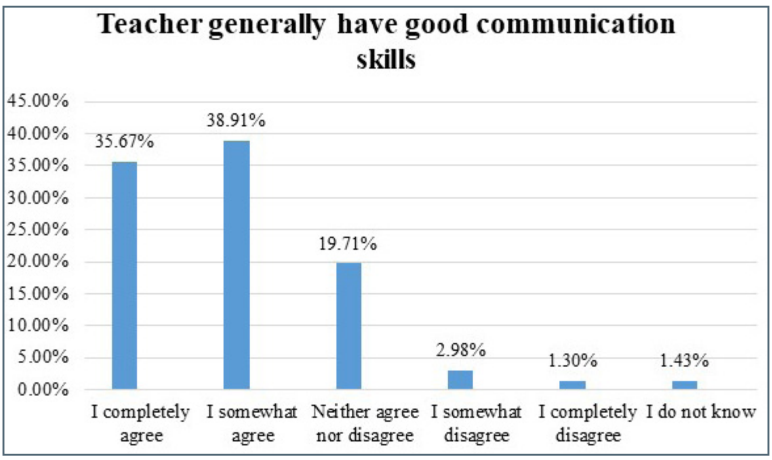

FIGURE 11: *"My teachers generally have good communication skills", students, total response frequencies in %.*

Source: own processing, 2022

Students generally rate their teachers' communication skills positively, with approximately two-thirds of the respondents agreeing with the statement that *"My teachers generally have good communication skills"*. About one-fifth of the students responded ambiguously and expressed neutral attitudes on this question. The question remains as to why a relatively high proportion of students are similarly undecided and unable to express a clearer evaluative position on this key academic competence. It can only be assumed that this group may consist partly of students who have not participated in online learning, or who have participated only sparingly and irregularly. The self-reflection of the academics concerning their own communication skills roughly corresponds to the students' actual evaluation of these skills, but the self-assessment of the instructors is ultimately less critical and more clearly guided in a positive evaluative direction (Figure 12).

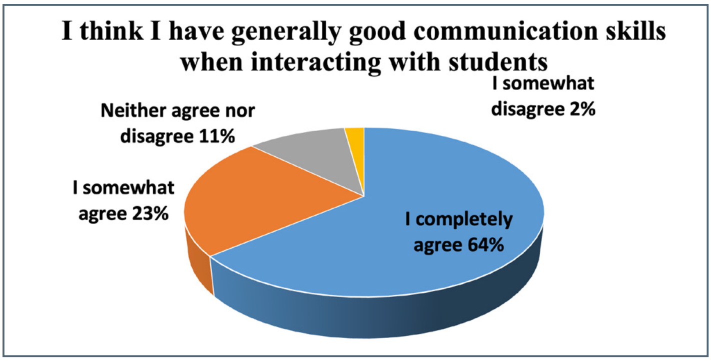

FIGURE 12: *"I think I have generally good communication skills", academics, total response frequencies in %*

Source: own processing, 2022

In addition to assessing the communication skills of instructors, we also looked at an important circumstance of teaching in the form of its support with the availability of online office hours. Here, again, as in the case of the evaluation of the communication skills of instructors, we tried to juxtapose the objective perspective of the students and the subjective self-assessment of the academics. On the question of the availability of instructors during their office hours, it can be seen that almost 40% of the students are unable to answer this question in a relevant way (Figure 13). Based on this observation, it can be assumed that this is the segment of students who have not used online office hours and thus are unable to accurately assess the availability of their instructors during office hours.

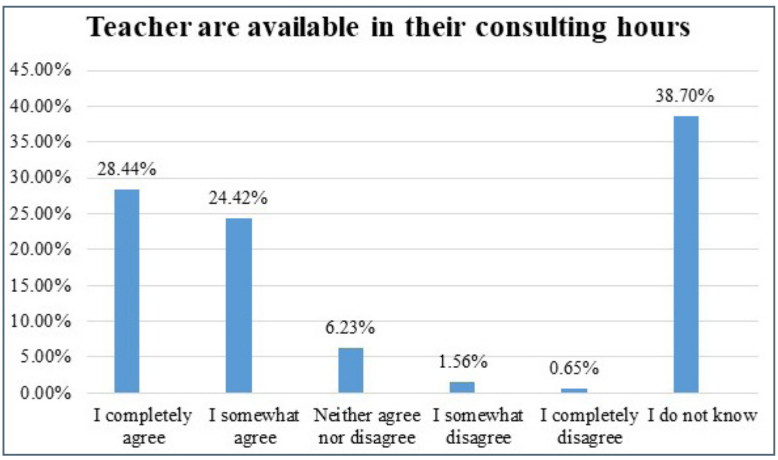

FIGURE 13: *"My teachers are sufficiently available during office hours", students, total response frequencies in %*

Source: own processing, 2022

As expected, the self-assessment by the instructors of their availability during their office hours is clearly positive (Figure 14). Unfortunately, we can only partially confront these responses with the students' experience, as it turns out that a significant proportion of students were unable to assess this question due to not making use of this form of academic support.

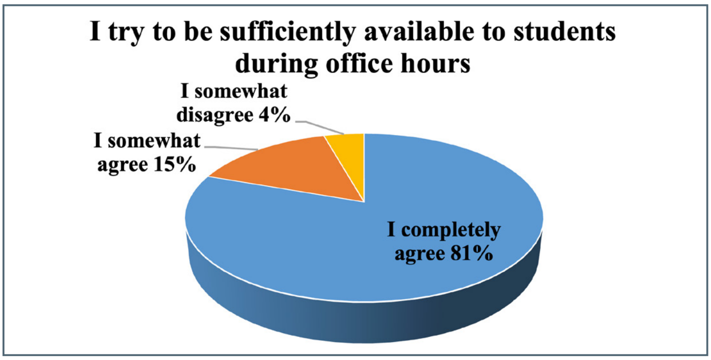

FIGURE 14: *"I try to be sufficiently available to students during office hours", academics, total response frequencies in %*

Source: own processing, 2022

7 Conclusion

As expected, the empirical evidence tracking the attitudes of the population of university students and academics towards online learning during the coronavirus pandemic of 2020 and 2021 is far from saturated in the current literature.

In the second half of 2020, we find the first sociological studies from university education and elsewhere reporting on the transformation of the education system and the involuntary transformation of interactive contact teaching into distance learning forms of online learning. As expected, these studies agree that the COVID-19 pandemic hit the university environment and other settings very hard and led to the unexpected and involuntary adoption of distance learning formats by schools. The interruption of contact teaching in universities and the forced conversion of the educational process to a virtual environment has also meant major changes in the areas of related educational mechanisms and academic support, specifically, for example, in terms of the form of office hours, the academic advising of qualification papers, the verification of learning, and the formats of final examinations.

In this empirical study we are focusing on a situation that is historically quite unprecedented. University teaching took place over the course of one academic year in a distance learning format in a continuous and involuntary manner. Given the uniqueness of such a situation, we conducted a cross-sectional empirical study at the University of Finance and Administration in Prague that combined the attitudes and opinions of both students and academics, thereby allowing for further cross-comparison and a more detailed understanding of the assessment of online learning in both target groups.

Based on the available empirical studies published in the last two years, we can assume that online learning in the university environment is likely to be promoted and sustained to varying degrees as a parallel form of contact learning after this forced reset, even at the universities where distance learning only began to be implemented with the advent of the coronavirus. Universities have equipped themselves with digital infrastructure and have put mechanisms in place to support distance forms of collaboration and contact between students and universities. Above all, however, distance learning has made it possible for both students and teachers to recognize its actual benefits and various sub-benefits.

This trend of more intensive introduction of distance learning, combined with full-time teaching, is currently being promoted at the University of Finance and Administration. Instruction can thus be designed much more frequently in the future in the form of hybrid instruction that combines distance and face-to-face forms of education in various ways, as is already the case at many other universities.

In our case, trust in online teaching has been confirmed particularly among students of the combined form of some study programs, but the same is also true for a considerable number of students of the presentational form of teaching. While academics show some reticence toward online teaching, only a very small proportion of lecturers report a strong rejection of distance education. The key academic competence of lecturers in the form of their communication skills in virtual environments has been confirmed both by students' evaluations and by their subjective self-evaluation. This is an important prerequisite for distance learning to be implemented, expanded, and sustained. The absence of face-to-face contact is a more oppressive experience for teachers and less traumatic for students, who more often than not take a neutral stance on this issue. Nevertheless, this circumstance seems to have a negative effect on the declining interest of students in certain subjects, whose attractiveness may be dampened by the impossibility of personal contact with the teacher during practical exercises and experiments that require live interaction.

The lack of personal interaction in distance education is generally perceived as a common handicap and a collectively shared moment, which also reinforces a shared belief in the need to maintain live interactivity, which is difficult to replace with virtual contact. This may partly explain the likely lower interest of students in using online office hours, indicated by the relatively high proportion of students unable to assess the availability of teachers during their office hours.

The experiences with online teaching forced by the coronavirus pandemic have transformed the university learning space. Universities have equipped themselves with technological and communication infrastructure, increased computer literacy, improved competencies and skills in navigating the online environment, improved technical skills in operating and manipulating devices, and enhanced the ability to teach virtually. The relationship to distance learning remains ambivalent, consisting of a mix of benefits and drawbacks. A hybrid learning model that combines the advantages of contact and virtual learning appears attractive for the future.

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photo: Lucia Bakusová

Petra Kovačević

Solutions Journalism in Practice: The Tension Between Critical and Compelling Presentation of Solutions in BBC's Social Media Video Stories

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ABSTRACT

This study delves into the emerging field of solutions journalism, which strives to report on social issues by highlighting responses to them, while maintaining a critical stance. Specifically, this study investigates how solutions journalism guidelines are understood and implemented in a specific newsroom at the *BBC* that specializes in producing solution-focused social media videos aimed primarily at younger audiences. To this end, the study adopts a mixed-methods approach, combining content analysis of the *BBC*'s solutions video stories with semi-structured interviews with editors and journalists. The analysis reveals a significant disparity between the team's understanding of solutions journalism as a practice that thoroughly scrutinizes solutions and the actual content of the stories they produce. Notably, over half of the sample videos fail to include at least one of the following essential elements that ensure the critical presentation of solutions: the identification of the cause of the problem, an acknowledgment of the limitations of the proposed solutions, or the provision of hard evidence of the effectiveness of the solutions. The findings suggest that various factors in the production process hinder the implementation of these guidelines, including the reliance on audience metrics, the need to comply with *Facebook*'s algorithm, and the perceived preferences of social media audiences. The production process is subject to three competing demands: maintaining a predominantly positive tone, creating an interesting story, and presenting a simple narrative. Consequently, the presentation of solutions leaves little room for critical evaluation by the audience.

KEY WORDS

Audience Engagement. BBC People Fixing the World. BBC. Social Video. Solutions Journalism. Solutions-Focused Journalism. Visual Solutions Journalism.

1 Introduction

The world is not as bad as the news present it – at least according to the practices of constructive journalism and solutions journalism that aim to address the negativity bias in the news and *"offer audiences forward-looking perspectives on how they can actively help steer society in desired directions"*[1]. Their proponents want to tackle some of the biggest issues in journalism today – regain the audiences' fast-eroding trust[2] and dispel the main motives for increasing news avoidance[3] by changing journalists' perspectives of what is newsworthy. At the same time, these practices are positioned as *"'necessary' and 'trustworthy' forms of journalism"*[4] that report critically on positive developments, and ultimately help journalism fulfill its mission of informing and educating people so they can act as informed citizens in democratic societies. However, the practice of solutions journalism has a narrower focus as *"all solutions journalism is constructive journalism but not all constructive journalism is solutions journalism"*[5]. In this way, reporting on responses is only one possible technique of constructive journalism. It is a practically more elaborate approach that has gained momentum and so far has been adapted, at least according to its main proponent, the *Solutions Journalism Network*, *"at 1,700 news organisations in more than 187 countries"*[6].

So far, research has been more concerned with audience effects and with how these practices were set up normatively and in the minds of journalists, and less with the point where all the promises are put to the test – the actual journalistic practice. In research, there has been a somewhat taken for granted assumption that when a newsroom does, for example, a solutions story, it is always a piece of "rigorous, compelling coverage"[7], and that journalists' interpretations of constructive journalism or solutions journalism are directly translated into practice. But as studies have often shown, the gap between journalists' role perceptions and their practice can be significant,[8] and somewhat inevitable because of the hierarchy of influences in the news production process.[9] For this reason, whether constructive journalism and related practices *"can effectively contribute to the renewal of journalism culture and journalism practice is not clear yet"*[10], and the reporting practices in specific newsrooms should be studied more.

[1] HAUTAKANGAS, M., AHVA, L.: Introducing a New Form of Socially Responsible Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 731.

[2] HERMANS, L., GYLDENSTED, C.: Elements of Constructive Journalism: Characteristics, Practical Application and Audience Valuation. In *Journalism*, 2019, Vol. 20, No. 4, p. 537.

[3] See: SERRANO-PUNCHE, J.: Constructive Journalism: A Response to Users' Motivations for News Avoidance. In *Cuadernos.info*, 2020, Vol. 46, p. 153-177.

[4] AITAMURTO, T., VARMA, A.: The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 12.

[5] OVERGAARD, C. S. B.: Mitigating the Consequences of Negative News: How Constructive Journalism Enhances Self-efficacy and News Credibility. In *Journalism*, 2021. [online]. [2023-01-07]. Available at: <https://doi.org/10.1177/14648849211062738>.

[6] *I. Introduction: Welcome. Solutions Journalism Basic Toolkit.* [online]. [2023-01-07]. Available at: <https://learninglab.solutionsjournalism.org/en/courses/basic-toolkit/introduction/welcome>.

[7] Ibidem.

[8] See: MELLADO, C., VAN DALEN, A.: Between Rhetoric and Practice: Explaining the Gap Between Role Conception and Performance in Journalism. In *Journalism Studies*, 2014, Vol. 15, No. 6, p. 859-878. See also: MELLADO, C.: Professional Roles in News Content: Six Dimensions of Journalistic Role Performance. In *Journalism Studies*, 2015, Vol. 16, No. 4, p. 596-614.

[9] See: REESE, S. D., SHOEMAKER, P. J.: A Media Sociology for the Networked Public Sphere: The Hierarchy of Influences Model. In *Mass Communication and Society*, 2016, Vol. 19, No. 4, p. 389-410.

[10] HERMANS, L., DROK, N.: Placing Constructive Journalism in Context. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 687.

In this sense, examining how the *BBC*, *"still probably the most prominent and respected"*[11] public broadcaster, implements a reporting approach that focuses on solutions, is a valuable contribution to the understanding of these practices. Often mentioned alongside *The Guardian*, the *BBC* is highlighted as one of the most prominent 'players' in solutions journalism, not just in the UK but in the world as well. It reports on solutions to problems under a slightly different name though: "solutions-focused" journalism. The *BBC* recognises the goals of solutions journalism as being compatible with its public service mission, and positions solutions-focused journalism as a practice that can *"give a more accurate picture of the world, inspire those who seek to inform, serve the public good and help fulfill the BBC's public purposes without jettisoning our commitment to providing accurate, independent and impartial journalism which includes holding power to account"*[12]. Since 2016, one of its projects called *People Fixing the World* has focused on podcasts, but also on short videos intended for online and social media platforms, and for connecting with particularly younger audience members which have been the *BBC*'s most important target audience.[13] In this way, the *BBC* is one of the rare media organisations that has a solutions project that focuses specifically on a video format, and that does this for online and social media audiences who are increasingly losing interest in news.[14]

The aim of this study is to understand what the main ideas of solutions-focused journalism are and how they are translated into practice in the context of the *BBC*'s most long-standing project and its video team. On the one hand, this study explores the understanding of both critical and compelling presentation of solutions in the mentioned *BBC*'s team. On the other hand, it checks if and how these ideas are reflected in practice and implemented in the context of the video stories that this team produces and that are published on the *BBC*'s website and on the project's *Facebook* page. This approach allows identifying the factors in production that are decisive for the implementation of those solutions journalism guidelines that ensure a solution is critically or 'rigorously' reported on[15] and that have normatively positioned this practice as the one that strives to be *"thorough, accurate, fair and transparent"*[16], and in this way dedicated to the highest professional standards of journalism.

The findings show that the need to be compelling and win over the audience's attention on social media is often done at the expense of presenting solutions critically. Important information about three key elements in solutions reporting – the problem, solution effectiveness, or solutions limitations – is often omitted. This raises the question of what the audiences are left with if they are presented with predominantly the positive aspects of a solution, and whether solutions journalism fulfills the purpose of being more socially responsible towards the audiences in the context of the *BBC*.

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[11] GARDNER, S.: *Public Broadcasting: Its Past and Its Future*. Miami, FL : Knight Foundation, 2017, p. 3. [online]. [2023-02-25]. Available at: <https://kf-site-production.s3.amazonaws.com/media_elements/files/000/000/115/original/Topos_KF_White-Paper_Sue-Gardner_V2.pdf>.

[12] KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016, p. 2.

[13] WATERSON, J.: *BBC at Risk of Losing Young Audiences, According to Ofcom*. [online]. [2023-02-25]. Available at: <https://www.theguardian.com/media/2019/oct/24/bbc-at-risk-of-losing-young-audiences-according-to-ofcom>.

[14] NEWMAN, N., FLETCHER, R., ROBERTSON, C. T., EDDY, K., NIELSEN, R. K.: *Reuters Institute Digital News Report 2022*. Oxford : Reuters Institute for the Study of Journalism, 2022. [online]. [2023-02-25]. Available at: <https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2022-06/Digital_News-Report_2022.pdf>.

[15] See: MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1558-1573.

[16] MCINTYRE HOPKINSON, K., DAHMEN, N. S.: Moving Forward: Bringing Clarity to Productive and Socially Responsible Reporting. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem: From Civic Journalism to Solutions Journalism*. New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 172.

1.1 The Struggle Between the Two Roles

Being both compelling and critical in reporting is central to solutions journalism. It is for this reason that within the discourses of its proponents, an inherent *"struggle over normative boundaries"* is identified,[17] as the practice is trying to strike a balance between the two roles – the traditional monitorial role, and the so-called "constructive" role of journalism. On the one hand, the practice normatively nurtures journalism's 'traditional' monitorial role of acting as a watchdog, reporting critically about what is happening, while striving to implement the journalistic ideals of objectivity, accuracy, and transparency.[18] This includes informing citizens about public events, warning the public of wrongdoings, risks, and problems, and acting as the fourth estate.[19] It is the central aspect of how both constructive and solutions journalism are legitimised, particularly in the face of criticisms that the avoidance of negativity may turn journalism *"into a good-news-show that limits the attention for what is going wrong in the world and the exposure of abuse of power"*[20]*.* In this sense, one of the most prominent claims that the proponents of constructive and solutions journalism make to position the practices alongside other 'serious' journalism is that their stories are distinctive from "superficial and non-solution oriented" positive news stories.[21]

On the other hand, the constructive role is distinctive in the sense that it *"embeds a premise that offering and covering solutions remain within the auspices of journalism"*[22]*.* In this way, it pushes the boundaries of journalism as it does not focus solely on what is not working,[23] but aims to be "a constructive force in the society" that serves the audience better by focusing on effective solutions and accelerating social progress.[24] Being constructive means not only informing and warning citizens about problems in society but also seeking *"to contribute to society's best interests"*[25]*.* In this sense, solutions journalism is positioned under the umbrella of so-called socially responsible journalism practices that report *"beyond the problem-based narrative"* and aim to strengthen audience engagement, achieve a higher level of collaboration with the audience, and provide more context in reporting so citizens can better understand complex issues and events.[26]

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17 AITAMURTO, T., VARMA, A.: The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 14.

18 Ibidem, p. 4-5.

19 CHRISTIANS, C. G. et al.: *Normative Theories of the Media: Journalism in Democratic Societies*. Champaign, IL : University of Illinois Press, 2009, p. 145-146.

20 HERMANS, L., DROK, N.: Placing Constructive Journalism in Context. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 687.

21 LOWES, M., DEVEREAUX FERGUSON, S.: Solutions Journalism: Strategies for Effecting and Managing Change. In *Canadian Journal of Media Studies*, 2021, Vol. 17, No. 1, p. 64.

22 AITAMURTO, T., VARMA, A.: The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 4.

23 WENZEL, A.: *Community-Centered Journalism. Engaging People, Exploring Solutions, and Building Trust*. Champaing, IL : University of Illinois Press, 2020, p. 14.

24 AITAMURTO, T., VARMA, A. The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 14.

25 HAUTAKANGAS, M., AHVA, L.: Introducing a New Form of Socially Responsible Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 731.

26 MCINTYRE HOPKINSON, K., DAHMEN, N. S.: Moving Forward: Bringing Clarity to Productive and Socially Responsible Reporting. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem: From Civic Journalism to Solutions Journalism.* New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 173.

Furthermore, inherent to this practice is the idea that reporting on solutions is more "compelling" for the audience.[27] In this sense, audience engagement is an important aspect of how the practice is conceptualised by its proponents.[28] First, constructive news stories, including those that are solutions-oriented, should engage the audience by being interesting, uplifting, and make it feel better about the world.[29] Second, this would ideally lead to developing *"relational or deep engagement"*[30] that would increase the audience's trust and inspire them as citizens to become more involved in public issues and conversations in their communities, and also to take concrete actions.[31] So far, the studies have found that solutions stories as part of constructive news do elicit more positive emotional responses,[32] and increase audience interest in the topic and the sense of self-efficacy.[33] However, the findings that support solutions journalism's *"prosocial claims about social transformation"* are overall "minimal".[34] While in one study members of stigmatised communities said that they would get locally involved after they read solutions-oriented stories,[35] other studies found that solutions stories and constructive stories do not increase the respondents' willingness to act.[36]

27 *I. Introduction: How Do I Know It's Solutions Journalism? Solutions Journalism Basic Toolkit*. [online]. [2023-01-07]. Available at: <https://learninglab.solutionsjournalism.org/en/courses/basic-toolkit/introduction/how-do-i-know-its-solutions-journalism>.

28 AITAMURTO, T., VARMA, A.: The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 11.

29 See: MCINTYRE, K., GYLDENSTED, C.: Constructive Journalism: Applying Positive Psychology Techniques to News Production. In *The Journal of Media Innovations*, 2017, Vol. 4, No. 2, p. 20-34.

30 WENZEL, A.: *Community-Centered Journalism. Engaging People, Exploring Solutions, and Building Trust*. Champaing, IL : University of Illinois Press, 2020, p. 12.

31 HERMANS, L., DROK, N.: Placing Constructive Journalism in Context. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 684-685; THIER, K.: Opportunities and Challenges for Initial Implementation of Solutions Journalism Coursework. In *Journalism & Mass Communication Educator*, 2016, Vol. 71, No. 3, p. 330.

32 See: MCINTYRE, K., SOBEL, M.: Motivating News Audiences: Shock Them or Provide Them with Solutions? In *Communication & Society*, 2017, Vol. 30, No. 1, p. 39-56. See also: MCINTYRE, K.: Solutions Journalism. In *Journalism Practice*, 2019, Vol. 13, No. 1, p. 16-34; MCINTYRE, K.: "Tell Me Something Good": Testing the Longitudinal Effects of Constructive News Using the Google Assistant. In *Electronic News*, 2020, Vol. 14, No. 1, p. 37-54; HERMANS, L., PRINS, T.: Interest Matters: The Effects of Constructive News Reporting on Millenials' Emotions and Engagement. In *Journalism*, 2022, Vol. 23, No. 5, p. 1064-1081; OVERGAARD, C. S. B.: Mitigating the Consequences of Negative News: How Constructive Journalism Enhances Self-efficacy and News Credibility. In *Journalism*, 2021. [online]. [2023-01-07]. Available at: <https://doi.org/10.1177/14648849211062738>; RUSCH, R., SIMON, E., OTTO, K., FLINTZ, D.: The Impact of Constructive Television Journalism on the Audience: Results from an Online Study. In *Journalism Practice*, 2021, Vol. 16, No. 10, p. 2221-2241.

33 CURRY, A. L., HAMMONDS, K. H.: *The Power of Solutions Journalism*. Austin, TX : Moody College of Communication at the University of Texas, 2014. [online]. [2023-01-07]. Available at: <https://mediaengagement.org/wp-content/uploads/2014/06/ENP_SJN-report.pdf>; GIELAN, M., FURL, B., JACKSON, J.: *Solution-Focused News Increases Optimism, Empowerment and Connectedness to Community*. [online]. [2023-01-07]. Available at: <http://michellegielan.com/wp-content/uploads/2017/03/Solution-focused-News.pdf>; OVERGAARD, C. S. B.: Mitigating the Consequences of Negative News: How Constructive Journalism Enhances Self-efficacy and News Credibility. In *Journalism*, 2021. [online]. [2023-01-07]. Available at: <https://doi.org/10.1177/14648849211062738>; ZHAO, X., JACKSON, D., NGUYEN, A.: The Psychological Empowerment Potential of Solutions Journalism: Perspectives from Pandemic News Users in the UK. In *Journalism Studies*, 2022, Vol. 23, No. 3, p. 356-373.

34 THIER, K.: Solutions Journalism: Reporting on the Response Is Just as Newsworthy as Reporting on the Problem. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem*. New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 54.

35 See: WENZEL, A., GERSON, D., MORENO, E., SON, M., MORRISON HAWKINS, B.: Engaging Stigmatized Communities Through Solutions Journalism: Residents of South Los Angeles Respond. In *Journalism*, 2018, Vol. 19, No. 5, p. 649-667.

36 See: MCINTYRE, K., SOBEL, M.: Motivating News Audiences: Shock Them or Provide Them with Solutions? In *Communication & Society*, 2017, Vol. 30, No. 1, p. 39-56; MEIER, K.: How Does the Audience Respond to Constructive Journalism? In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 764-780; MCINTYRE, K.: Solutions Journalism. In *Journalism Practice*, 2019, Vol. 13, No. 1, p. 16-34; SCHÄFER, S., GREBER, H., SÜLFLOW, M., LECHELER, S.: A Matter of Perspective: An Experimental Study on Potential of Constructive Journalism for Communicating a Crisis. In *Journalism & Mass Communication Quarterly*, 2022. [online]. [2023-01-07]. Available at: <https://doi.org/10.1177/10776990221095751>.

1.2 The Importance of Presenting the Solution Critically

Even though constructive reporting has an overall "positive tone",[37] the proponents of both constructive and solutions journalism say that, unlike positive news stories, these practices are strongly committed to "traditional journalism's core functions".[38] In this sense, solutions journalism strives to be defined by its proponents and practitioners as "regular 'rigorous' journalism" that is a *"parallel form and practice to traditional journalism"*[39] and, therefore, different than positive news. Reporting critically, "objectively" and "without preferences or values" when selecting stories[40] is central to how both constructive and solutions journalism are normatively set up. In the first academic conceptualisation of solutions journalism, though only based on interviews with solutions journalists, McIntyre and Lough position it as, again, "rigorous and comprehensive" practice which has the "traditional journalistic norms" at its heart.[41] In this sense, some practitioners even perceive solutions journalism as *"an extension of investigative journalism"*[42].

In solutions journalism, reporting critically or 'rigorously' means focusing on two questions: "why" and "how" a solution works.[43] Other than breaking down the solution, solutions journalism should *"balance problem-solving with problem-revealing, acknowledging, and questioning the absence of certain solutions"*[44]. In this way, the inclusion of information about both the problem and the solution is equally important for the comprehensive portrayal of solutions, including their visual presentation.[45] Also, this has the potential to *"be more effective at informing audiences about the problems themselves"*[46], while presenting the information about the problem is often not enough to understand it. Identifying both the social problem and its cause in a story is a "fundamental characteristic" that solutions journalism apparently shares with investigative journalism.[47]

Further, McIntyre and Lough offer the first academically operationalised guidelines for solutions journalism.[48] Other than presenting the problem, its cause, and the solution, they point out that presentation of how the solution is implemented, hard or reliable evidence of its effectiveness, and limitations of the response, particularly contribute to *"the rigour of a solutions journalism story"*[49]. So far, this is the closest that being critical or 'rigourous' has come to being conceptualized in the context of this practice.

37 HERMANS, L., GYLDENSTED, C.: Elements of Constructive Journalism: Characteristics, Practical Application and Audience Valuation. In *Journalism*, 2019, Vol. 20, No. 4, p. 547.

38 MCINTYRE, K.: *Constructive Journalism: The Effects of Positive Emotions and Solution Information in News Stories*. [Dissertation Thesis]. Chapel Hill, NC : University of North Carolina at Chapel Hill Graduate School, 2015, p. 15. [online]. [2023-02-25]. Available at: <https://doi.org/10.17615/g6sg-8p47>.

39 AITAMURTO, T., VARMA, A.: The Constructive Role of Journalism. In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 9.

40 Ibidem, p. 14.

41 MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1568-1569.

42 LI, Y.: Assessing the Role Performance of Solutions Journalism in a Global Pandemic. In *Journalism Practice*, 2021, p. 6. [online]. [2023-01-07]. Available at: <https://doi.org/10.1080/17512786.2021.1990787>.

43 THIER, K.: Opportunities and Challenges for Initial Implementation of Solutions Journalism Coursework. In *Journalism & Mass Communication Educator*, 2016, Vol. 71, No. 3, p. 330.

44 LI, Y.: Assessing the Role Performance of Solutions Journalism in a Global Pandemic. In *Journalism Practice*, 2021, p. 15. [online]. [2023-01-07]. Available at: <https://doi.org/10.1080/17512786.2021.1990787>.

45 MIDBERRY, J., DAHMEN, N. S.: Visual Solutions Journalism: A Theoretical Framework. In *Journalism Practice*, 2020, Vol. 14, No. 10, p. 1174.

46 THIER, K., ABDENOUR, J., WALTH, B., SMITH DAHMEN, N.: A Narrative Solution: The Relationship Between Solutions Journalism, Narrative Transportation, and News Trust. In *Journalism*, 2021, Vol. 22, No. 10, p. 2523.

47 WALTH, B., SMITH DAHMEN, N., THIER, K.: A New Reporting Approach for Journalistic Impact. Bringing Together Investigative Reporting and Solutions Journalism. In *Newspaper Research Journal*, 2019, Vol. 40, No. 2, p. 184.

48 See: MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1558-1573.

49 Ibidem, p. 1567.

However, whether solutions journalism lives up to the ideals that position it alongside 'traditional' journalism, and whether solutions are presented according to the solutions journalism guidelines, has barely been explored in research.[50] The balance between this dedication to critically inform audiences about solutions, but in a way that is more socially responsible, is particularly interesting in the context of public service broadcasting, especially in Europe where the idea of doing more constructive journalism *"has received positive resonance among journalism professionals"*[51]*.* These organisations have distinct obligations to their audiences and should know what the public needs in order to participate fully as democratic citizens, while the information they provide is a social or 'merit' good that should be accurate, diverse and of high quality.[52]

1.3 Solutions-Focused Journalism at the BBC

Solutions-focused journalism at the *BBC* has a unique name to show that the *BBC* does not "provide", but only "covers" solutions.[53] It was set up by the *BBC* in 2016. Until now, there have been no studies of this practice, and the information about it has been available in the *BBC*'s documents, articles, and in other publications in the media. According to the *BBC*'s document *Solutions-Focused Journalism: Toolkit,* which used to be publicly available online, solutions-focused journalism – just like solutions journalism – aims to present *"rigorous and compelling analyses of responses to problems"*[54]*.* This practice is also careful not to be equated with positive news – *"tales with affirming narratives featuring people carrying out inspirational acts of generosity or achievement"*[55]*.* This means asking how a problem can be resolved and how a solution works, finding evidence of its effectiveness, and pointing out its limitations. In this way, solutions-focused journalism shares the same normative dedication to 'rigorous' reporting as constructive and solutions journalism, and, within this, *"complies strictly with the BBC editorial standards"*[56] and uses the *BBC Editorial Guidelines*[57] as the backbone of critical solutions reporting. Therefore, reporting on solutions should not be "simplistic", and journalists should take more time to "critically examine the solution".[58]

Yet, the practice is significantly inspired by the *BBC*'s need to reach younger audiences who show an inherent interest in solutions-focused stories.[59] Solutions-focused journalism is positioned as a way to achieve better audience engagement, particularly among young people between the ages of 16 and 34 that are listed as the main "key audience challenge"[60] for this public broadcaster, but at the same time "key to sustainability" at the *BBC*.[61] The *BBC* needs

50 LI, Y.: Assessing the Role Performance of Solutions Journalism in a Global Pandemic. In *Journalism Practice*, 2021, p. 10. [online]. [2023-01-07]. Available at: <https://doi.org/10.1080/17512786.2021.1990787>.

51 AHVA, L., HAUTAKANGAS, M.: Why Do We Suddenly Talk So Much About Constructiveness? In *Journalism Practice*, 2018, Vol. 12, No. 6, p. 657.

52 See: BRANTS, K.: Auditing Public Broadcasting Performance: Its Theory and Practice. In *Javnost – The Public*, 2003, Vol. 10, No. 3, p. 5-11.

53 KASRIEL, E.: *Why We Need Solutions-Focused Journalism*. [online]. [2023-01-07]. Available at: <https://www.bbc.co.uk/blogs/academy/entries/be8991c7-c1c7-42e6-a371-f40278838fa2>.

54 KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016, p. 4.

55 Ibidem.

56 KASRIEL, E.: *Why We Need Solutions-Focused Journalism*. [online]. [2023-02-2025]. Available at: <https://www.bbc.co.uk/blogs/academy/entries/be8991c7-c1c7-42e6-a371-f40278838fa2>.

57 *BBC Editorial Guidelines*. [online]. [2023-01-07]. Available at: <bbc.co.uk/editorialguidelines>.

58 KASRIEL, E.: *Why We Need Solutions-Focused Journalism*. [online]. [2023-02-2025]. Available at: <https://www.bbc.co.uk/blogs/academy/entries/be8991c7-c1c7-42e6-a371-f40278838fa2>.

59 KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016, p. 6.

60 *BBC Annual Plan 2021/22*. London : BBC, p. 44. [online]. [2023-01-07]. Available at: <http://downloads.bbc.co.uk/aboutthebbc/reports/annualplan/annual-plan-2021-22.pdf>.

61 OFCOM: *Ofcom's Annual Report on the BBC 2019*. London : Ofcom, 2019, p. 8. [online]. [2023-01-07]. Available at: <https://www.ofcom.org.uk/__data/assets/pdf_file/0026/173735/second-bbc-annual-report.pdf>.

to make content that young people will find both relevant and interesting, or it will risk *"a lost generation of viewers"*[62]. Other public broadcasters are facing the same challenge as they try to stay relevant within *"the market dominance of streaming giants, internet platforms, and other large commercial players in the digital age"*[63]. In pre-interviews for this study, the editor of the *BBC*'s *People Fixing the World* project confirmed that video was the main format intended for reaching young audiences globally, and therefore the team invested their efforts primarily in crafting engaging solutions-focused video stories. The key video-sharing platform used by the project until July 2020 was *Facebook*. Now the stories are published on the *BBC World Service* social media accounts.

In this sense, the *BBC*'s project is an opportunity to explore the ideas of solutions reporting, and if and how they are actually implemented in content, all in the context of a particular newsroom at the *BBC* whose "broader principles" were a model for other public broadcasters around the world,[64] with editorial standards and practices which remain an international role model to this day. Additionally, solutions reporting in videos has not been explored at all, even though the combination of moving images and text that can create nuanced meanings and understandings. Even though videos have been considered in the development of the first theoretical framework for visual solutions journalism,[65] the framework itself focused primarily on photographs, the only visual format studied so far in the context of solutions reporting.[66] As *"the visual message presented in a news story may have a greater effect on the reader than the text"*[67], examining how solutions are reported on in video stories is a vital contribution to the field of visual solutions journalism.

2 Methodology

The study explored the following three research questions:

1. What are the key ideas present in journalists' and editors' understandings of solutions-focused journalism in the *BBC*'s *People Fixing the World* team?
2. 2) Are the solutions journalism guidelines related to the critical presentation of solutions implemented in the *BBC*'s solutions-focused video stories?
3. 3) What are the main factors in the production process that determine the way solutions-focused video stories are made?

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62 OFCOM: *Ofcom's Annual Report on the BBC 2019*. London : Ofcom, 2019, p. 10. [online]. [2023-01-07]. Available at: <https://www.ofcom.org.uk/__data/assets/pdf_file/0026/173735/second-bbc-annual-report.pdf>.

63 *EBU News Report 2021-22. What's Next? Public Service Journalism in the Age of Distraction, Opinion & Information Abundance.* Geneva : European Broadcasting Union, 2021, p. 6. [online]. [2023-01-07]. Available at: <https://www.ebu.ch/files/live/sites/ebu/files/Publications/strategic/open/News_report_2021.pdf>.

64 HODKINSON, P.: *Media, Culture and Society*. London : Sage Publication, 2017, p. 141.

65 See: MIDBERRY, J., DAHMEN, N. S.: Visual Solutions Journalism: A Theoretical Framework. In *Journalism Practice*, 2020, Vol. 14, No. 10, p. 1159-1178.

66 See: LOUGH, K., MCINTYRE, K.: Visualizing the Solution: An Analysis of the Images That Accompany Solutions-Oriented News Stories. In *Journalism*, 2019, Vol. 20, No. 4, p. 583-599. See also: MCINTYRE, K., LOUGH, K., MANZANARES, K.: Solutions in the Shadows: The Effects of Incongruent Visual Messaging in Solutions Journalism News Stories. In *Journalism & Mass Communication Quarterly*, 2018, Vol. 95, No. 4, p. 971-989; DAHMEN, N. S., THIER, K., WALTH, B.: Creating Engagement with Solutions Visuals: Testing the Effects of Problem-Oriented Versus Solution-Oriented Photojournalism. In *Visual Communication*, 2019, Vol. 20, No. 2, p. 271-288; LI, Y.: The Synergistic Effects of Solutions Journalism and Corporate Social Responsibility Advertising. In *Digital Journalism*, 2021, Vol. 9, No. 3, p. 336-363.

67 LOUGH, K., MCINTYRE, K.: Visualizing the Solution: An Analysis of the Images That Accompany Solutions-oriented News Stories. In *Journalism*, 2019, Vol. 20, No. 4, p. 596.

In terms of the solutions journalism guidelines, this study used the ones operationalised by McIntyre and Lough as a guarantee that a solutions story will 'rigorously' or critically present all the aspects of the solution and the problem-solving process.[68] The four guidelines are:

- Presentation and explanation of the problem and its cause.
- Explanation of how the solution is implemented (how it works).
- Presentation and explanation of hard evidence of solution effectiveness.
- Presentation and explanation of solution limitations.

Each guideline was operationalised as a set of variables that examined if they are both textually and visually presented in each solutions-focused video story. Additionally, one variable explored the topics of *BBC*'s solutions-focused stories. The last three listed guidelines can also be found in the *BBC*'s *Solutions-Focused Journalism Toolkit*.[69] Checking if they are implemented, along with journalists' and editors' understandings of these guidelines, contributes to a clearer conceptualisation of solutions-focused journalism at the *BBC* (Appendix 1).

In order to explore the three questions, this study was conducted in two research phases. First, I analysed 119 solutions-focused video stories published by the *BBC*'s *People Fixing the World* both on its website and its *Facebook* page. For this, I used content analysis as it enabled me to systematically operationalise and check if a specific solutions journalism guideline is implemented. The sample included all the stories published from the beginning of the project in November 2016 until March 2019 when I started coding. The textual presentation meant looking at any information in either the voiceover, captions, or soundbites. There were altogether 16 variables in the coding frame. The analysis was conducted by one coder in April and May 2019 and previously checked for inter-coder reliability in the pilot study. The ICR test showed a consistently high level of agreement across all variables (0.84 KA).

In phase two, I explored the understanding of solutions-focused journalism and what factors shape the implementation of these ideas in actual practice. I conducted semi-structured interviews with two editors and seven journalists on the team identified as makers of the solutions-focused video stories that I had analysed. This was a highly targeted sample of journalists and editors exclusively related to the project. Each interviewee was personally contacted through e-mail. The interview consisted of two parts. The interviewees were first asked to share their understanding of the *BBC*'s solutions-focused journalism. Then they were presented with the findings of content analysis and asked to comment on the results. The interviews were conducted via video calls in September and October of 2020 and lasted between 30 and 60 minutes, with the exception of one interview that lasted 90 minutes. The interview data was analysed using the method of thematic analysis to identify *"what is common to the way a topic is talked or written about and of making sense of those commonalities"*[70]. This included looking at evident and intricate aspects of what the interviewees say, and the meanings they create about their own understanding of the practice. I analysed the interviews and extracted the codes and, subsequently, the themes manually, without using any qualitative analysis software. This is because many of the questions in the interviews I conducted were open-ended and designed in such a way to reveal different nuanced approaches that ultimately gave shape to this practice within the team.

The choice of methods used in this study was guided by the following strategy: *"to attack the research problem with an arsenal of methods that have non-overlapping weaknesses"*[71], and to gain an in-depth understanding of solutions-focused journalism in the *BBC*'s *People Fixing*

68 MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1567.

69 KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016, p. 4.

70 BRAUN, V., CLARKE, V.: *Successful Qualitative Research: A Practical Guide for Beginners*. London : Sage Publication, 2013, p. 57.

71 BREWER, J., HUNTER, A.: *Foundations of Multimethod Research: Synthesizing Styles*. Thousand Oaks, CA : Sage Publications, 2006, p. 4.

the World team by examining both sides of the production process. Incorporating qualitative and quantitative methods, interviews and thematic analysis, together with content analysis, is particularly helpful in research when the aim is to expand the understanding of a complex phenomenon;[72] in this case, the nuances of a particular journalistic practice and the potential gap between what is said and what is done.

3 Results

3.1 In Practice: Implementation of Solutions Journalism Guidelines in the BBC's Video Stories

The findings demonstrate a disparity between journalists' and editors' ideas and the practice of solutions reporting. There is a clear tension between what the members of this team feel 'rigorous' reporting about solutions should be, and the need to adapt both the reporting and the format to the audience and the social media platform. This is reflected in the solutions-focused video stories. Three out of four guidelines of solutions journalism are implemented in less than half of the video stories in the sample. It shows that the responsibility of solutions journalists *"to bring to audiences the complete story"*[73] is predominantly not fulfilled in the *BBC*'s solutions-focused stories.

3.1.1 The Problem and Its Cause

In solutions-focused stories, journalists need to "encapsulate the problem", but do not need to present it in detail, especially if the audience is already aware of it.[74] The findings show that this is exactly what is done in the solutions-focused video stories, and subsequently, the cause of the problem is for the most part disregarded. As presented in Table 1, 96.6% of stories in the sample do present the problem, and the problem is visually represented in 73.9% of them. There is an apparent effort made by the team of journalists to dedicate a specific place in their solutions stories to this information. However, 43.7% of stories present and explain the cause of that problem, while 55.8% of those stories that mention the cause of the problem textually, present it also visually.

Is the problem presented?	Yes: 96.6% (N=115)
	No: 3.4% (N=4)
Is the problem visually represented?	Yes: 73.9% (N=85)
	No: 26.1% (N=30)
Is the cause of the problem and the context within which it arose presented?	Yes: 43.7% (N=52)
	No: 56.3% (N=67)
Is the cause of the problem visually represented?	Yes: 55.8% (N=29)
	No: 44.2% (N=23)

TABLE 1: *Presentation of the problem and its cause*

Source: own processing, 2023

72 WIMMER, R., DOMINICK, J.: *Mass Media Research: An Introduction*. Belmont, CA : Thomson Wadsworth, 2006, p. 117.

73 THIER, K.: Solutions Journalism: Reporting on the Response Is Just as Newsworthy as Reporting on the Problem. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem*. New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 47.

74 KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016, p. 9.

3.1.2 Solution Implementation – How It Works

Furthermore, the importance of explaining how the solution works is central in the *BBC*'s solutions-focused video stories and, therefore, this is the only guideline that was followed in almost all the stories. As shown in Table 2, 98.3% of the stories include details about how a certain response is implemented, while 92.4% of the stories present solutions used in real life. Additionally, a tangible solution is presented in 94.1% of the stories. This is no surprise because video is a highly visual medium and the solution that is reported should be implemented and tangible so it can be recorded.

Does the story include details on how the solution is implemented?	Yes: 98.3% (N=117)
	No: 1.7% (N=2)
Is the solution tangible or hypothetical?	Tangible: 94.1% (N=112)
	Hypothetical: 5.9% (N=7)
Is the solution implemented in real life?	Yes: 92.4% (N=110)
	No: 7.6% (N=9)
Is the solution implementation visually represented?	Yes: 98.3% (N=117)
	No: 1.7% (N=2)

TABLE 2: *Presentation of solution implementation*

Source: own processing, 2023

It is also worth considering the fact that the most covered solutions topics are environment, health, and children's well-being. Other topics that were identified are presented in Table 3. While it is not fair to assess what problems and responses are more important than others, it is important to note that the *BBC*'s solutions stories in the sample rarely cover topics related to conflict, including political and governance issues. Therefore, there is a tendency to disregard the topics that have an inherent negativity bias.

The topic of the solutions-focused story	N=119
Environment and sustainability	27.7% (N=33)
Health	13.4% (N=16)
Children's well-being	9.2% (N=11)
Mental health	6.7% (N=8)
Planning and development	5.9% (N=7)
People with disabilities and their well-being	5.0% (N=6)
Community building	4.2% (N=5)
Transport and traffic	4.2% (N=5)
Gender equality	3.4% (N=4)
Peacebuilding	2.5% (N=3)
Crime	2.5% (N=3)
Refugees	2.5% (N=3)
Poverty	1.7% (N=2)
Third age	1.7% (N=2)
Agriculture and farming	1.7% (N=2)
Corruption	0.8% (N=1)
Police	0.8% (N=1)
Housing	0.8% (N=1)
Media	0.8% (N=1)

Language	0.8% (N=1)
Animals	0.8% (N=1)
Cyber security	0.8% (N=1)
Consumer issues	0.8% (N=1)
Anti-radicalisation	0.8% (N=1)

TABLE 3: *Topics of solutions-focused stories*
Source: own processing, 2023

3.1.3 Hard Evidence That a Solution Works

Furthermore, the guideline stating that a solutions story must include hard evidence or reliable data that prove the impact of solution implementation is adhered to in 49.6% of the stories (Table 4). Therefore, in 50.4% of the stories, no hard evidence of the solution's effectiveness is presented. Either no evidence is presented, or the evidence is purely anecdotal.

Is there hard evidence or reliable data that show the impact of solution implementation?	Yes: 49.6% (N=59)
	No: 50.4% (N=60)
If yes, what is it?	Numerical data (statistics): 66.1% (N=39)
	Qualitative data: 33.9% (N=20)
If yes, who presents the evidence?	Journalist: 88.1% (N=52)
	Solution inventor: 5.1% (N=3)
	Solution provider: 3.4% (N=2)
	Solution receiver: 1.7% (N=1)
	Journalist and solution inventor: 1.7% (N=1)

TABLE 4: *Hard evidence of solution effectiveness*
Source: own processing, 2023

Hard evidence is presented predominantly by the journalist (88.1%), either through numerical data (66.1%) or qualitative data (33.9%) about solution effectiveness. The sources of evidence are academic journals, official reports, or other sources, including the solution inventors. However, often the source of evidence is not attributed and, instead, phrases like "studies show" or "initial studies suggest" are used by the journalist. Among the stories that do not present any hard evidence, only four stories in the sample clearly state that the journalist searched for hard evidence, but without success.

3.1.4 Solution Limitations

In terms of presenting the downsides of the solution or obstacles to its implementation, at least one limitation is presented in 43.7% of the stories in the sample (Table 5). Therefore, in 56.3% of the stories, the solution is presented as impeccable and flawless. Among the stories that do present it, in 69.2% of them only one limitation is mentioned. Moreover, when a limitation is textually presented in a story, it is visually represented in 48.1% of the cases. In other stories, limitations are accompanied by visuals of the solution and how it works, which can mitigate the significance or the severity of the limitation for the audience.

Are there any reported solution limitations?	Yes: 43.7% (N=52)
	No: 56.3% (N=67)
If yes, how many limitations are reported?	One limitation: 69.2% (N=36)
	Two limitations: 28.9% (N=15)
	Three or more limitations: 1.9% (N=1)
Is the limitation visually presented in the story?	Yes: 48.1% (N=25)
	No: 51.9% (N=27)

TABLE 5: *Solution limitations*

Source: own processing, 2023

3.2 Journalists and Editors: What Solutions-Focused Video Stories Should Be

Before getting into journalists' and editors' reasons behind the results of the content analysis, it is first important to identify their notions of solutions-focused journalism at the *BBC* and how they think solutions should be reported on. Interviews confirm what is reflected in the solutions-focused video stories – that the members of this team are stuck between the two worlds: the need to protect their journalistic integrity, and the need to please the perceived expectations of their target audience – young people on social media. First, the interviewees position it as a 'rigorous' journalistic practice by conceptualising the *BBC*'s solutions-focused journalism in opposition to positive news.

3.2.1 'Not Positive News'

In the interviews, there is a clear tendency to present solutions-focused journalism as a serious journalistic practice within the *BBC* that does more than just present solutions. One member of the team sums it up: *"There's a desire not to be, to differentiate yourself from just good news in order to be taken seriously* […] *and because it's not what we're doing. Granny loves to juggle. Dog surfing. We're not that. There are a lot of serious hard journalists at the BBC. Any sense that we're choosing nice happy stories to make you feel good* […] *it's important to make it clear that we're not doing that."* (Interviewee 7)

In this way, solutions-focused stories are described as the opposite of positive news or good new stories which, according to the interviewees, lack the necessary journalistic 'rigour' and context. This is in line with the proponents of solutions journalism who say that *"the solution is not to produce more positive news but to create more knowledge, to truly understand how the world works"*[75]. One of the editors (Interviewee 8) clarifies that positive news and the *BBC*'s solutions-focused news stories still have one thing in common – a promise that the story is going to have an overall "positive tone".

3.2.2 Journalistic 'Rigour' in Solutions-Focused Journalism

Furthermore, before journalists and editors were presented with the findings of the content analysis, what stood out in their understanding of solutions-focused journalism is the tenacity to rigorously pick apart any solution and present it truthfully to the audience. The journalists and editors pointed out the same three out of four solutions journalism guidelines as the key elements of 'rigour' in their solutions-focused video stories: explaining how a solution works, presenting the limitations of solutions, and assessing all the available evidence about its effectiveness. However, they did not address the cause of the problem.

[75] SILLESEN, L. B.: *Good News Is Good Business, but Not a Cure-All for Journalism.* [online]. [2023-01-07]. Available at: <http://archives.cjr.org/behind_the_news/good_news_is_good_business_but.php>.

Above all, this team at the *BBC* cares strongly about maintaining their journalistic and editorial integrity in solutions reporting, which they relate to supporting their organisation's role and reputation as an internationally recognised public broadcaster. For them, doing solutions-focused journalism implies a higher level of responsibility expected of the *BBC*. Although solutions-focused stories help the audience to understand the world better, journalists should not act as advocates or endorse solutions.

3.2.3 Why These Aspirations Are Seldom Realised

However, the need to rigorously pick apart every solution in practice is obstructed by multiple factors. As the editors pointed out, this team is faced with the challenge of keeping a balance between its journalistic responsibility and making this project a success in terms of audience metrics. This is apparent from the reasons journalists and editors gave when they were presented with the results of the content analysis. The initial surprise was followed by explanations. One of the editors said: *"I should be taking this as a problem. To answer that directly… The craft was difficult. And we learnt to get better at it with time.* […] *In my team, I hired some of the best VJs and radio journalists I could find.* […] *My video makers were confronting a very difficult balance. How do you keep the thing compelling, and video is an emotional medium… It is more difficult to do this form of journalism in short-form video than any other format. I think we got there in most of the cases, and I'm proud that we did. But I won't pretend that every video we made in the first six months was absolutely on balance."* (Interviewee 8)

The focus on young audiences and publishing on social media raised distinct concerns for this solutions-focused team, e.g. finding ways of sparking audience interest and inspiring engagement in the form of likes, comments and shares; as well as addressing the audience's short attention span and tuning into their expectations of social video stories in terms of narrative and length. Within this, I identify three distinct demands imposed on the way solutions-focused video stories are made and told.

1) To be positive

First, a solutions-focused video story for a social audience needs to be positive and report on a brilliant, workable solution that makes the world 'a better place'. It should be 'uplifting' and leave the audience inspired and hopeful about the world, their own lives, and the future. They want to reach the audience, strike a similarly positive tone, but again attract young, solution-oriented people.

However, for journalists, the need to be positive also means not dwelling too much on the problem or the negative aspects of the solution. They feel that the audience on social media loses interest when the content is overly negative, while positivity is more engaging. A former video journalist on the team identifies an established approach in the way the problem is presented in the *BBC*'s solutions videos: *"Keep it positive. Leave the problem and go back to the positive."* (Interviewee 3)

As another video journalist (Interviewee 1) explains, the audience already knows what the problem is, and the most important thing is to *"recap"* it and *"make them care"* about it. This is one of the reasons why the cause of the problem is often omitted. However, I identify stories in the sample where the cause of the problem is not presented, even though it could be considered complex. For example, in a story about an initiative that unites young Israelis and Palestinians, the conflict is mentioned in the video, but no additional resources are presented to explain the cause of it. Keeping a positive tone is also the reason why limitations or drawbacks of the solution are often not mentioned as they may break *"the spell of a journey you're going on."* (Interviewee 1)

2) To be interesting

Second, a solutions video story also needs to be interesting, which depends on the solution itself, as well as storytelling. This team feels a solution needs to make the audience curious by being either, or both, surprising and innovative. Here, the power of the idea of the solution is seen as the main 'force' that makes a solutions-focused story compelling. Journalists also added that they pitch ideas to cover only those solutions that are visually captivating for the audience. In terms of the findings which show that the *BBC*'s stories report on solutions that belong to 'softer' domains and avoid 'hard' news topics, the editors disagreed that there are certain topics that are more likely to be chosen, while the journalists said they suggest those that are more in line with the audiences' preferences on social media.

3) To be simple

Third, not fulfilling the three solutions journalism guidelines is explained by the need to simplify the video story. On the one hand, journalists fear that the inclusion of criticism may change the positive tone of the story and that these 'details' have the potential to make the story complicated, boring, and off-putting for the audience. On the other hand, the simplified way in which the solutions and problems are presented is also due to the social media platform where the videos are published. Journalists kept pointing out the need to play along with *Facebook*'s algorithm and pack everything into a format that is 'supported' by this platform. This means taking into consideration the overall length of the video, which should be short. The journalists say they assess the amount of information that the audience can take in and simplify the story accordingly, which means that not all information that a journalist gathers about a solution is ultimately included in the video.

One journalist (Interviewee 5) said that in video there is *"a very limited amount of time to engage the audience"*, and added that not including a limitation *"may happen"*, but that the team is still *"careful not to present it* [solution] *as a magic bullet"*. Another journalist (Interviewee 3) justified the results of the content analysis by saying that in social videos the aim is not to *"create a rounded picture that you would in a news package"*, but that it should be primarily a way of *"creating a starting point for a conversation"*.

Additionally, both editors and journalists pointed out that each solutions story is told in two formats – the video, which is on average 3 minutes long, and the 24-minute podcast. In the podcast, there is more time to discuss the solution, unlike in the video for social media. However, the editors said no clear strategy was developed to guide the audience from *Facebook* to the *BBC*'s webpage where the podcasts are published.

3.2.4 'Some' Evidence May Be Enough

Along with the three demands, another point that came up in the interviews concerns the evidence about solution effectiveness. According to the journalists, working on a solutions story includes a lot of reading of scientific journals and speaking with experts to understand the actual impact of a solution. They added that it is already expected that the *BBC* would not choose to report on "just any solution".

However, they explain the results of the content analysis by pointing out that "hard" evidence is not always crucial in story selection. Sometimes, if the solution itself is assessed as "interesting" and there is "some" evidence of its effectiveness, it still may be reported on. One of the editors (Interviewee 9) explains that the team makes a distinction between two levels of evidence – scientific research and anecdotal evidence, both of which are considered relevant in terms of choosing what solution to report on, but as one editor adds, *"when you don't have evidence, we need to be clear what level of evidence we're talking about"*. Therefore, by pointing out that anecdotal or soft evidence is sometimes sufficient for the solution to be reported on, the team loosens up the understanding of solutions journalists interviewed by McIntyre and Lough who say that the rigour of a story is based on reliable "hard" evidence.[76]

[76] See: MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1558-1573.

4 Discussion and Conclusions

While journalists and editors on the team understand solutions-focused journalism as a 'rigorous', but also engaging practice, the *BBC*'s stipulation that *"all the relevant facts and information should be weighed to get at the truth"*[77] is not always reflected in the *BBC*'s solutions-focused video stories. The cause of the problem, solution limitations, or reliable evidence of solution effectiveness that ensure a journalistically 'rigorous' approach to solution presentation are left out in more than half of the stories analysed. In this way, the stories present solutions in a positive tone, but without any apparent critical perspective. Therefore, reporting about solutions in this case study proves to be significantly different from both its advocates' and the *BBC* solutions-focused team's intentions to meticulously investigate solutions.

I identify solutions-focused journalism at the *BBC* set up primarily as a strategy of boosting audience metrics, at least in the context of video content intended for social media. The team does not measure the success of the project so much by checking the quality of journalism, even though its members deem it important, but primarily through *"quantifying popularity"*[78]. While audience metrics can be valuable for solutions reporting if positioned within a framework that is meaningful for achieving the ideals of solutions journalism,[79] the way solutions reporting is conceptualised and practised in the *BBC* team is significantly detached from the ideal of engaging audiences in ways that would inspire them to become more active citizens committed to social progress.

Furthermore, the uncritical presentation of solutions in many of the *BBC*'s video stories refutes the notion that solutions stories *"are not positive news, or journalism aimed at uplifting audiences, although they may invoke positive emotions"*[80]. The debate that constructive journalism, including solutions reporting, can become an object of *"ill-informed or derisory interpretations reducing the notion to 'uncritical reporting' or simply 'happy news'"*[81] seems to extend to the *BBC*'s practice.

According to the journalists and editors, *Facebook* shapes the audience's preferences for certain topics and stories that are more positive, while the platform's algorithm imposes demands on these video stories in terms of their length. Even though the members of the *BBC*'s *People Fixing the World* team do it rather reluctantly, counting likes and views on *Facebook* led to adapting a softer reporting approach, common for news stories shared on *Facebook*.[82] This is also reflected in accepting anecdotal evidence as being enough for the solution to be reported on. In this way, presenting solutions-focused journalism strictly as a rigorous journalistic practice[83] is inaccurate.

Moreover, the uncritical presentation of solutions is not in line with this broadcaster's public purpose of providing accurate and impartial news *"to help people understand and engage with the world around them"*[84]. Even though engagement in newsrooms is often positioned as *"a means to an end of more financially sustainable journalism"*, rather than *"a means to an end of*

77 *BBC Editorial Guidelines*. [online]. [2023-01-07]. Available at: <bbc.co.uk/editorialguidelines>.

78 COSTERA MEIJER, I.: What Is Valuable Journalism? Three Key Experiences and Their Challenges for Journalism Scholars and Practitioners. In *Digital Journalism*, 2022, Vol. 10, No. 2, p. 232.

79 WENZEL, A.: *Community-Centered Journalism. Engaging People, Exploring Solutions, and Building Trust*. Champaing, IL : University of Illinois Press, 2020, p. 153-154.

80 THIER, K.: Solutions Journalism: Reporting on the Response is Just as Newsworthy as Reporting on the Problem. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem*. New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 49.

81 MAST, J., COESEMANS, R., TEMMERMAN, M.: Constructive Journalism: Concepts, Practices, and Discourses. In *Journalism*, 2019, Vol. 20, No. 4, p. 496.

82 See: LAMOT, K.: What the Metrics Say. The Softening of News on the Facebook Pages of Mainstream Media Outlets. In *Digital Journalism*, 2022, Vol. 10, No. 4, p. 517-536.

83 See: KASRIEL, E.: *Solutions-Focused Journalism: Toolkit*. London : BBC News, 2016.

84 *BBC Mission, Values and Public Purposes*. [online]. [2023-01-07]. Available at: <https://www.bbc.com/aboutthebbc/governance/mission#:~:text=Our%20mission%20is%20%22to%20act,inform%2C%20educate%20and%20entertain%22>.

community and civic engagement"[85]; at the *BBC*, the engagement with solutions-focused video stories is positioned primarily as a way to *"renew the appeal of public service broadcasting"*[86], particularly in the context of connecting with younger audiences worldwide. The *BBC*, like other newsrooms, seeks to become distinguishable and competitive in *"journalism's current market information regime"*[87], by focusing on audience size and growth reflected in metrics, rather than exploring if and how the audience truly engages with the solutions presented. With the plan to abolish the *BBC* license fee in 2027, the question remains if the focus on audience metrics will help the public broadcaster to remain distinguishable in the market and dedicated to *"delivering distinctive and impartial content"*[88]. Also, presenting only the bright side of a solution may not contribute to the public broadcasters' mission of *"helping children and young audiences to become well-informed citizens"*[89].

Nevertheless, it should not be overlooked that many of the stories in the sample still do follow the four solutions journalism guidelines and are proof that a solutions-focused video story can present the solution more comprehensively, and still be interesting and positive. But the need to simplify the story needs to be reconsidered, as it often means omitting some crucial information about the solution, which does not allow the audience to critically evaluate it.

Additionally, even though the video is a far more complex format in terms of engaging readers than a news article[90], the findings enhance the significance of Midberry and Dahmen's study of visuals in solutions articles in which many *"fell short of including rigorous visual reporting"*[91]. The visual representation of the examined elements of solutions reporting in the *BBC*'s video stories significantly digresses from the importance of comprehensive and precise visual coverage of problems and responses pointed out in the authors' theoretical framework for visual solutions journalism.

However, this study has several limitations. First, it focused on those aspects of solutions reporting pointed out in the research as the indication of journalistic 'rigour',[92] while it excluded those that the proponents of solutions journalism also find important, e.g. conveying an insight or a teachable lesson. Second, this study applied the only academically operationalised notion of 'rigour',[93] but I argue that the fluidity of this concept remains an open issue in constructive and solutions journalism. Third, this is a small case study which focused on one team of *BBC* journalists and editors and, therefore, conclusions cannot be made about the solutions reporting at the *BBC*. However, the findings are still indicative of potential obstacles for other newsrooms and news organisations that choose to implement solutions reporting.

85 WENZEL, A.: *Community-Centered Journalism. Engaging People, Exploring Solutions, and Building Trust*. Champaing, IL : University of Illinois Press, 2020, p. 12.

86 BELAIR-GAGNON, V., NELSON, J. L., LEWIS, S. C.: Audience Engagement, Reciprocity, and the Pursuit of Community Connectedness in Public Media Journalism. In *Journalism Practice*, 2019, Vol. 13, No. 5, p. 562.

87 NELSON, J. L.: The Elusive Engagement Metric. In *Digital Journalism*, 2018, Vol. 6, No. 4, p. 529.

88 *BBC License Fee to Be Frozen at £159 for Two Years, Government Confirms*. [online]. [2023-01-07]. Available at: <https://www.bbc.com/news/entertainment-arts-60027436>.

89 *The Value of PSM: Young Audiences. Strategy Unit & Media Intelligence Service*. Geneva : European Broadcasting Union, 2020, p. 2. [online]. [2023-01-07]. Available at: <https://www.ebu.ch/files/live/sites/ebu/files/Publications/strategic/login_only/EBU-C2S-The_Value_of_PSM-Casebook-Young_Audiences-Public_version.pdf>.

90 See: FILAK, V. F.: Structure and Storytelling. In FILAK, V. F. (ed.): *Convergent Journalism Writing and Producing Across Media*. 2nd Edition. Hoboken, NJ : Taylor and Francis, 2014, p. 48-58.

91 MIDBERRY, J., DAHMEN, N. S.: Visual Solutions Journalism: A Theoretical Framework. In *Journalism Practice*, 2020, Vol. 14, No. 10, p. 1174.

92 See: THIER, K.: Opportunities and Challenges for Initial Implementation of Solutions Journalism Coursework. In *Journalism & Mass Communication Educator*, 2016, Vol. 71, No. 3, p. 329-343. See also: MIDBERRY, J., DAHMEN, N. S.: Visual Solutions Journalism: A Theoretical Framework. In *Journalism Practice*, 2020, Vol. 14, No. 10, p. 1159-1178; MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1558-1573.

93 See: MCINTYRE, K. E., LOUGH, K.: Toward a Clearer Conceptualization and Operationalization of Solutions Journalism. In *Journalism*, 2021, Vol. 22, No. 6, p. 1558-1573.

The way newsrooms understand audience engagement in the context of solutions reporting may play an important role in the way this practice is interpreted, and its stories are told. Future studies should examine solutions reporting practices in the context of newsrooms to identify other factors that may mitigate both the understanding and implementation of solutions journalism ideals. Additionally, the production side of visual solutions journalism should be given more scholarly attention, particularly video. How the need to be both informative and compelling is visually realised, and if and how this is congruent with what is said, can reveal more about the complexities of how solutions are presented, and therefore strengthen both the visual and the conceptual framework for solutions reporting.

Most importantly, this study reopens the controversial debate that the ideas of solutions journalism and similar practices that want to report on positive developments in society can become a fertile ground for news stories that have little to do with austere journalism standards. Telling a solutions story means taking into consideration the publishing platform, the format, the audience, but also the goals of the organisation. The findings also demonstrate how news organisations are *"re-negotiating news values in the digital age"*[94], with audience metrics or "expected reception" on digital platforms evolving into a news value. This, as this study showed, has the potential to seriously erode the very foundations of solutions journalism and similar practices – particularly their adherence to the notions of being *"thorough, accurate, fair, and transparent"*[95], which particularly the *BBC* as a public broadcaster should care most about.

Appendix 1: Operationalisation of Variables for Content Analysis

PROBLEM AND CAUSE
1. Is the problem presented? 1 – Yes, 0 – No *The problem is directly addressed in the story, either in text or in visuals (or both).*
2. Is the cause of the problem and the context within which it arose presented? 1 – Yes, 0 – No *The story presents the reasons why the problem happens and what causes it - either in text or in visuals (or both).*
3. Is the problem visually represented? 1 – Yes, 0 – No *This includes visuals in which the problem that is described is explicitly shown, and the audience is visually presented with information on how the problem is manifested. This does not include visuals that do not represent the problem at all but are used while the problem is presented. For example, if the theme of the story is pollution, and the journalist in the voice-over is presenting the problem, if the visuals feature a bridge and a river, or the sky, or visuals of the city – without visually showing what pollution looks like or what it causes – then the problem is not visually represented.*
4. Is the cause of the problem visually represented? 1 – Yes, 0 – No *This refers to visuals which represent the cause of the problem, but at times the same visuals may represent both the problem and its cause. For example, if a story is about elderly people being lonely, a visual that shows a person who is alone and who observes the people passing by, may be seen as both a visual of the problem – the people are lonely, and of the cause of the problem – they do not have family, or they do not live close enough to visit them.*

[94] KRISTENSEN, L. M.: Audience Metrics: Operationalizing News Value for the Digital Newsroom. In *Journalism Practice*, 2021, Vol. 17, No. 5, p. 1005.

[95] MCINTYRE HOPKINSON, K., DAHMEN, N. S.: Moving Forward: Bringing Clarity to Productive and Socially Responsible Reporting. In MCINTYRE HOPKINSON, K., DAHMEN, N. S. (eds.): *Reporting Beyond the Problem: From Civic Journalism to Solutions Journalism.* New York, Bern, Berlin, Bruxelles, Oxford, Wien : Peter Lang, 2021, p. 172.

SOLUTION IMPLEMENTATION

5. Does the story include details on how the solution is implemented?
    1 – Yes, 0 – No

Information about the ways this solution works, the ways it is or can be used, and how it manifests in real-life situations. This also includes hypothetical solutions in trial test runs that are not yet implemented in real life, but the audience is presented with details how the solution works and what its effects should be if it is applied.

6. Is the solution tangible or hypothetical?
    1 – Yes, 0 – No

If the solution is tangible, it means that it exists and is used in the physical reality. This includes solutions that are in the trial period. If it is an object, it is produced and used. If it is an event, it took place and people were aware of it. If it is a concept (for example, a special type of a school), it is implemented daily (classes are held). A hypothetical solution is only an idea or a theory that has not been in any way tested, implemented, or made tangible in real life situations. However, this does not mean that the idea cannot be visually demonstrated, for example, with the use of animated graphics.

7. Is the solution implemented in real life?
    1 – Yes, 0 – No

The solution is used and applied outside of testing or experimental conditions, in real life situations and environment in which people, animals, plants or places are benefiting from this solution or can reach it.

8. Is solution implementation visually represented?
    1 – Yes, 0 – No

Visuals of how the solution works, and in what way it responds to the problem.

EVIDENCE OF SOLUTION EFFECTIVENESS

9. Is hard evidence or reliable data that show the impact of solution implementation presented?
    1 - Yes, 0 – No

Hard evidence is reliable data about solution effectiveness that has been collected independently, scientifically, and by a reliable source. It can be numerical data, but also qualitative data from an independent report or academic research. This does not include anecdotal information.

10. If yes, what is it?
    1 – Numerical data, 2 – Qualitative data

Numerical data refers to any statistics, concrete numbers that prove the effect of the solution. For example, it can be the number or the percentage of people who have received the solution; a study that numerically proves the effectiveness of the solution, etc. Qualitative data is reliable evidence – for example, a descriptive report that confirms or disapproves the effectiveness of the solution.

11. Who presents the evidence?
    1 – Journalists, 2 – the person who invented the solution, 3 – the person who provides the solution, 4 – the person who implements the solution, 5 – Other (state who)
    1 – journalist telling the story in the voiceover/piece to camera/text on the screen
    2 – the person presented as the one who came up with the idea or concept for the solution
    3 – for example, if the solution is a special type of school, the teacher working in the school provides the solution. If the solution is a special coffee shop, the waiter/server who works there provides the solution.
    4 -the person/more people/group/animals that receive and benefit from the solution, use it in their lives, have personal experience of implementing the solution.
    5 – it could be someone that criticizes a solution, perhaps an expert in this topic; or someone who is not involved in the process of solution invention, provision, or implementation.

SOLUTION LIMITATIONS

12. Are there solution limitations presented in the story?
    1 – Yes, 0 – No

Presentation of downsides of a solution or obstacles to solution implementation. It does not have to be directly referred to as a limitation. Instead, it can be mentioned or described in a soundbite as part of the solution description. Additionally, if a journalist questions the scale of the solution, but does not establish if it can scale or not, this is not considered a limitation.

13. If yes, how many limitations are reported?
    1 – 1, 2 – 2, 3 – 3 or more

14. Is/are the limitation/s visually represented in the story?
    1 – Yes, 0 – No

The aspect of the solution or solution limitation that does not work or encounters obstacles is visually represented.

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photo: Sára Dobrovodská

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Holocaust Reminiscenses in Digital Media Culture and Cultural Institutions (Development of Critical Thinking and Media Literacy)

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ABSTRACT

The authors of the article analyse the problem of individual and collective memory through the prism of The Holocaust reminiscence. They are aware that we are living in a time when living memories of the grave crimes and catastrophes of the 20th century are fading away, as well as the complex political, social and cultural processes, taking place at present, are becoming intensified in the context of the War in Ukraine. These events and processes once again highlight the social importance of individual and collective memory and the need for its conscious formation through media and intercultural education. The aim of the authors' endeavour is to explore four forms of The Holocaust reminiscence, : 1/ reminiscence in the form of reconstruction (authentic representation of the past); 2/ reminiscence as (re)interpretation (remembrance that refers to the past but is interpreted in the context of current findings); 3/ reminiscence as prevention and civic engagement (education and educational programmes that promote tolerance and moral qualities); 4/ reminiscence as a tool for cultural identity formation (forming collective identities and promoting social inclusion). The study will include interpretations of selected works from the field of performing arts and case studies from media culture. Attention will also be focused on particular proposals for media-educational and cultural-pedagogical activities which can be used in cultural institutions and in media education in order to develop media literacy and critical thinking.

KEY WORDS

Collective Memory. Critical Thinking. Cultural Institution. Holocaust. Media Literacy. Reminiscence.

1 Introduction

The study of individual and collective memory relates to the problem of storing and transmitting memories, their interpretation and reinterpretation as well as the process of forgetting and re-reminiscence. However, a key function of memory is not only the collection of information, but also its selection and deletion. The French philosopher H. Bergson expressed the belief, that the task of the brain is not to collect memories, but to select among them the ones that are important.[1] In his understanding, the brain has become a tool of selection, which serves to recall useful memories on the one hand and at the same time to temporarily remove others. A similar position was presented by the English biologist and philosopher R. Sheldrake, who developed the theory of the morphogenetic field.[2] Memory is that which permeates the brain. The brain then acts as a "decoder" for the information contained in that the field. Sheldrake's perspective on memory and remembrance points toward the interconnectedness of the individual and group memory, as well as its interpretive meaning and the function of the socio-cultural context. We can talk about the important social and cultural functions that remembrance fulfils. Collective remembrance and the act of remembering is a necessary condition for the formation of a cultural continuity, social integration and the formation of individual and collective identities. It is important for any society that its members remember important events from their shared past and at the same time understand their own past (causally and contextually). These two phenomena create an important prerequisite so that critical past moments do not repeat themselves.

The memories of some events persist, others gradually fade away. The process of forgetting is explained using various concepts, for example: the theory of purposeful forgetting (unnecessary, inaccurate and erroneous information is removed); the theory of repression (traumatic experiences are repressed); by the extinction theory (if memory traces are not renewed and activated, they weaken, fade); by the theory of interference (different information stored in the memory can interact with each other in the process of memorization with a disturbing, negative effect) among others. Memory thus becomes the interaction of two polar opposites – "preserving" and "erasing" memories.[3] Interpretation thus becomes an important tool of remembrance, which determines the actual remembering, creating a social framework of values for it.

The process of forgetting is also explained by the French philosopher and sociologist M. Halbwachs via his theory of social frameworks. If the subject remembers what was reconstructed as the past in a certain frame, and therefore in a certain present, then they forget that which is not framed in this manner in this particular idea of a present. Forgetting is related to change, or the disappearance of the relevant framework.[4]

When examining reminiscences of the Holocaust in media culture, theatre art and cultural institutions, we base our research on the theory of the "culture of remembrance" developed by the German Egyptologist and religionist J. Assmann.[5] The term "culture of remembrance" (or culture of memories) is used together with the term of combination memory culture. The term has been in use since the 1980s and is associated with a growing interest in reflecting on historical events and exploring archives, as well as anything that had its own historical story or referred to such a story. Several authors connected (and currently connect) the culture of remembrance with the horrors and victims of Nazism.

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1 BERGSON, H.: *Hmota a paměť: Esej o vztahu těla k duchu*. Prague : OIKOYMENH, 2003, p. 132.
2 See: SHELDRAKE, R.: Mind, Memory, and Archetype: Morphic and Collective Unconsicous. In *Psychological Perspectives*, 1987, Vol. 18, No. 1, p. 9-25.
3 STERNBERG, R. J.: *Kognitivní psychologie*. Prague : Portal, 2002, p. 226-228.
4 See: HALBWACHS, M.: *Kolektivní paměť*. Prague : Sociologické nakladatelství SLON, 2009.
5 See: ASSMANN, J.: *Kultura a paměť: Písmo, vzpomínka a politická identita v rozvinutých kulturách starověku*. Prague : Prostor, 2001.

The culture of remembrance refers to a group of people as well as to an entire community. It answers the question: what or what events we must not forget as a society (group, nation, etc.), because they form our collective memory and thus affect our present and future. The culture of remembrance is related to the memory, on which the society relies as a universal phenomenon forming the identity of every nation.[6]

1.1 Communicative, Cultural and Political Memory

Several authors (N. Maslowski, J. *Šubrt*, Š. Lehman, Z. Kubišová and others) divide collective memory into communicative memory, cultural memory and political memory. For all types of collective memory (and for individual memory as well) there is a common dynamic of remembering and forgetting.[7] The process of forgetting has both an active and a passive form. Active forgetting is the deliberate suppression and destruction of memories of the past. The tools of active forgetting are censorship, declaration of taboos as well as considering past events worthless. Conversely, passive forgetting does not take the form of active destruction. *"It is the indifferent neglect of things and phenomena that are deemed as uninteresting, unworthy of special interest/special attention."*[8] As a result of artefacts, information, memories, etc. not receiving enough attention, they gradually diminish, wither and disappear.

Each person simultaneously participates in different types of collective memory. Most of us participate in the communicative and cultural memory,[9] and, if we are part of a certain political community, we also participate in political memory. It is interesting that the same select phenomena, persons or events can be the elements of all types of collective memory at once. The collective memory is not an immutable and fixed entity – it includes assumptions that cause changes, innovations, transformations and reconfigurations.[10]

1.2 The Selected Cultural Representations of the Holocaust

A deep link exists between collective memory and education, as education resembles a tool and process of forming and maintaining collective memory. Our memory is socially-constructed[11] and must be "socially trained". Especially the memory of the members of the society who were not eye-witnesses to what later became socially commemorated. Commemoration plays an important role in forming individual and collective cultural identities.

Reflection of the Holocaust has become a part of formal and informal education in schools, museums, galleries, cultural centres, and organisations all over the world. It has a far-reaching and persisting legitimacy, reaching far beyond the historical conflicting parties, the victims and perpetrators, the righteous, and collaborators. It reaches out to the question of differentiating between good and evil, of respect for others and diversity, of human dignity, humanity and morality. It incorporates the most crucial ontological and axiological issues and concerns.

6 See: ASSMANN, J.: *Kultura a paměť: Písmo, vzpomínka a politická identita v rozvinutých kulturách starověku*. Prague : Prostor, 2001, p. 32.
7 KUBIŠOVÁ, Z.: Kolektivní pamäť a národní identita. In MASLOWSKI, N., ŠUBRT, J. (eds.): *Kolektivní paměť: k teoretickým otázkám*. Prague : Univerzita Karlova, 2014, p. 83.
8 Ibidem, p. 84.
9 See more: BALLAY, M.: Kultúrna pamäť v súčasnom divadle. In MIŠOVIC, K. (eds.): *Témy na okraji záujmu? Zborník vedeckých príspevkov z teatrologického sympózia*. Nitra : Univerzita Konštantína Filozofa v Nitre, 2021, p. 10-13.
10 KUBIŠOVÁ, Z.: Kolektivní pamäť a národní identita. In MASLOWSKI, N., ŠUBRT, J. (eds.): *Kolektivní paměť: k teoretickým otázkám*. Prague : Univerzita Karlova, 2014, p. 85.
11 See: HALBWACHS, M.: *Kolektivní paměť*. Praha : Sociologické nakladatelství SLON, 2009.

D. Lustig explains that *"Holocaust survival is irreducible to an existential condition. From this vantage point, holocaust survivors do not merely live: they live to tell."*[12] R. Klüger, a Holocaust survivor and writer of *Still alive: A Holocaust Girlhood Remembered* posits the idea that *"the dead set us certain tasks"*.[13] The task having been set is that of telling and sharing the individual and collective stories. The other side of the coin is the task to listen, comprehend, commemorate and prevent. The reverse of that is the task for the listener (the rest of the world, the present and future generations). In this way, we come to understanding a great importance of reminiscence of the Holocaust. It aims not only to commemorate, but also to bring knowledge, form one's character and develop one's critical thinking. N. Noddings points to the importance of forming one's moral qualities within education.[14] Cultural infrastructure and cultural educational programmes play an irreplaceable role in this process. Cultural institutions meet numerous social and cultural functions and roles: educational, socialising, axiological, ideological, moral, identification and integrational. They are the centres of lifelong informal education, as well as places of democratisation[15] and social inclusion.[16]

There are numerous museums and cultural centres specialising in scientific documentation and education on the Holocaust.[17] The Holocaust documentation and representation must be addressed in a relevant and responsible way, taking into consideration both the respect for the perished and those who survived, and the moral lesson implied in such education. The Holocaust education within schools and cultural institutions takes on the forms of moral education, critical thinking and media literacy education and caring education. The phenomenon of the Holocaust is very complex and cannot be reduced to enumerating certain historical facts and events. We are living in a time where both historical and present facts (unfortunately, including facts dealing with the Holocaust) are being misinterpreted and manipulated. Therefore, there must be correct and adequate interpretation, contextualisation, and discussion over the matter. Students ought to be given the chance to understand deeper, to use critical thinking and develop their social and emotional skills.[18]

There are various forms of reminiscence of The Holocaust applied by cultural institutions. The most influential is reminiscence as reconstruction. This is often connected with museums, authentic Holocaust sites, research centres, cultural centres and civic organisations focused on documenting and reflecting the Holocaust. These institutions provide visitors with exhibitions, displaying original artifacts (newspaper extracts, photographs, personal property of the victims), detailed information on Nazi propaganda, Anti-Jewish laws and measures, concentration camps and death camps, individual and collective stories of the perished and those who survived. The institutions employ specialists, do their own research and publish scientific materials. They present their findings by means of public lectures. Other forms of reminiscence of the

12 LUSTIG, D.: The Task of the Survivor in Ruth Klüger's «weiter leben» (1992) and «Still Alive» (2001). In *Studia Austriaca*, 2013, Vol. 21, p. 32.

13 Ibidem, p. 32.

14 NODDINGS, N.: *Educating Moral People: A Caring Alternative to Character Education*. New York : Teachers College Press, 2002, p. 85.

15 QUEMIN, A.: The Sociology of Art. In KORGEN, K. O. (ed.): *The Cambridge Handbook of Sociology*. Cambridge : Cambridge University Press, 2017, p. 295. [online]. [2023-01-20]. Available at: <https://doi.org/10.1017/9781316418369.031>.

16 EARLE, W.: Cultural Education: Redefining the Role of Museums in the 21st Century. In *Sociology Compass*, 2013, Vol. 7, No. 7, p. 536.

17 Authors' note: e.g. Yad Vashem (The World Holocaust Remembrance Center), Anne Frank House (The Netherlands), Auschwitz-Birkenau Memorial and Museum (Poland), The Wiener Holocaust Library (The United Kingdom) etc.

18 Authors' note: The need for critical thinking and media literacy is not crucial solely for understanding the present and future of our societies. It is equally important when looking to the past. First, the Holocaust appeared as a part of certain ideology, later transformed into massive propaganda which penetrated the minds and souls of the millions in Nazi Germany. The increase in far-right tendencies and parties in Europe over the last decades (including Slovakia) is a major red flag.

Holocaust within cultural infrastructure take on the form of reminiscence as prevention and civic engagement; and reminiscence as a tool for creating cultural identity. These two forms intertwine and imply an active approach. They are focused on the youth, as well as the general public. Cultural institutions prepare discussions, lectures, conferences and various media formats on the Holocaust. Some may also organise a public commemoration in the form of procession. The last form of reminiscence used in cultural institutions is reminiscence as (re)interpretations, represented by literary, visual, music, film, performative and other forms of (re)interpretation.

An example of all four types of reminiscence carried out within an institution can be found in The Museum of The Holocaust in Sereď, in the south-western part of Slovakia.[19] The museum is located in an authentic place – a former concentration camp with specific genius loci. The exhibition provides lots of data for visitors to grasp the topic within five authentic barracks and a cattle wagon used for transportation of the prisoners. Beside it, the museum offers educational programmes (mainly for schools) in the form of lectures with rich audio-visual materials. The educational programmes are based on interaction with the young visitors, discussions, developing critical thinking, media literacy, social and emotional skills. The researchers and educators map actual tendencies in Slovak society and reflect on them. They explain to pupils and students how the Holocaust is misinterpreted by groups of people inclining to the far-right political positions. It is explained to them how certain lies and hoaxes came to being during the pandemic of COVID-19 in relation to the Holocaust. They also make use of the method of oral history, cooperating with Holocaust survivors and with secondary materials based on interviews with them. According to S. Ledoux the methods of authentic historical sites and oral history are two key elements of collective memory education.[20]

These examples illustrate two other forms of reminiscence carried out in The Museum of the Holocaust in Sereď – the reminiscence as prevention and civic engagement; and reminiscence as a tool for creating cultural identity. Orientation towards prevention and civic engagement is realised with the focus on democracy, human and civic rights. Cultural identity formation is based on forming one's cultural values and social references. All three forms of reminiscence on the Holocaust accent and incorporate critical thinking and media literacy education as key cognitive and reflective instruments of a thinking subject. Recently, the museum has prepared an exhibition of children's works of art depicting and reflecting war, entitled *"We, todays' children, on war times"*, carried out in cooperation with the Ester association and The Israeli Embassy in Slovakia. The exhibition is located in the fifth barrack, where Slovak children and youngsters of different age groups present their understanding of war time and the Holocaust. It resembles reminiscence of the Holocaust as a (re)interpretation.[21]

After the turn of the millennium the Slovak theatrical environment began thematizing historical events, specifically the years of the Second World War and the period of the first Slovak Republic (Wartime Slovak State 1939 – 1945). The productions mostly depicted individual historical figures, but also ordinary people affected by the war. These were primarily productions of documentary plays and attempts at staging political drama (Anna Grusková – *The Rabbi*; Viliam Klimáček – *Dr. Gustáv Husák; Sláva Daubnerová: M.H.L.* and *Michal Ditte Terra Granus*, the core of which depicts the period after the Second World War and the repatriation of the population, etc.). This also includes the production Tiso (2005). A greater occurrence of productions with the theme of the Holocaust and the Second World War appeared on theatre stages in 2012, when Slovak society

19 Authors' note: The Museum of The Holocaust in Sereď belongs to the museum of The Jewish Culture of The Slovak National Museum.

20 LEDOUX, S.: *The Pedagogy of Collective Memory*. [online]. [2023-01-25]. Available at: <https://ehne.fr/en/encyclopedia/themes/education-teaching-and-professional-training/pedagogy-and-pedagogist-in-europe-xixth-xxth/pedagogy-collective-memory-in-europe>.

21 *My deti dneška o časoch vojny*. [online]. [2023-02-02] Available at: <https://www.snm.sk/muzea-snm/muzeum-zidovskej-kultury/muzeum-holokaustu-v-seredi/navstivte/vystavy?clanok=my-deti-dneska-o-casoch-vojny#menu>.

commemorated the seventieth anniversary of the transport of Jews from the Slovak Republic to extermination camps, and in 2014, the seventieth anniversary of the Slovak National Uprising.

The aim of the following text is to examine the manifestation of reminiscence as an interpretation and (re)interpretation via the prism of the production of the Pôtoň Theater and Horácky Theater in Jihlava titled *Swing Heil*. The reminiscence refers to the artistic depiction of the Holocaust and the Nazi regime, while the director – dramaturgist tandem works with authentic elements, such as: historical figures and their life stories, an excerpt from a chronicle, photographs, etc. At the same time, the educational dimension of the work is applied here in reference to the reminiscence as a way of prevention and civic engagement, or by reflecting on the topic and its artistic processing, the theatre positively demonstrates the civic position of the viewer, all the while supporting democracy and respect for human and civil rights. Slovak theatre and cultural expert Miroslav Ballay claims, that: *"Since theatre is, at the bare minimum, a means of communication, it always reflects the times in a certain way. As a rule, it is said that the creators present a specific reality, its colour, or depict individual historical and cultural contexts of a certain historical epoch."*[22]

Swing Heil represents and vividly reflects not only our history, but also the present and the most extreme forms it takes. The co-authors of the libretto, I. Ditte Jurčová and M. Ditte, worked with fragments of two authentic stories from the period of World War II, through which they pointed to the absurdity of the time.[23] The first is a reflection on the life of the dancer, costume designer and choreographer Nina Jirsíková, whose work acquired a significant social dimension during the occupation period. Her libretto *A Fairytale of Dance – About a Kingdom*, in which dancing was forbidden, anticipated the ban on dancing in Bohemia in 1941 and was the reason why Nina Jirsíková ended up in the Ravensbrük concentration camp.[24] The second authentic story retells the life of the Austrian resistance activist Anna Goldsteiner, who lived in the Austrian town of Pulkau. Anna did not sympathize with the idea of the incorporation of Austria under the auspices of Nazi Germany, which occurred in 1938. She was executed in the end.

At one point, the performer Tom Rychetský appears on stage, personifying the world of free movement, a reference to subtle creative power. Paradoxically, he meets a different man, a sympathizer of Nazism, portrayed by Filip Jekkel. As a dance teacher, Rychetský is not subject to prejudices against the young man. A situation in which a subtle creative energy (Rychetský) is opposed to a brute destructive force (Jekkel) shows signs of comedy for a certain moment, but they quickly disappear. The moment from which a clearly legible sign referring to Nazism originates when the figure of F. Jekkel does not repeat the same movement of the teacher, but demonstratively remains standing gesturing "Heil Hitler". Here, too, the purposeful directorial work of Ditte-Jurčová is evident, who does not create a cliché-like over-the-top theme of a kind of mandatory prevention of World War II themes, but subjects it to the comedy treatment when the dance teacher reacts to a "Nazi" gesture by exclaiming and clapping his hand "High-five".

The educational dimension can take shape precisely at the level of not identifying oneself with the figure of F. Jekkel, being a wholesale reference to Nazism. It is possible to observe a certain level contradiction in it, which can serve as a message to a person, a teenager perhaps, who is looking for the right values and anchoring in society.

An interesting moment in education is the scene in which the character of "Nazi" brings the character of the dancer Nina Jirsíková (Denisa Musilová) to the stage. Nina is locked in a cage like a wild animal with a dog's head. "Nazi" tries to train "that dog", but the "dog" does not listen to his words. The viewer can decode the scene taking place in the concentration

[22] BALLAY, M.: Divadelná inscenácia ako svedectvo doby (?). In MAŤAŠÍK, A. (ed.): *Divadlo ako dokument doby*. Banská Bystrica : Akadémia umení, 2014, p. 61-67. [online]. [2023-03-01]. Available at: <https://www.poton.sk/wp-content/uploads/2016/01/Divadlo-ako-dokument-doby-Konferencia-BB.pdf>.

[23] HUDECOVÁ, I.: Divadlo ako komunikačný kanál medzi spoločnosťou a kultúrou. In KNOPOVÁ, E. (ed.): *Divadlo a rozhrania*. Banská Bystrica : Academy of Arts in Banská Bystrica, 2022, p. 394.

[24] Ibidem, p. 395.

camp. The character of "Nazi" lets the dancer Nina out of the cage for a supposed "freedom". A tired artist tries to dance, but her tired body seems to have forgotten the movement that used to be natural to her. The dancer with her unruly body is helped by the Teacher, who with gentle movements creates on the stage an intimate moment of absolute sensitivity of which the body is capable. This scene is complemented by cosmic, even intrinsically permeating music, creating associations with the earth, or something otherworldly.

Education can take place at the level of self-identification with the character, when the viewer can see either themself or a friend let's say, in the stories, which inspires them to think more deeply about problems. That theatrical education opens up avenues for own analyses, investigations that motivate the individual to increase self-development, creativity and subsequent success. At the end the audience hears a recording of the voice of the real N. Jirsíková. The production is enriched with educational materials dispersed around the stage. The viewer can enter it, interact intimately with the world of props, referencing national and global history. Specifically, they have the possibility to analyze the so-called "wall of meanings", on which authentic texts, photographs, poems by W. Whitman, or costumes such as flirtatious "cocktails" or pumps are on display. In this way, theatre develops a person's research skills, thanks to which they can gain and deepen knowledge or learn to think in context.

1.3 Representations of the Holocaust in Media and on Social Networks (the Holocaust in the Context of "Selfie" Culture and Dark Tourism)

Phenomena such as belittling the effects of the Holocaust, its deliberate misinterpretation or general human indifference, which we brought to light in the part of the study devoted to communicative, cultural and political memory, are all exemplified in an area, which is getting more attention recently, so-called dark tourism.[25] This type of tourism calls forth all manner of associations, from fascination through a will to participate, to fear, outrage and criticism. In addition to anesthetizing death, inducing shock or leeching onto human suffering, it is characterized by (in)voluntarily internalized resistance to the sensitive thematization of death and suffering, precisely via a crass pornographicization and commercialization, not only in the media.

Within intentions of critical reflection, it is a controversial phenomenon that is subject to the laws of the market economy, as it runs on profit, but at the expense of piety, morality and human dignity. Nowadays, even death and suffering have become objects of fun and commodification. In the professional discourse (but also in the public's consciousness) resonate mainly the extremely negative expressions and booming tourism associated with the events of the Holocaust, wherein visitors pose in concentration camps and subsequently publish the so-called "selfie" photos on social media, primarily for self-presentation, relentlessly seeking so-called "likes" and "followers". In such a context, the search for locations associated with the interests of dark tourism can relate to the principle of tourist self-realization in the sense of social prestige and legitimization of a person's social position. The Auschwitz Museum responded to the selfie (non)culture on *Twitter* by asking visitors to stop posing on the rails leading to the former extermination camp Auschwitz-Brezinok.[26]

[25] Authors' note: The term "dark tourism" is defined, in its broadest sense, as visiting places associated with death, suffering and macabre themes. In a narrower sense, it is the transformation of burial grounds, cemeteries, shrines and monuments, locations marked by tragedies, brutal crimes, natural disasters into tourist locations – attractions. British tourism management experts Malcolm Foley and John Lennon were the first to draw attention to the growth of dark tourism in 1996 and later with the publication of the book *Dark Tourism – The Attraction of Death and Disaster*. See more: LENNON, J., FOLEY, M.: *Dark Tourism: The Attraction of Death and Disaster*. London : Continuum, 2000.

[26] @AuschwitzMuseum*: When you come to @AuschwitzMuseum remember you are the site where over 1 million people were killed. Respect their memory. There are better places to learn how to walk on a balance beam than the site which symbolizes deportation of hundreds of thousands to their deaths.* [Twitter post]. [online]. [2023-03-31]. Available at: <https://twitter.com/AuschwitzMuseum/status/1108337507660451841>.

The (non)culture of selfies can also be seen in the project of the German-Israeli writer and satirist Shakah Spahira living in Berlin, with the apt name "Yolocaust" (founded in 2017). The author combined twelve selfie photos from social networks taken at the Holocaust Memorial in Berlin with images from concentration camps and then published them on a website. After clicking on the selfie photo, the background did not show the backdrop of the memorial, but scenes from the concentration camps, where these young people were suddenly surrounded by emaciated bodies and corpses. The young lady leaning against the wall of the monument thus becomes a smiling woman posing in front of the piled up dead bodies of people, the kneeling artist with pink balls becomes a man juggling with starving people in the background. It is an example of realizing that a selfie taken in such a place is inappropriate, immoral and inadmissible. The author points this out by putting in them troubled, tortured people who found themselves in the given place by force. The selfie phenomenon cannot be ignored today, it has its place in our society, but in our opinion there is a difference between taking selfies in locations where we spent our free time, or how we spent our free time (group selfies, "drunk selfies", etc.) and taking selfies in hallowed places, places of cultural memory that bore witness to inhumanity and the slaughter of innocent people. We consider this inappropriate, inhumane, arrogant and inadequate, and such behaviour needs to be unequivocally rejected. Not just the young, but all people should realize that in this way they show disrespect to the millions of innocent Holocaust victims who experienced such atrocities and, for the most part, did not live to tell the tale.

The etymology of the name of the site and the project itself "Yolocaust" refers to the combination of the popular "Yolo – you only live once" hashtag (from the social media sphere) – and the Holocaust. The project ended after the people seen in the pictures made themselves known. The discussion regarding the controversial project continued even after that, however. The goal was – in the author's own words – *"to talk about whether it is right or wrong to behave in this way in this place".*[27] We can only surmise that this project has attracted enormous media attention on a global scale. The website *yolocaust.de* received more than 2.5 million visits within a few days of launch. The author found these photos on social networks (*Tinder*, *Instagram*, *Facebook*) and, after they were published, most of the authors went through self-reflection and re-evaluation of their attitudes: *"Probably the most interesting answer was sent to me by a young man who attached the description "Jumping on dead Jews @Holocaust Memorial" to his selfie. He was shocked by what his words and photo had evoked and begged me to pull the collage with his photo down. It was supposed to be just a joke for friends."*[28] On the other hand, there were voices critical of the project and the author himself, according to whom he bet on cheap effects and self-promotion. At the same time, there were arguments for the memorial in question to expressly be a place where everyone should find out for themselves how to deal with and internalize the topic of commemorating the Holocaust. The Yolocaust project received a broad spectrum of reactions, mostly positive, especially from historians and teachers who drew attention to the project in the teaching process. Critical, oppositional voices pointed out that the author used images of Holocaust victims for the collages and responded to the lack of piety with only a lack of piety. To this, S. Shapira responded by saying: *"no one from the media (pointing to the lack of piety, note by the authors) for example blurred the faces of the victims in the pictures. Many pixelated the faces of the tourists in their selfies, but not the faces of the victims. That's a bit hypocritical, isn't it? There are no tasteful photographs of the Holocaust. The Nazis told their captives that the world would never know what happened to them. Therefore, it is our duty to show these photos. In addition, all the photos used are publicly accessible".*[29]

27 LAZAROVIC, S.: *Projekt "Yolocaust": "Chtěl jsem, aby se mluvilo o kultuře selfie."*. [online]. [2023-03-31]. Available at: <https://www.goethe.de/ins/cz/cs/kul/mag/20946058.html>.
28 Ibidem.
29 ibidem

The Yolocaust project, drawing attention to inappropriate and unethical behaviour by tourists at Holocaust sites, once again raises the ethical and moral dilemma, what actually motivates visits to Holocaust-related sites among the "digital natives" generation? We believe that we are witnessing a lapidary example of anesthetization (desensitising) on all levels, from *"physical numbness to spiritual blindness".*[30]

The following part of the article is dedicated to evaluating reminiscences of the Holocaust via the lens of its re-interpretation and, especially, (dis)interpretation, which we exemplify by analyzing selected contributions into digital media culture. The primary aim of this text is to draw attention towards the importance of fostering media literacy and critical thinking in the context of rising anti-Semitism, denial or belittling of the Holocaust, racism, extremism, xenophobia and the general erosion of humanity, against the backdrop of life lived in an era, which has been dubbed with the epithet 'post-factual'. We can confidently state that information naivety and chaos have blossomed exponentially in this post-factual era, an era of information overload, where the individual is faced with a volume of messages that exceed the capabilities of their cognitive apparatus, and due to their fragmentary or context-free nature, are forced, so to speak, to permanently evaluate their relevance, objectivity, factual accuracy, or the usability of the acquired knowledge, claims the Slovak cultural scientist A. Olejárová.[31]

According to the United Nations, about 17% of Holocaust-related content on the popular *TikTok* social network falls either under the denial or misrepresentation category.[32] Unfortunately, such practices are not unusual in digital media culture, especially on social networks. Group polarization and the existence of information bubbles contribute to the unprecedented spread of hoaxes, misinformation and conspiracy theories, including on the subject of the Holocaust or Jewish world domination. This agenda fundamentally redefines and misinterprets the reminiscences and cultural memory associated with our research topic, the Holocaust. The consequence is the extremely negative impact on the target group which lacks in elementary media literacy and critical thinking. Potentially, this harmful agenda with a wide-ranging arsenal becomes an accelerator of irrational action with unpredictable consequences. At the turn of 2019-2020, an epidemic of the respiratory disease COVID-19 spiralled into a global-scale pandemic. From the Chinese city of Wuhan, this infectious disease spread very quickly to Europe. The World Health Organization (WHO) declared a global state of emergency, and most countries took extraordinary security measures. The health systems in most countries faced unprecedented pressure, while life in many other parts of society seemed to grind to a standstill. In addition, the threat of economic recession loomed in the air. The human sense of reality is naturally governed by the information available to the individual at any given moment. Naturally, events that deviate from the usual everyday stereotype attract the most attention. Thus, the formation of opinions and attitudes is conditioned to a non-negligible extent by the images that a person receives through the media, and as soon as something which radically deviates from the average appears, it immediately becomes the focus of attention. An event, such as the aforementioned global pandemic, is attractive for the media, a result of which was that it abundantly filled all news platforms, various websites, portals, blogs, vlogs, podcasts, discussions, etc. with such content.[33]

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30 WELSCH, W.: *Estetické myslenie.* Bratislava : Archa, 1993, p. 10.

31 OLEJÁROVÁ, A.: Informácie v digitálnom veku. Sondáž do vzťahu medzi participačnou kultúrou a nezávislosťou mediálnej produkcie v internetovom prostredí. In FUJAK, J. (ed.): *Charakter a vývoj nezávislej kultúry a umenia na Slovensku po roku 1989*. Nitra : Univerzita Konštantína Filozofa v Nitre, 2020, p. 298.

32 *Svet si pripomenul obete holokaustu, pandémia zhoršila šírenie nenávistných prejavov na internete.* [online]. [2023-02-27]. Available at: <https://sita.sk/svet-si-pripomenul-obete-holokaustu-pandemia-zhorsila-sirenie-nenavistnych-prejavov-na-internete/>.

33 Authors' note: The issue of epistemic and ethical risks of media reporting in the context of the Covid-19 pandemic is mapped in more detail by the authors Sabína Gáliková Tolnaiová and Slavomír Gálik. Compare: GÁLIKOVÁ TOLNAIOVÁ, S., GÁLIK, S.: Epistemic and Ethical Risks of Media Reporting in the Context of the Covid-19 Pandemic, as Challanges for the Development of Journalistic Practice. In *Media Literacy and Academic Research*, 2022, Vol. 5, No. 1, p. 76-94.

Not to mention the wide-range of disinformation, hoaxes and conspiracy theories that, combined with fearmongering, have become a powerful weapon in hybrid conflicts.[34] As a pars pro toto example, we present the exhibition *"The pandemic is not a Holocaust"*, by the *Edah* civic association, in which the authors react to the absolutely unacceptable and incomprehensible comparison of anti-pandemic measures with the Holocaust period: *"... a selected group of the population began to erroneously equate these measures with the Holocaust. There even exist various conspiracy theories attributing responsibility for the worldwide pandemic to the Jews. The goal of our exhibition is to put these inventions into perspective. We focus on the most common comparisons that appear on the Internet and social networks. We contrast these conspiracy theories, hoaxes and fake news with historical facts".*[35] Photos and comments began to appear on social media where the measures are described as a Holocaust. Various cynical statuses (untested, unvaccinated) and grossly abused symbols (Star of David) comparing themselves, the victims of anti-pandemic measures, to the victims of the Holocaust began appearing at an astonishing pace. Combining these two phenomena was described by Chairman of the Central Union of Jewish Religious Communities in Slovakia R. Duda as *"a manifestation of gross cynicism or absolute clouding of the mind".*[36] Vaccines and testing, which had the goal of protecting the lives and health of the population, were equated by these individuals to acts and deeds committed against the Jews in concentration camps. The entire Jewish community in Slovakia, Holocaust survivors as well as the Holocaust Museum in Sereď strongly objected to this: *"A person is born a Jew, they have no choice. The very fact of being born during the Holocaust condemned them to death. It is incomparable to any anti-pandemic measures and regulations that are meant to save life."*[37]

By means of various deliberately altered photographs the manipulators try to convince people of the existence of alleged basic human and civil rights violations. Photo manipulation is as old as this medium of communication. *"There are many ways to manipulate. On the one hand, a situation can be created that does not correspond to reality and is artificially created already during the actual process of photography itself, on the other hand, changes can be done to the photo after it has been taken."*[38] Manipulation via photography brings with it a whole range of communication effects – from seemingly harmless ones to those that can influence public opinion. According to A. Feriancová and P. Mikuláš, manipulation in photography is based on four intentions, which often cross over and complement each other:

1. creation of ideals (beauty, heroism, etc.),
2. continuity, confirmation and consolidation of social ideologies,
3. sensational revelations,
4. creating a post-construct of the world.

In the case of the examined manipulative photos, we observe so-called "framing", in other words the shaping of a message applying the basic rule of manipulation - that "twisting" the truth is better than lying. Such manipulation is formed by making cunning use of language and "appropriate" linguistic means, using a large number of diacritics and punctuation marks,

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34 Authors' note: This issue is mapped in more detail by Peter Krajčovič in his article. See more: KRAJČOVIČ, P.: The Media in Times of the Pandemic – Comparing Viewing Figures and Interactions of Serious, Tabloid and Conspiracy Media on Facebook During the Covid-19 Pandemic. In *Media Literacy and Academic Research*, 2022, Vol. 5, No. 2, p. 212-224.

35 *Pandémia nie je Holocaust*. [online]. [2023-02-27]. Available at: <https://edah.sk/pandemia-nie-je-holokaust/>.

36 Ibidem.

37 Ibidem.

38 FERIANCOVÁ, A., MIKULÁŠ, P.: Manipulácia v historických kontextoch – príklad fotografie. In FICHNOVÁ, K., MIKULÁŠ, P., WOJCIECHOWSKI, L. (eds.): *(Ko)médiá*. Nitra : Filozofická fakulta Univerzity Konštantína Filozofa v Nitre, 2012, p. 195-196. [online]. [2023-01-17]. Available at: <https://www.academia.edu/3483190/Manipul%C3%A1cia_v_historick%C3%BDch_kontextoch_pr%C3%ADklad_fotografie?auto=download>.

intentionally placing an ambiguous photo in media communications, etc. The symbol of vaccine and vaccination is often associated with photos from former Nazi concentration and extermination camps such as *"Arbeit macht frei"* (work shall set you free) for *"Vaccine macht frei"* or *"Pfizer macht frei"*.

We see the abuse of the Holocaust and its misleading comparison to anti-pandemic measures as one of the faces of the post-construct world, where truth and historical facts are subject to ideological distortions of reality, manipulative practices and propaganda. We perceive the creation of a post-construct of the world as one of the crudest forms of manipulation. In the subject of our research focusing on the Holocaust, we record a marked manipulation of cultural memory via deceptive and false information, hoaxes as well as conspiracy theories.

2 Methodology

The authors analyze and interpret primary texts focused on communicative, cultural and political memory (Assman, Assmanová, Kubišová, Sternberg, Šubrt, Maslowski, Sternberg and others) in the context of the problem of remembrance and forgetting. They primarily pay attention to the reminiscences of the Holocaust in the form of reconstruction of the past; the artistic interpretation of historical events and their (re)interpretation in the context of current times; the prevention and civic engagement as a tool for creating cultural identity.

They combine the method of textual analysis with the case study method. They make use of the method of content and relational analysis to draw conclusions regarding the application of select problems to the reconstruction of the past, the fostering of civic engagement and the formation of cultural identity. They rely on the principles of critical thinking and show how media literacy can be developed within the reminiscences of the Holocaust.

3 Discussion

Communicative memory incorporates all memories relating to the recent past that a person shares with their contemporaries. It comes into being at a certain time period and can disappear over time as its bearers die. A person acquires language and the ability to communicate during their life as a result of relating to other people. Consciousness and memory cannot be explained using individual physiology and psychology, a systemic explanation is needed that also covers interaction with other individuals. Its media are the "living memories", experiences and information from eyewitnesses obtained "by hearsay". Considering its bearers (eyewitnesses) as well as modes of communication ("living memories", "hearsay"), communicative memory refers to a time period of up to 80-100 years or a time horizon of three to four generations.[39]

Cultural memory is transmitted via libraries, museums, monuments, educational institutions, various ceremonies and official ceremonies. It is constructed to be long-term and last through the generations, more explicit and homogeneous compared to communicative memory, and it is created from the top down. The media of cultural memory are established symbolic codifications and productions, whether through words, images, writing, dance and the like, while cultural memory is objectified in buildings, in the landscape and places of memory. Cultural memory is available to experts (scientists, artists, historians, etc.) and in exceptional cases also to the public. They participate in cultural memory by reading, writing, learning, criticizing, appreciating its elements, etc.[40]

[39] KUBIŠOVÁ, Z.: Kolektivní pamäť a národní identita. In MASLOWSKI, N., ŠUBRT, J. (eds.): *Kolektivní paměť : k teoretickým otázkám*. Prague : Univerzita Karlova, 2014, p. 85-86.
[40] Ibidem, p. 89.

Political memory depends on specialized, mostly material carriers (books, pictures, etc.). It includes content which is deliberately, purposefully and long-term created and that is transmitted via institutions and organizations (libraries, museums, educational systems, galleries). Political memory is explicit, institutionalized and created and disseminated from the top. Political memory is linked to specific political organizations and institutions to the extent that it cannot exist without them. That, which is missing in political memory is like a passive memory contained within cultural memory. The basic framework of political memory (temporal structure) is the past of the state, party, movement, etc., which can be interpreted within the framework of a chosen political identity.[41]

Communicative, cultural, and political memory are reflected in various forms of commemoration of the Holocaust. For the purpose of this study we used the term reminiscence for individual and collective forms of social, cultural, scientific and political commemorating; interpreting and representing the phenomenon of the Holocaust in the sociocultural system. Based on the methods of observation, analysis and comparison, we have identified 5 main types of reminiscence of the Holocaust. 1/ reminiscence as reconstruction: reminiscence of the first type focuses on authentic reconstruction of the historical phenomenon of the Holocaust in all its possible contexts. 2/ is based on re-telling, interpreting and re-interpreting the events, usually in an artistic way; 3/ reminiscence as prevention and civic engagement: this type of reminiscence takes on a pro-active form of shaping one's character, attitudes and political insights into the topics of democracy, humanity, human and civic rights. It aims to promote active citizenship, tolerance of otherness, forming one's intercultural, critical-thinking and media literacy competences, as well as preventing social pathologies; 4/ reminiscence as a tool for creating cultural identity. The last type of reminiscence can be represented by any activity which facilitates the process of positive socio-cultural reference and cultural values formation, in this case towards the Holocaust.

Critical thinking primarily refers to the ability to think logically and the ability to accept, reject and argue for and against, formulate your own opinions, and be able to defend them, and evaluate the quality of the information we come into contact with. The concept of critical thinking can be applied to various areas of human life. Regarding reflections on the Holocaust, which are often linked to various conspiracy theories, this concept is absolutely vital. It is obvious that critical thinking can help distinguish between relevant information, misinformation, misinterpretations leading to denial, distortion or deformation (not only) of media images about this greatest tragedy in the history of the Jewish people. Conspiracy theories use emotions, false arguments and inferences to support their claims. At the same time, we can understand them as modern myths enabling a simple and clear understanding of complex problems. Their essence is that they are irrefutable. Combined with a subjective interpretation of the world (which may have nothing to do with the actual reality), irrational, emotional behaviour and decision-making, together with a fatal failure of cultural and communicative memory, we get a significant synergy of these influences, which in certain circumstances can have unpredictable consequences: starting with the increase in hatred and violence up to crimes against humanity and genocide.

We perceive the enormous occurrence of conspiracy theories, hoaxes and misinformation with their viral potential as a certain form of resistance of the media audience to the information produced in the digital media environment. One of the ways to resist such influence is the development of media literacy and critical thinking. Because a society that is stupid easily becomes docile. It is subject to propaganda and gives birth to radicals.

[41] KUBIŠOVÁ, Z.: Kolektivní pamäť a národní identita. In MASLOWSKI, N., ŠUBRT, J. (eds.): *Kolektivní paměť: k teoretickým otázkám*. Prague : Univerzita Karlova, 2014, p. 92-93.

4 Conclusion

The aim of the authors of this article was to interlink the understanding of communicative, cultural and political memory via the prism of various forms of reminiscences into a coherent whole. All the selected forms of reminiscence are united by one problem, one event – the Holocaust. Regardless of whether we examine it in terms of communicative, cultural or political memory, it continues to be a relevant issue which helps us to know our past, learn from it and prevent it from repeating itself. It is not in our power to prevent the recurrence of such negative events all over the world, but we can inform, educate and draw attention to its inhumanity within our community, our state, by remembering the Holocaust. At the same time we channel it to shape universal values such as tolerance, solidarity, empathy and cooperation and reject violence, lack of freedom and terror. By returning to this kind of memory, we return to our roots, as we instinctively know that just as a tree cannot survive without its roots, neither can a person live their present and plan for the future without knowing their past.

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Moderating Effect of Gender and Socioeconomic Status on the Relationship Between Media Exposure and Violent Behaviour

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ABSTRACT

The problem of violence has become a serious impediment to societal progress. Violence among adolescents is on the rise in several nations, including Jordan. A review of current literature found that media exposure, particularly to violent movies, plays a key role in driving the prevalence of violence. This critical topic has received very little attention. Therefore, this research investigates further the consequences of violence in movies on Jordanian adolescents' violent behaviour (VB) by focusing on the moderating effects of gender and socioeconomic status (SES). Questionnaires were distributed to 350 secondary school students in Jerash, Jordan, and PLS-SEM was used to test the relationships between the variables. The findings revealed that media exposure directly affects VB among Jordanian adolescents, and it also revealed no moderation effect of gender and SES in the relationship between media exposure and VB among Jordanian adolescents. In addition, the present study included limitations and recommendations for future studies.

KEY WORDS

Adolescents. Gender. Media Exposure. Socioeconomic Status. Violent Behaviour.

1 Introduction

Violence has become a serious social issue in many countries.[1] Cases among adolescents show that the prevalence of violence within this age group is alarming, with harmful consequences and adverse effects on individuals and society.[2] The number of adolescents engaging in violence is increasing around the world.[3] The United Nations Children's Fund (UNICEF) revealed that violent adolescents pose a tremendous threat to community security and safety and a significant challenge to the future of communities. Understanding violence is crucial because it is one of the numerous behavioural changes occurring during the teenage years.[4] Evidence-based studies have consistently revealed that adolescent violence and media exposure are related to each other. Although the cause of violence remains unclear, some studies suggest exposure to media violence is associated with adolescent violence.[5]

The current literature indicates a variety of antecedents to violence. Among these, media exposure, especially to violent movies, has significantly impacted VB. Violent movies are one of the most important means of entertainment for individuals, and, violent movies greatly influence the behaviour of adolescents.[6] Adolescents spend an average of seven hours per day watching television and using entertainment media.[7] Studies on violence and aggression have revealed a relationship between media exposure and VB and how this relationship affects the perpetration of VB and the attitudes of individuals.[8] The media has the power to manipulate adolescents into developing antisocial behaviour and aggression.[9] Media-stimulated violent emotion is a primary risk factor for violence among adolescents.[10]

Previous studies have found that boys are more aggressive than girls.[11] Also, low SES of adolescents predicts violence compared to adolescents with high SES.[12] Empirical studies measuring physical violence found that adolescent violence is affected by gender and SES. It is important to note that media violence, typically associated with boys and lower economic

1 PEREDA, N., DÍAZ-FAES, D. A.: Family Violence Against Children in the Wake of COVID-19 Pandemic: A Review of Current Perspectives and Risk Factors. In *Child and Adolescent Psychiatry and Mental Health*, 2020, Vol. 14, No. 1, p. 1.

2 UNICEF: *Hidden in Plain Sight: A Statistical Analysis of Violence Against Children*. [online]. [2023-04-09]. Available at: <https://data.unicef.org/resources/hidden-in-plain-sight-a-statistical-analysis-of-violence-against-children/>.

3 BERKOWITZ, R.: Students' Physical Victimization in Schools: The Role of Gender, Grade Level, Socioeconomic Background and Ethnocultural Affiliation. In *Children and Youth Services Review*, 2020, Vol. 114, p. 105048.

4 UNICEF: *Hidden in Plain Sight: A Statistical Analysis of Violence Against Children*. [online]. [2023-04-09]. Available at: <https://data.unicef.org/resources/hidden-in-plain-sight-a-statistical-analysis-of-violence-against-children/>.

5 See: MILES-NOVELO, A., ANDERSON, C. A.: *Media Use and Violent Media Effects*. Ames, IA : Iowa State University, 2021.

6 KHAN, S. U. et al.: Cover the Violence: A Novel Deep-Learning-Based Approach Towards Violence-Detection in Movies. In *Applied Sciences*, 2019, Vol. 9, No. 22, p. 1.

7 See: RIDEOUT, V., ROBB, M. B.: *The Common Sense Census: Media Use by Tweens and Teens*. San Francisco, CA : Common Sense Media, 2019, p. 8.

8 BUSHMAN, B. J., ANDERSON, C. A.: Understanding Causality in the Effects of Media Violence. In *American Behavioral Scientist*, 2015, Vol. 59, No. 14, p. 1816.

9 MEEUS, A. et al.: Managing Positive and Negative Media Effects Among Adolescents: Parental Mediation Matters – But Not Always. In *Journal of Family Communication*, 2018, Vol. 18, No. 4, p. 270-271.

10 See: EISENBERG, S.: *The Effects of Media Violence on Adult Right Prefrontal Cortex Functioning*. [Dissertation Thesis]. Murfreesboro, TN : Middle Tennessee State University, 2015.

11 BUSHMAN, B. J. et al.: Risk Factors for Youth Violence: Youth Violence Commission, International Society for Research on Aggression (ISRA). In *Aggressive Behavior*, 2018, Vol. 44, No. 4, p. 331.

12 PONNAN, R. et al.: Shared Causal Theories About Film Violence and Violent Behaviour: Findings from Young Malaysian Indians. In *The Journal of the South East Asia Research Centre for Communication and Humanities*, 2018, Vol. 10, No. 1, p. 25.

status, predicts later violence. Gender and SES are key factors that moderate the relationship between media exposure and physical violence.[13]

Most Middle Eastern research has focused on the VB of the younger generation in Jordan and Arab countries.[14] However, these studies have not examined the effect of media exposure on adolescent behaviour and on motivation to engage in VB. Scholars have focused on the significance of elaborating more on media exposure and its impact on VB[15] because various media, including movies, present various violent content.[16] Also, several experts have recommended investigating and looking into the impact of violent sequences in media on VB and assault.[17] According to Bushman & Anderson, the issue of media violence's influence on VB is compelling but incomplete, and violent media must be investigated more in studies that aim to explain VB.[18] In addition, a study indicated that gender and SES as moderating variables in relation to violence need further investigation. Moreover, much research has focused on adult and child violence (see, e.g. Karmaliani et al.[19], Viero et al.[20]), but the number of studies on adolescent violence is rather low (see, e.g. Shaffer et al.[21]).

Consequently, the present study investigates how media exposure affects VB among Jordanian adolescents to bridge the current gap. Because the roles of gender and SES as moderators have also not been sufficiently studied, especially in non-Western literature, the present study also examines the moderating effect of gender and SES in the relationship between media exposure and VB among adolescents. The findings of this study enhance knowledge and understanding of the potential moderating roles that gender and SES might play in the relationship between media exposure and VB in the context of Jordanian adolescents.

2 Literature Review

2.1 Violent Behaviour

Most research defines violence as VB targeted at causing serious bodily harm, including injury and even death.[22] This current study defines VB as bodily harm or injury among adolescents. Many families, adolescents, and children are affected by it. Child and adolescent violence are

13 CHOWHAN, J., STEWART, J. M.: Television and the Behaviour of Adolescents: Does Socio-Economic Status Moderate the Link? In *Social Science & Medicine*, 2007, Vol. 65, No. 7, p. 1325-1326. See also: NWAJIUBA, C. A. et al.: Gender as a Moderator of the Association Between Exposure to Violent Media Contents and Aggressive Behaviour in a Sample of Nigerian In-School Adolescents. In *Global Journal of Health Science*, 2019, Vol. 11, No. 14, p. 10.

14 ELGHOSSAIN, T. et al.: Prevalence of Key Forms of Violence Against Adolescents in the Arab Region: A Systematic Review. In *Journal of Adolescent Health*, 2019, Vol. 64, No. 1, p. 8. See also: PRESLER-MARSHALL, E.: *Adolescent Boys in Jordan: The State of the Evidence*. [online]. [2023-04-20]. Available at: <https://www.gage.odi.org/wp-content/uploads/2018/12/GAGE-Jordan-Boys-Report-WEB.pdf>.

15 BUSHMAN, B. J. et al.: Risk Factors for Youth Violence: Youth Violence Commission, International Society for Research on Aggression (ISRA). In *Aggressive Behavior*, 2018, Vol. 44, No. 4, p. 333.

16 KHAN, S. U. et al.: Cover the Violence: A Novel Deep-Learning-Based Approach Towards Violence-Detection in Movies. In *Applied Sciences*, 2019, Vol. 9, No. 22, p. 1.

17 LINDO, J. M., SWENSEN, I. D., WADDELL, G. R.: Effects of Violent Media Content: Evidence from the Rise of the UFC. In *Journal of Health Economics*, 2022, Vol. 83, p. 19.

18 BUSHMAN, B. J., ANDERSON, C. A.: Understanding Causality in the Effects of Media Violence. In *American Behavioral Scientist*, 2015, Vol. 59, No. 14, p. 1818.

19 KARMALIANI, R. et al.: Right to Play's Intervention to Reduce Peer Violence Among Children in Public Schools in Pakistan: A Cluster-Randomized Controlled Trial. In *Global Health Action*, 2020, Vol. 13, No. 1, p. 1836604.

20 VIERO, A. et al.: Violence Against Women in the Covid-19 Pandemic: A Review of the Literature and a Call for Shared Strategies to Tackle Health and Social Emergencies. In *Forensic Science International*, 2021, Vol. 319, p. 110650.

21 SHAFFER, C. S. et al.: Ten-Year Trends in Physical Dating Violence Victimization Among Adolescent Boys and Girls in British, Columbia, Canada. In *Journal of Interpersonal Violence*, 2021, Vol. 36, No. 9-10, p. 3947.

22 BUSHMAN, B. J., ANDERSON, C. A.: Understanding Causality in the Effects of Media Violence. In *American Behavioral Scientist*, 2015, Vol. 59, No. 14, p. 1808-1809.

a common and alarming problem and phenomenon with a slew of serious effects.[23] Deviant behaviours and violent activities peak throughout adolescence, with individuals growing more deviant during this age.[24] According to World Health Organization (WHO), violence is one of the leading causes of adolescent fatalities and the world's third leading cause of death among adolescents. In the WHO Regions of America's low- and middle-income countries, violent incidents account for around a third of all adolescent male fatalities. Worldwide, about one in every three adolescent females has been a victim of violence.[25] Furthermore, the proportion of adolescents engaging in VB is rising in the Arab world, particularly in Jordan.[26]

As pointed out by Idris, youth violence and their participation in violent extremism have been recurring themes in Jordan over the past decade.[27] Violence in Jordanian society has reached an alarming level.[28] While studies on adolescent violence are among the most researched topics across cultures, more research is needed to better understand adolescent behaviour in Jordan and violence among adolescents is on the rise in Jordan.[29] School violence in Jordan is a serious issue that must be addressed.[30]

2.2 Media Exposure and Violent Behaviour

Media exposure is the time people spend playing, listening or watching media materials. Young people widely consume all forms of media, especially those aged 8-18.[31] In this case, movies have been widely recognized as one of the most popular forms of entertainment. Movies are a cheap source of entertainment and a strong instrument for exploiting the minds of viewers.[32] Studies have revealed that adolescents prefer to watch movies with violent sequences.[33] Such media contain many scenes of violence and have been found to impact people's behaviour.[34] Therefore, the influence of the media on behaviours and actions should not be ignored.[35]

23 BERKOWITZ, R.: Students' Physical Victimization in Schools: The Role of Gender, Grade Level, Socioeconomic Background and Ethnocultural Affiliation. In *Children and Youth Services Review*, 2020, Vol. 114, p. 105048.
24 MERRIN, G. J. et al.: Developmental Changes in Deviant and Violent Behaviors from Early to Late Adolescence: Associations with Parental Monitoring and Peer Deviance. In *Psychology of Violence*, 2019, Vol. 9, No. 2, p. 197.
25 See: *Adolescent and Young Adult Health.* [online]. [2023-04-11]. Available at: <https://www.who.int/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions>.
26 ELGHOSSAIN, T. et al.: Prevalence of Key Forms of Violence Against Adolescents in the Arab Region: A Systematic Review. In *Journal of Adolescent Health*, 2019, Vol. 64, No. 1, p. 16.
27 See also: IDRIS, I.: *Responding to Popular Protests in the MENA Region*. [online]. [2023-04-20]. Available at: <https://gsdrc.org/publications/responding-to-popular-protests-in-the-mena-region/>.
28 See: PRESLER-MARSHALL, E.: *Adolescent Boys in Jordan: The State of the Evidence*. [online]. [2023-04-20]. Available at: <https://www.gage.odi.org/wp-content/uploads/2018/12/GAGE-Jordan-Boys-Report-WEB.pdf>.
29 RAFFEE, L. A. et al.: Prevalence Estimates of Drug Addiction Among High-School Students and Its Association with Violence, and School Behaviors: A Cross-Sectional Study from Jordan. In *Annals of Medicine and Surgery*, 2021, Vol. 67, p. 102491.
30 Ibidem.
31 See: RIDEOUT, V., ROBB, M. B.: *The Common Sense Census: Media Use by Tweens and Teens*. San Francisco, CA : Common Sense Media, 2019.
32 SAEED, N., REHMAN, T. U., USMANI, M. A.: Impact of Violence in Movies on Juvenile Delinquency. In *International Journal of Civic Engagement and Social Change (IJCESC)*, 2018, Vol. 5, No. 1, p. 56.
33 Ibidem, p. 53.
34 KAYA, Ş.: Gender and Violence: Rape as A Spectacle on Prime-Time Television. In *Social Science Information*, 2019, Vol. 58, No. 4, p. 697.
35 VRABEC, N., POLIEVKOVÁ, P., MORAVČÍKOVÁ, M.: The Role of Media Literacy Development as a Part of Religious Education Curriculum. In *European Journal of Science and Theology*, 2013, Vol. 9, No. 5, p. 212.

Experiments have shown that adolescents exposed to media violence act aggressively and violently shortly after the exposure.[36] This exposure is particularly concerning for adolescents. Custers & Van Den Bulck argued that adolescents are sensitive to media messages as they transition from childhood to adulthood.[37] Empirical evidence on media violence and violence generally supports the idea that exposure to violent content portrayed by the media may impact the development of VB. For example, Aslam studied the impact of violent movies on adolescents as a catalyst for violence and delinquent behaviour and found a link between violent content and its impact on adolescents' minds.[38] Others have also found that violent media content is connected to harmful and adverse health outcomes such as interpersonal aggressiveness and violence.[39] Some argued that exposure to media violence contributes to high levels of VB.[40] The frequency with which adolescents watch violent media content was linked to increased physical violence over time.[41]

Simply put, the more exposed a viewer is to media violence, the more likely someone will participate in VB. The current study focuses on violent movies as a form of media exposure. The discussions presented above lead to the following hypothesis: *H1: Media exposure positively affects violent behaviour among Jordanian adolescents.*

2.3 The Moderating Role of Gender

Adolescents learn gender roles by observing males and females in their homes, then later through their peers and school. The media gives children and adolescents an "early window" on the bigger world as soon as they are old enough to be propped up in front of a television.[42] Moreover, the response to violence among adolescents differs between males and females.[43] Gender is an essential variable in violence.[44]

Males and females may experience the effects of violent media exposure differently, and boys and girls accept violence differently in their social settings.[45] Kanz said that because violence is more acceptable to men, and most violent heroes in media portrayals are male, its rewards are often more tempting. How the media presents violence and the roles of males in society all play a part in how violence affects males more than girls.[46] In addition, a study showed

[36] GENTILE, D. A., BUSHMAN, B. J.: Reassessing Media Violence Effects Using a Risk and Resilience Approach to Understanding Aggression. In *Psychology of Popular Media Culture*, 2012, Vol. 1, No. 3, p. 140.

[37] CUSTERS, K., VAN DEN BULCK, J.: The Association Between Soap Opera and Music Video Viewing and Fear of Crime in Adolescents: Exploring a Mediated Fear Model. In *Communication Research*, 2017, Vol. 44, No. 1, p. 110.

[38] ASLAM, S.: Bollywood Movies: A Contributing Factor Towards Juvenile Delinquency. In *International Journal of Research*, 2015, Vol. 2, No. 3, p. 504.

[39] ANDERSON, C. A., BUSHMAN, B. J.: Media Violence and the General Aggression Model. In *Journal of Social Issues*, 2018, Vol. 74, No. 2, p. 386-413.

[40] See: MILES-NOVELO, A., ANDERSON, C. A.: *Media Use and Violent Media Effects*. Ames, IA : Iowa State University, 2021.

[41] GROVES, C., PROT, S., ANDERSON, C.: Violent Media Use and Violent Outcomes. In POTENZA, M. N., FAUST, K., FAUST, D. (eds.): *The Oxford Handbook of Digital Technologies and Mental Health.* Oxford : Oxford University Press, 2020, p. 205.

[42] See: HUST, S. J., BROWN, J. D.: Gender, Media Use, and Effects. In CALVERT, S. L., WILSON, B. J. (eds.): *The Handbook of Children, Media, and Development*. New Jersey, NJ : Wiley & Sons, 2008, p. 98-120.

[43] RICHTER, L. M. et al.: A Longitudinal Perspective on Violence in the Lives of South African Children from the Birth to Twenty Plus Cohort Study in Johannesburg-Soweto. In *South African Medical Journal*, 2018, Vol. 108, No. 3, p. 181.

[44] KUTYWAYO, A. et al.: Experiences of Violence Among Female and Male Grade Eight Learners: Baseline Findings from the Girls Achieve Power (GAP Year) Trial Across Three South African Townships. In *Gates Open Research*, 2022, Vol. 5, No. 89, p. 3.

[45] KANZ, K. M.: Mediated and Moderated Effects of Violent Media Consumption on Youth Violence. In *European Journal of Criminology*, 2016, Vol. 13, No. 2, p. 154.

[46] Ibidem.

that male adolescents who are exposed to violent content in the media become more violent than girls.[47] A longitudinal study on exposure to violent media content indicated that males are more affected than females. The males become more violent.[48] That is, gender moderates the relationship between media exposure and VB.[49] However, some studies showed that gender does not play a moderating role in the relationship between media exposure and violence.[50]

When males see violent movies, their likelihood of engaging in VB increases dramatically. Men can be much more violent after watching violent movies, showing that gender predicts student violence.[51] Such evidence from previous studies clearly explains how media exposure impacts viewers, although the magnitude of the influence varies by gender. For example, media outlets frequently feature scenes of violence in which males are depicted as heroes and are more violent than females. As a result, exposing adolescents to such experiences may encourage violence in males more than in females. The question arises of whether gender plays a moderating role considering these different portrayals. Thus, the following hypothesis is posited: *H2: Gender moderates the relationship between media exposure and violent behaviour.*

2.4 The Moderating Role of Socioeconomic Status

SES is a primary risk factor for the consequences of negative childhood and adolescent development.[52] Previous studies have shown the importance of families' social and economic situations in increasing interpersonal violence.[53] Adolescents living in neighbourhoods with moderate to high poverty levels and low incomes are more likely to be violently abused.[54]

The effect of violent media content on VB of adolescents varies based on the social and economic status of families.[55] According to Ponnan et al., the link between movie violence and actual violence is widely associated with younger and less-educated people than those from lower socioeconomic backgrounds.[56] Media and movie violence may have a more significant

47 TOLBERT, A. N., DROGOS, K. L.: Tweens' Wishful Identification and Parasocial Relationships with YouTubers. In *Frontiers in Psychology*, 2019, Vol. 10, p. 2781.

48 COYNE, S. M., STOCKDALE, L.: Growing Up with Grand Theft Auto: A 10-Year Study of Longitudinal Growth of Violent Video Game Play in Adolescents. In *Cyberpsychology, Behavior, and Social Networking*, 2021, Vol. 24, No. 1, p. 3-4.

49 NWAJIUBA, C. A. et al.: Gender as a Moderator of the Association Between Exposure to Violent Media Contents and Aggressive Behaviour in a Sample of Nigerian In-School Adolescents. In *Global Journal of Health Science*, 2019, Vol. 11, No. 14, p. 12. See also: VERHEIJEN, G. P. et al.: Friendly Fire: Longitudinal Effects of Exposure to Violent Video Games on Aggressive Behavior in Adolescent Friendship Dyads. In *Aggressive Behavior*, 2018, Vol. 44, No. 3, p. 264.

50 TENG, Z. et al.: A Longitudinal Study of Link Between Exposure to Violent Video Games and Aggression in Chinese Adolescents: The Mediating Role of Moral Disengagement. In *Developmental Psychology*, 2019, Vol. 55, No. 1, p. 192.

51 QIAN, Z., ZHANG, D. J.: The Effects of Viewing Violent Movie via Computer on Aggressiveness Among College Students. In *Computers in Human Behavior*, 2014, Vol. 35, p. 323.

52 DEVENISH, B., HOOLEY, M., MELLOR, D.: The Pathways Between Socioeconomic Status and Adolescent Outcomes: A Systematic Review. In *American Journal of Community Psychology*, 2017, Vol. 59, No. 2, p. 1.

53 CHIGIJI, H. et al.: Risk Factors and Health Consequences of Physical and Emotional Violence Against Children in Zimbabwe: A Nationally Representative Survey. In *BMJ Global Health*, 2018, Vol. 3, No. 3, p. 540; See also: COMPANY-CÓRDOBA, R. et al.: Mental Health, Quality of Life and Violence Exposure in Low-Socioeconomic Status Children and Adolescents of Guatemala. In *International Journal of Environmental Research and Public Health*, 2020, Vol. 17, No. 20, p. 7620.

54 GIBSON, C. L., FAGAN, A. A., ANTLE, K.: Avoiding Violent Victimization Among Youths in Urban Neighborhoods: The Importance of Street Efficacy. In *American Journal of Public Health*, 2014, Vol. 104, No. 2, p. 159.

55 RAJASAKRAN, T. et al.: Aggressor Games: Of Violent Video Games and Aggression Among Higher-Income Group Schoolchildren in Malaysia. In *Science, Technology and Society*, 2014, Vol. 19, No. 3, p. 383.

56 PONNAN, R. et al.: Shared Causal Theories About Film Violence and Violent Behaviour: Findings from Young Malaysian Indians. In *The Journal of the South East Asia Research Centre for Communication and Humanities*, 2018, Vol. 10, No. 1, p. 45.

impact on VB among adolescents with low SES or high SES.[57] Decamp and Ferguson found that families' economic or financial position and socioeconomic backgrounds appear to have a bigger influence in predicting the risk of violence than media exposure.[58] Chowhan & Stewart indicated that SES plays a moderating role in the relationship between violent content in media and VB.[59] Yet, in contrast, the correlation between SES and television viewing habits cannot fully explain the relationship between violent content in media and violence of adolescents.[60]

Based on the preceding, the current research looks at the impact of SES on the relationship between media exposure and VB. For example, when an adolescent who lives in a disadvantaged neighbourhood marked by behavioural issues and a lack of discipline is exposed to violent movie content, they are more likely to engage in violent acts. For this study, SES is defined as the income of the family. As an essential part of SES, family income may influence the VB of adolescents. As a result, the following hypothesis is posited: *H3: Socioeconomic status moderates the relationship between media exposure and violent behaviour.*

2.5 Social Learning Theory

Bandura's theory has so far been empirically investigated in previous research since it was presented in the 1960s.[61] In addition, the social learning theory is suitable to determine real events and leaned behaviours of an individual from the social context at different phases of live.[62]

This study uses Social Learning Theory to explain the association between media exposure and VB. This theory describes the social and behavioural approach that stresses the interplay of environmental, behavioural, and cognitive factors in influencing the behaviour of humans.[63] The theory can best explain how media violence can cause aggressiveness and violence among viewers.[64] As per this theory, individuals learn by direct experience and from others' modelling behaviour, which might happen through the media. As a result, proponents of the media effects, such as Huesmann, argued that media violence has both short- and long-term consequences.[65] Observational learning can lead viewers to replicate what they see on television.[66] Attention, retention, reproduction, and motivation are the four phases of behavioural learning that predict the association between watching violent acts on television and acting aggressively.[67]

57 SALEEM, N. et al.: Violent Movies and Criminal Behavior of Delinquents. In *Pakistan Journal of Social Sciences (PJSS)*, 2013, Vol. 33, No. 2, p. 251.

58 DECAMP, W., FERGUSON, C. J.: The Impact of Degree of Exposure to Violent Video Games, Family Background, and Other Factors on Youth Violence. In *Journal of Youth and Adolescence*, 2017, Vol. 46, No. 2, p. 397.

59 CHOWHAN, J., STEWART, J. M.: Television and the Behaviour of Adolescents: Does Socio-Economic Status Moderate the Link? In *Social Science & Medicine*, 2007, Vol. 65, No. 7, p. 1334.

60 HUESMANN, L. R. et al.: Longitudinal Relations Between Children's Exposure to TV Violence and Their Aggressive and Violent Behavior in Young Adulthood: 1977 – 1992. In *Developmental Psychology*, 2003, Vol. 39, No. 2, p. 216.

61 GIBSON, S. K.: Social Learning (Cognitive) Theory and Implications for Human Resource Development. In *Advances in Developing Human Resources*, 2004, Vol. 6, No. 2, p. 196.

62 Ibidem.

63 See: BANDURA, A., WALTERS, R. H.: *Social Learning Theory.* New Jersey, NJ : Prentice Hall, 1977.

64 See also: CANTOR, J.: *Media Violence Effects and Interventions: The Roles of Communication and Emotion*. Oxfordshire : Routledge, 2003.

65 HUESMANN, L. R.: The Impact of Electronic Media Violence: Scientific Theory and Research. In *Journal of Adolescent Health*, 2007, Vol. 41, No. 6, p. 7-8.

66 See: DAUTRICH, K., YALOF, D.: *American Government: Historical, Popular, and Global Perspectives, Brief Version*. Toronto : Nelson Education, 2011.

67 See also: DAINTON, M., ZELLEY, E. D.: *Applying Communication Theory for Professional Life: A Practical Introduction*. Los Angeles, London, New Delhi, Singapore, Washington DC, Melbourne : SAGE Publications, 2017.

Social learning theory indicates that media violence leads to social learning of VB of individuals by observing VB in media such as violent films. Based on previous discussions that showed that this expectation explains the phenomenon of violence comprehensively and accurately, the current study used the theory to measure the effect of media exposure on adolescents' VB. The discussions presented above enabled the construction of the framework for the study. See Figure 1.

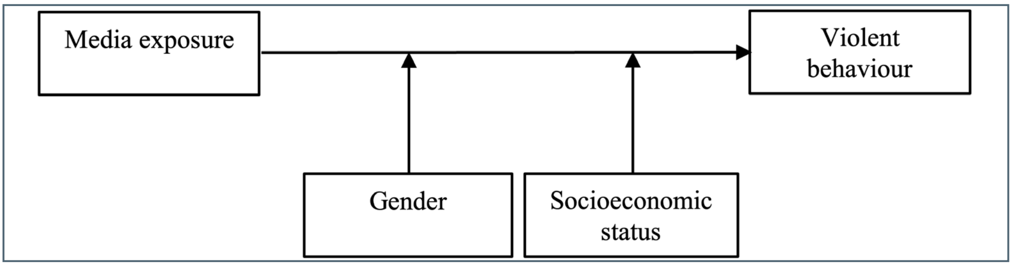

FIGURE 1: *Conceptual framework for research*

Source: own processing, 2023

3 Methodology

3.1 Population of the Study

The current research only focused on secondary schools in the Jordanian province of Jerash. Only public schools were chosen because public schools are known for having many students and a high percentage of student violence. The study focused on 20 high schools that witnessed the most cases of violence out of 55 high schools, therefore the study used a stratified sampling technique to ensure equal representation from each school. Six hundred and twenty-one students with disciplinary problems were recognized in 55 high schools in Jerash, ranging in age from 12 to 18. An adequate sample size for the current research is 234.[68] Nonetheless, the researchers distributed 350 questionnaires to assure an adequate response rate. Surveys were randomly distributed between January and February of 2021. Of the 350 questionnaires distributed, 283 questionnaires were usable, representing an effective response rate of 70.8%.

3.2 Instrumentation

The questionnaire consisted of Section A, which captured the respondents' demographic information, followed by Section B, which used a modified version of the 12-item tool that Straus et al. developed to measure the VB construct. This set of components was chosen because it has a high-reliability coefficient (=.86).[69] Next, Section C used the modified version of the 9-item instrument that Den Hamer et al. developed for measuring media exposure, which focuses on violent movies. This set of measurements was chosen because it has a high-reliability coefficient (=.84).[70] A 5-point Likert-type scale was used for Sections B and C, with answers ranging from 1 = strongly agree to 5 = strongly disagree.

68 KREJCIE, R. V., MORGAN, D. W.: Determining Sample Size for Research Activities. In *Educational and Psychological Measurement*, 1970, Vol. 30, No. 3, p. 608.

69 STRAUS, M. A. et al.: The Revised Conflict Tactics Scales (CTS2) Development and Preliminary Psychometric Data. In *Journal of Family Issues*, 1996, Vol. 17, No. 3, p. 297.

70 DEN HAMER, A., KONIJN, E. A., KEIJER, M. G.: Cyberbullying Behavior and Adolescents' Use of Media with Antisocial Content: A Cyclic Process Model. In *Cyberpsychology, Behavior, and Social Networking*, 2014, Vol. 17, No. 2, p. 77.

4 Results

4.1 Descriptive Analysis

Table 1 provides the means and standard deviations of the variables under study using SPSS version 26. The mean for VB was 2.11, and the SD was 0.758. The mean for media exposure was 1.94, and the SD was 0.665.

Constructs	Mean	Sta. Deviation
Violent behaviour	2.1193	.75805
Media exposure	1.9453	.66592

TABLE 1: *Showing results of descriptive statistics of constructs*

Source: own processing, 2023

4.2 Measurement Model

Analysing the measurement model is crucial in structural equation modelling.[71] Additionally, it aids in establishing the internal consistency of the study variables, facilitating the pathway for the Structural Model analysis. So, the study of the measurement model is also a part of the current research as shown in Figure 2. The convent validity of the research variables was first assessed. It initially questioned the converging validity of media exposure and VB, as shown in Table 2. All values of Factor Loading and the Extracted Average Variance were higher than the threshold value of 0.05. Cronbach's alpha value for VB was 0.915, and for Media Exposure, it was 0.876. The Composite Reliability value for VB was 0.929, and for Media Exposure, it was 0.901. Results from Cronbach's alpha and Composite Reliability remained over the threshold value of 0.7. Furthermore, the Average Values Extracted from the variance were 0.523 for VB and 0.507 for Media Exposure. See Table 2.

Constructs	Items	Loadings	Cronbach's alpha	Composite Reliability	Average Variance Extracted (AVE)
Violent Behaviour	VB1	0.838	0.915	0.929	0.523
	VB10	0.713			
	VB11	0.667			
	VB12	0.664			
	VB2	0.641			
	VB3	0.731			
	VB4	0.712			
	VB5	0.797			
	VB6	0.792			
	VB7	0.816			
	VB8	0.684			
	VB9	0.577			

[71] See: AWANG, Z.: Validating the Measurement Model: CFA. In AWANG, Z. (ed.): *SEM Made Simple*. Selangor : MPWS Rich Publishing, 2015.

Media Exposure	ME1	0.861	0.876	0.901	0.507
	ME2	0.767			
	ME3	0.693			
	ME4	0.613			
	ME5	0.835			
	ME6	0.752			
	ME7	0.624			
	ME8	0.532			
	ME9	0.668			

TABLE 2: *Showing results of convergent validity*

Source: own processing, 2023

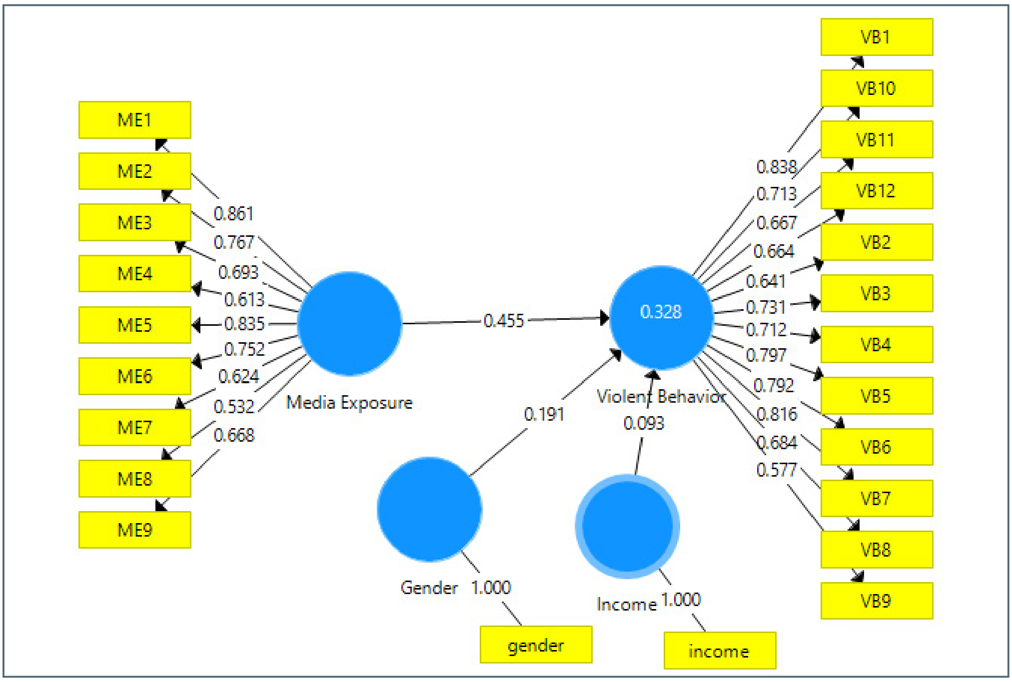

FIGURE 2: *Measurement model*

Source: own processing, 2023

This study performed an R^2 analysis of the latent variables to examine the influence of independent variables on the dependent variables. R^2 aids in determining the predictive ability of dependent variables and the degree to which independent variables contribute to variance in the dependent variables.[72] The latent variables R^2 analysis showed that media exposure, gender, and SES (family income) contribute 0.328. As seen in Table 3, the value of 0.328 indicates that all the latent variables have a fairly good predictive potential.

	R square	**Effect size**
Violent behaviour	0.328	Substantial

TABLE 3: *Showing results of coefficient of determination*

Source: own processing, 2023

72 See: DUFOUR, J. M.: *Coefficients of Determination*. Montreal : McGill University, 2011.

4.3 Hypotheses Results

As indicated in Table 4, the results of bootstrapping PLS-SEM suggest that media exposure and VB had a positive and significant relationship (b= 0.349, t= 9.064, p 0.05). As a result, Hypothesis 1 was supported, suggesting that media exposure affects VB among adolescents.

					Standard bootstrap results		
Relationship	Std. beta	Std. Error	t-values	p-values	5.00%	95.00%	Decision
ME -> VB	0.455	0.051	8.882	0.000	0.292	0.396	Supported

TABLE 4: *Showing results of direct relationship*

Source: own processing, 2023

Hypothesis 2 and 3 were tested using the PLS-SEM bootstrap technique. For hypothesis 2, the analysis demonstrates that the interaction effect (= 0.05) was insignificant, with a t-value of 0.148, as reported in Table 5. Therefore, the gender moderating impact on the relationship between media exposure and VB was statistically insignificant ($\beta = -0.031$, $t = 0.571$, $p > 0.05$). As a result, Hypothesis 2 was unsupported. For hypothesis 3, the analysis demonstrated that the interaction effect (= 0.05) was insignificant, with a t-value of 0.135. As a result, the SES moderating impact on the relationship between media exposure and VB was statistically significant ($\beta = 0.094$, $t = 1.506$, $p > 0.05$). As a result, Hypothesis 3 is not supported.

					Confidence intervals		
Relationships	Std. Beta	Std. Error	t-values	p-values	5.00%	95.00%	Decision
ME*Gender -> VB	-0.031	0.054	0.571	0.568	-0.133	0.077	Not Supported
ME*Income -> VB	0.094	0.063	1.506	0.132	-0.021	0.222	Not Supported

TABLE 5: *Showing results of moderating relationships*

Source: own processing, 2023

5 Discussion

Exposure to media, particularly violent content, allows adolescents to see realistic depictions of physical combat and violent conduct. As a result, adolescents have an easier time learning about violent actions. The more violence media adolescents are exposed to, the more likely they mimic and adopt various VB. Many other studies looked at the influence of violent media and movies on individuals and society. Media exposure has been connected to a rise in violence.[73] Media is a major means of entertainment in people's lives.[74]

The findings demonstrate that media exposure has a significant, positive, and medium link with VB. It suggests that the more adolescents are exposed to media, the more violent their behaviour will become. The findings demonstrate that adolescent exposure to violent media, such as violent movies, significantly predicts increased VB. This finding is consistent with Kaya, Ponnan et al.'s description of media exposure. Media violence is one of the causal factors of

[73] BUSHMAN, B. J. et al.: Risk Factors for Youth Violence: Youth Violence Commission, International Society for Research on Aggression (ISRA). In *Aggressive Behavior*, 2018, Vol. 44, No. 4, p. 333. See also: PROT, S. et al.: Understanding Media Violence Effects. In MILLER, A. G. (ed.): *The Social Psychology of Good and Evil.* Guilford : The Guilford Press, 2016, p. 124-125.

[74] GONDEKOVÁ, V.: Persuasive-Communication and Manipulative-Communication Concepts in Television Programme of the Reality TV Genre. In *Media Literacy and Academic Research*, 2018, Vol. 1, No. 2, p. 52.

school violence and real-life violence.[75] However, the established result does not align with some studies that discovered no discernible impact of the media on VB.[76]

Contrary to predictions, the present study found no moderation between gender and VB among adolescents. This result is consistent with a study that revealed that gender did not moderate the relationship between violent media content and VB.[77] However, this finding contradicts past studies in which multiple researchers have shown that gender moderates the relationship between media exposure and violence.[78] Prior research has shown that gender is related to VB. Several reasons may exist for this contradiction for instance, examining media exposure in different social contexts. Moreover, gender was examined as a moderator and aggressive behaviour in relation to school[79], whilst Toplu-Demirtaş & Fincham examined gender as a moderator and dating violence.[80]

Second, as Browne & Hamilton-Giachritsis noted in their meta-analyses, *"video and computer games had substantial short-term effects on arousal, thoughts, and emotions, increasing the likelihood of aggressive or fearful behaviour in younger children, especially in boys"*.[81] However, they also said the evidence became *"inconsistent when considering older children"*.[82] Perhaps, the lack of an association in this study has to do with the age of the children investigated. Last, the lack of a significant association in the current study may have to do with the Arab-Islamic context of Jordan.

Furthermore, contrary to expectations, the present study found no evidence of SES as a moderator, making the findings contradictory to earlier research, perhaps because the current study mainly comprised low-income families. Several studies have shown that socioeconomic position can influence VB.[83] In prior investigations, SES was also a moderator between media exposure and violence.[84] However, Pabayo et al.'s study was conducted in a low-income black neighbourhood in Boston with a long history of racial conflicts.[85] Sariaslan et al.'s study was

75 KAYA, Ş.: Gender and Violence: Rape as a Spectacle on Prime-Time Television. In *Social Science Information*, 2019, Vol. 58, No. 4, p. 681. See also: PONNAN, R. et al.: Shared Causal Theories About Film Violence and Violent Behaviour: Findings from Young Malaysian Indians. In *The Journal of the South East Asia Research Centre for Communication and Humanities*, 2018, Vol. 10, No. 1, p. 25.

76 See: FREEDMAN, J.: *Media Violence and Its Effect on Aggression*. Toronto : University of Toronto Press, 2017. See also: LINDO, J. M., SWENSEN, I. D., WADDELL, G. R.: Effects of Violent Media Content: Evidence from the Rise of the UFC. In *Journal of Health Economics*, 2022, Vol. 83, p. 19.

77 TENG, Z. et al.: A Longitudinal Study of Link Between Exposure to Violent Video Games and Aggression in Chinese Adolescents: The Mediating Role of Moral Disengagement. In *Developmental Psychology*, 2019, Vol. 55, No. 1, p. 192.

78 BROWNE, K. D., HAMILTON-GIACHRITSIS, C.: The Influence of Violent Media on Children and Adolescents: A Public-Health Approach. In *The Lancet*, 2005, Vol. 365, No. 9460, p. 708. See also: KANZ, K. M.: Mediated and Moderated Effects of Violent Media Consumption on Youth Violence. In *European Journal of Criminology*, 2016, Vol. 13, No. 2, p. 165.

79 ALIZAMAR, A. et al.: Differences in Aggressive Behavior of Male and Female Students Using Rasch Stacking. In *International Journal of Research in Counseling and Education*, 2018, Vol. 3, No. 1, p. 22.

80 TOPLU-DEMIRTAŞ, E., FINCHAM, F. D.: I Don't Have Power, and I Want More: Psychological, Physical, and Sexual Dating Violence Perpetration Among College Students. In *Journal of Interpersonal Violence*, 2022, Vol. 37, No. 13-14, p. 21.

81 BROWNE, K. D., HAMILTON-GIACHRITSIS, C.: The Influence of Violent Media on Children and Adolescents: A Public-Health Approach. In *The Lancet*, 2005, Vol. 365, No. 9460, p. 702.

82 Ibidem.

83 PABAYO, R., MOLNAR, B. E., KAWACHI, I.: The Role of Neighborhood Income Inequality in Adolescent Aggression and Violence. In *Journal of Adolescent Health*, 2014, Vol. 55, No. 4, p. 1. See also: SARIASLAN, A. et al.: Childhood Family Income, Adolescent Violent Criminality and Substance Misuse: Quasi-Experimental Total Population Study. In *The British Journal of Psychiatry*, 2014, Vol. 205, No. 4, p. 289.

84 PONNAN, R. et al.: Shared Causal Theories About Film Violence and Violent Behaviour: Findings from Young Malaysian Indians. In *The Journal of the South East Asia Research Centre for Communication and Humanities*, 2018, Vol. 10, No. 1, p. 25.

85 PABAYO, R., MOLNAR, B. E., KAWACHI, I.: The Role of Neighborhood Income Inequality in Adolescent Aggression and Violence. In *Journal of Adolescent Health,* 2014, Vol. 55, No. 4, p. 5-6.

conducted in Sweden[86], Berkowitz's study was conducted among ethnocultural affiliations, i.e., Arabs and Jews in Israel[87], whilst Ponnan et al.'s study was conducted among young Malaysian Indians.[88] Saleem et al.'s study was conducted among juvenile delinquents in Pakistan.[89] These studies were conducted in the context of different ethnic-cultural backgrounds and used various methods, including interviews and surveys entailing different age groups and databases, which may have led to the different results from the current study.

6 Implications

The findings of this study contribute to new empirical evidence in the literature on violent movies and media exposure in the following ways. First, very few studies focused on adolescents by looking at the relationship between media exposure and VB in a developing Arabic-Islamic country like Jordan. Second, the respondents of this study consist of males and females from various groups and ages, implying that their actions may be applied to a broad spectrum of Jordanian adolescents. The results of the current study also have practical implications. This study could help parents, the government, and law enforcement become more aware of how the media and violent movies contribute to adolescents' VB. The study's findings may enhance decision-makers' awareness and help them design solutions to address the stated problems and, as a result, successfully reduce VB among adolescents.

7 Limitations

This study has several limitations. First, although this study discovered a correlation between media exposure (violent movies) and VB in real life, correlation does not necessarily imply causation. Second, longitudinal studies must establish if this association persists over time. Third, due to cost and time constraints, this study only looked at schools in one governate of Jordan (Jerash). Consequently, generalizing the results to all Jordanian adolescents and other countries should be treated with caution. Fourth, this study used a sample of students with reported disciplinary problems, and a comparative study with those who did not have these issues would be helpful.

8 Conclusion

The study's results showed that media exposure impacts VB among adolescents and that gender and SES have no moderate effect on the relationship between media exposure and VB. Despite extensive research on media violence, this study contributes to a better understanding of the most crucial factors contributing to increased violence among adolescents, particularly in Jordan. The current study has found beneficial ways to describe violent movies' influence

86 SARIASLAN, A. et al.: Childhood Family Income, Adolescent Violent Criminality and Substance Misuse: Quasi-Experimental Total Population Study. In *The British Journal of Psychiatry*, 2014, Vol. 205, No. 4, p. 286.

87 BERKOWITZ, R.: Students' Physical Victimization in Schools: The Role of Gender, Grade Level, Socioeconomic Background and Ethnocultural Affiliation. In *Children and Youth Services Review*, 2020, Vol. 114, p. 105051.

88 PONNAN, R. et al.: Shared Causal Theories About Film Violence and Violent Behaviour: Findings from Young Malaysian Indians. In *The Journal of the South East Asia Research Centre for Communication and Humanities*, 2018, Vol. 10, No. 1, p. 36.

89 SALEEM, N. et al.: Violent Movies and Criminal Behavior of Delinquents. In *Pakistan Journal of Social Sciences (PJSS)*, 2013, Vol. 33, No. 2, p. 246-247.

on adolescent VB. Future studies could look at adolescents in other countries, particularly the Arab world, which share Jordan's cultural norms. A bigger sample size and representation of adolescents from other countries would help produce more generalizable findings. Future studies on media violence and VB should explore a longitudinal approach or mixed-method to offer more comprehensive and complete results on VB. Researchers could utilize qualitative approaches like interviews to gain a more in-depth explanation of a specific issue in VB and more information and knowledge about the causes and motivations contributing to VB.

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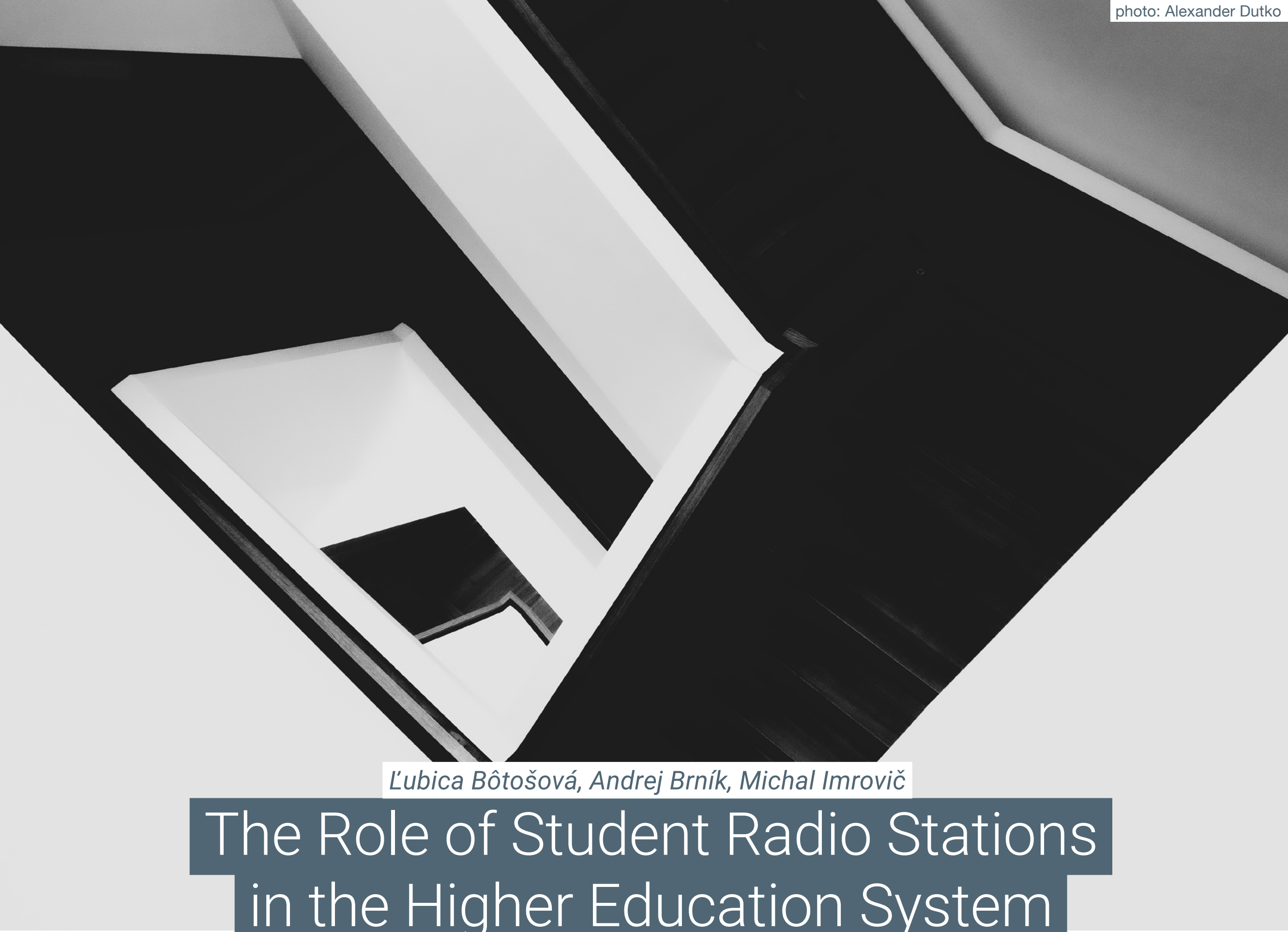

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The Role of Student Radio Stations in the Higher Education System

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ABSTRACT

Student radio stations are an important part of the media environment in Slovakia. Our research focused on obtaining information on the functioning of these stations, including their legal regulation, training of new members and formal integration into university structures. Student radio stations have several rights and obligations secured by the new Slovak Media Act and can be classified as community radio stations. Students are mostly mentored and apprenticed by senior radio colleagues for a semester or a whole year to hone their communication skills, create scripts and master broadcasting techniques. Student radio stations are under the umbrella of, or are part of, a university, but focus on student topics in content and do not serve as a medium for a given educational institution. The topic for discussion remains whether the student radio stations are fulfilling their legal obligations and whether they are interested in applying for a radio broadcasting licence. The qualitative research carried out in this study shows that the majority of radio stations in Slovakia have advertisements on air, mostly in the form of barter, and the principles regarding commercial media communication are not always followed. A big question mark is the possibility of obtaining a radio broadcasting licence, as the current legislation may be too restrictive for student radio stations. Overall, the research has shown that student radio stations are an important part of the media environment and can provide students with valuable experience and knowledge in media work.

KEY WORDS

Broadcasting. Media Education. Radio. Student Radio. University.

1 Introduction

Student and university broadcasting in Slovakia was gradually established at the end of the 1970s, copying similar trends for this type of broadcasting around the world. It is closely linked to university dormitory life and volunteering, technological changes, but also to the emergence of big names on Slovak radio and later on the presenter scene. However, it had its heyday in the 1980s, when we can assume (and in most cases document) that student radio was present in every major university dormitory-student house in Slovakia. In the past, small audio loudspeakers were placed on the walls of each dormitory room to announce important student announcements (similar systems are still in place in some dormitories today). And it was this speaker network that was used by students who came up with the idea of playing music on them to make other students' time more enjoyable (at that time, television was just starting out and small portable radios were rare). *"All you had to do was turn the wheel on the booth, which wasn't missing from any of the rooms, and the fun could begin."*[1] The emergence of student radio is also closely related to the introduction of a new technology into state radio broadcasting – stereophonic broadcasting (the transition from MONO to STEREO broadcasting), which began to be introduced in the 1970s.[2]

The technology at this time was expensive and inadequate, but students studying in the radio station studios were able to acquire the decommissioned MONO technology that *Czechoslovak Radio* was disposing of. This laid the basis for the emergence of student radio broadcasting, whereby the playing of music could be supplemented by the spoken word, thus creating, in part, a programme that could resemble a simple radio broadcast. The so-called "IRŠ", the Dormitory Radio Studios, were born. Of course, there was no such thing as sound graphics, or the production of journalistic genres for broadcast, at that time. Students played songs from records or tapes and occasionally interjected with short spoken word pieces. The listenership of the first dormitory radio studios was high in the early days, within the dormitory, because they were the first "competitive" media against the state-controlled mass media, which, since they were not under the scrutiny of state censors, had a certain degree of freedom, at least in the choice of music. However, in addition to university "IRŠ", we are also familiar with the term: School Radio (mainly widespread in primary and secondary schools).

In many institutions, it is considered a means of communication that targets a dispersed audience, but the same target group – students who share similar interests. It allows messages intended for school pupils to be disseminated effectively. The content creators are mostly teachers or school management. The speaker network is not used creatively, but only to convey essential information. School radio, on the other hand, is a form of the educational concept of learning-by-doing, and in some cases, a way for pupils to engage in leisure activities. It is a form of active participation of pupils who create media content through online platforms, not frequency[3] mainly for financial or time reasons. We mentioned the concept of learning-by-doing, which focuses on hands-on activities with real media. It does not emphasise the learning of media content, but the creation of media content. It enables people to learn about their own role in the collective, to improve their coordination of their own activities, their ability to express and defend their opinion and to make decisions in the interests of the whole. Students who experience this concept will learn and navigate communication technologies, have insight into music, new trends and gain contacts.[4]

1 *Inro – o nás a naša história.* [online]. [2023-02-12]. Available at: <https://sites.google.com/a/inro.sk/inro-sk/home/o-nas>.

2 *História VKV vysielania.* [online]. [2023-02-12]. Available at: <https://www.retromania.sk/1960-1969/historia-vkv-vysielania>.

3 Note of the authors: *Radio Aetter* operating at the Faculty of Mass Media Communication of the University of Ss. Cyril and Methodius in Trnava has also broadcast from November 2020 on the frequency as the first Slovak student radio in Slovakia.

4 VRABEC, N.: *Mediálna výchova: teoretické východiská a trendy.* Trnava : FMK UCM in Trnava, 2013, p. 21-22.

Both types of student broadcasting could also be defined as community media in current terminology. The term community media is defined by L. Škripcová and M. Mistrík as the most general name for this type of media. An important factor is the close connection between the media and the community itself. At the same time, they serve as a mediator of information between the medium and the community. Compared to abroad, the term community media is used less in the Slovak Republic because it is rarely found in the media environment.[5] Community media are meant to blur the boundaries between audiences and media content creators through participation. They are non-profit, non-commercial and independent media and do not compete with mass media, mainly because they are meant to create a space for content that does not normally get a place in mass media broadcasting. Community media serve and are accountable to communities. The overriding principle is freedom of expression and information reception, with respect for the human rights and freedoms that constrain their freedom.[6] The audience of community media is also different from the audience of mass media. It is characterised by intimacy, proximity, participation, partial anonymity, homogeneity of interest, and organisation.[7] College radio can be a fantastic learning tool for students, but its viability and scope, particularly in the local context, need to be thoroughly investigated in order to document the potential successes and challenges that may arise during its operation and to develop a framework that offers the greatest benefits while supporting the college's primary goals for the all-around development of the student community.[8]

Recently, for the first time, the term community media was introduced into the legislation of the Slovak Republic (during the amendment of the Audiovisual Act), which regulates community broadcasting as well as the rights and obligations of community broadcasters. The Media Services Act states that community broadcasting is a linear media service provided by a person other than an entrepreneur which is not primarily economic in nature, in particular local broadcasting, if its purpose is not directly or indirectly to make a profit. A community medium which is not primarily economic in nature shall also be considered to be a community broadcast in which the advertising message does not exceed 1% of the airtime per calendar day. A community medium which is not primarily economic in nature shall also be deemed to be a community medium whose revenues from commercial media communication and other forms of promotion do not exceed 5% of the community media provider's costs of community broadcasting or the provision of a community video service in a financial year, up to a maximum of EUR 100 000. The provisions relating to other media shall also apply to a community medium which contains commercial media communication or other forms of promotion. One of the rules is that the commercial media communication must be easily distinguishable from other components of the programme service or on-demand audiovisual media service. A community medium is subject to the obligations as a broadcaster of a locally broadcast programme service.[9] Student media emerge mainly as part of the educational process in schools of all types. They are a place for hands-on learning about media and its participants are involved in the creation of content for the media. They have a different tradition in terms of their emergence – in some places they emerged as an implementation of media education in education, elsewhere they have been part of the school for many years and form a certain tradition. However, according to L. Škripcová and M. Mistrík, although student media may have certain characteristics of community media, they are not community media in the true sense of the word. This is mainly due to the fact that

5 MISTRÍK, M., ŠKRIPCOVÁ, L.: *Komunitné médiá.* Trnava : FMK UCM in Trnava, 2021, p. 10.
6 Ibidem, p. 24.
7 Ibidem, p. 30.
8 BAHAELDIN, I., NAVEEN, M.: College Radio as a Mechanism for Participatory Learning: Exploring the Scope for Online Radio Based Learning Among Undergraduates. In *Higher Learning Research Communication*, 2016, Vol. 6, No. 1, p. 22. [online]. [2023-02-20]. Available at: <https://files.eric.ed.gov/fulltext/EJ1132944.pdf>.
9 *Media Services Act No. 264/2022 Coll.* [online]. [2023-02-20]. Available at: <https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2022/264/20220801>.

the leaders of the institution have the possibility to interfere in the broadcast, for example, in the content or at the organisational or financial level of the media. They even describe a very specific type of media – the in-house media, which are the subject of this study. The community from which they emerge is temporal, but they have a greater degree of freedom because the students create them on their own initiative within a narrowly circumscribed group of people.[10]

We can assume that student radio stations are copying the trends applied by private radio stations in Slovakia. *"In conclusion, we can establish the current trends in commercial news broadcasting in Slovakia. We can say with certainty that news coverage, in terms of scope, is short and does not get much space. It is mostly composed of 4 to 5 news reports. It may start with headlines. The news service also consists of weather forecasts and traffic services, which are placed in different positions within the news, which means that the news service may start with weather or traffic information and continue with social events from home and from around the world."*[11] In the fast-paced and constant flow of information we encounter in practice that there is not enough space even for basic learning and gaining experience for novice reporters, let alone training reporters in depth about the essentials of radio reporting or the reporter's character qualities. That is why school and student media outlets are coming to the fore to deliver this basic service, and in this way, aspiring journalists are gaining basic knowledge and skills about working in the media.[12] *"Students work with educational media activities to develop different key competences, including social, presentation, communication and technical skills. Students are developing their media and information literacy by creating media content. When teachers involve students in creating media productions using video cameras or computers."*[13] Radio is classified more by how it is sponsored than by what it accomplishes. Each financing source directly affects the programming that a station can offer or is willing to do, which in turn is influenced by the level of competition it confronts. We may say that "IRŠ" falls under the category of "institutional ownership", such as a university campus, hospital, or factory radio that is maintained and funded by the organization for the benefit of its clients, including its clients' clients, patients, employees, etc.[14] The original meaning of the abbreviation "IRŠ" (from Slovak: Internátne Rozhlasové Študio, in English: Dormitory Radio Studio) changed over time to Internet Radio Students, which was a reaction to a change in broadcasting technology. For example, *Rádio TLIS* went from its original wire radio, which operated through booths in dorm rooms, to an Internet stream in the year 2000. The role of the radio is to educate and train students in audio-visual technology, radio broadcasting, and organizational skills.[15]

2 Methodology

Within the theoretical part of the study, we briefly analysed the concept of community media, anchored in the Media Act No. 264/2022, the Act on Media Services and on Amendments and Additions to Certain Acts (Media Services Act). Based on induction and deduction, we sought

10 MISTRÍK, M., ŠKRIPCOVÁ, L.: *Komunitné médiá.* Trnava : FMK UCM in Trnava, 2021, p. 56-57.
11 BÔTOŠOVÁ, Ľ., BRNÍK, A.: Trends in Radio News Coverage of Private Broadcasters in the Conditions of the Slovak Republic. In *Communication Today*, 2022, Vol. 13, No. 2, p. 91. [online]. [2023-02-20]. Available at: <https://communicationtoday.sk/wp-content/uploads/05_BOTOSOVA_BRNIK_CT-2-2022.pdf>.
12 BÔTOŠOVÁ, Ľ., FURTÁKOVÁ, L.: Vlastnosti rozhlasového reportéra. In MAGÁLOVÁ, L., KOLENČÍK, P., MACÁK, P. (eds.): *QUO VADIS MASSMEDIA, QUO VADIS MARKETING*. Trnava : FMK UCM in Trnava, 2022, p. 65.
13 BÔTOŠOVÁ, Ľ., VRABEC, N.: Specifics of the School Radio Stations and Their Online Presentation in the Framework of Slovak Republic. In KUSÁ, A., ZAUŠKOVÁ, A., RUSŇÁKOVÁ, L. (eds.): *MARKETING IDENTITY: Digital Mirrors – part II.* Trnava : FMK UCM in Trnava, 2018, p. 29.
14 MCLEISH, R.: Radio Production. Oxford : Elsevier, 2005, p. 14. [online]. [2023-02-20]. Available at: <https://ayomenulisfisip.files.wordpress.com/2014/08/robert_mcleish_radio_production_fifth_edition__2005.pdf>.
15 *Rádiá.sk: Legendárne študentské rádio otvorí dvere.* [online]. [2023-02-20]. Available at: <https://www.radia.sk/spravy/4700_legendarne-studentske-radio-otvori-dvere>.

to answer how student radio stations are anchored in this law. In addition, we have tried to describe the very emergence of student broadcasting in Slovakia, and its established forms at different levels of the educational process.

The research part was carried out on the basis of qualitative enquiries of persons responsible for the operation of student radio station within a given organisation. We approached all currently operating student radio stations in Slovakia (only university radio stations) and using a structured online questionnaire with open-ended questions, we collected answers from respondents, persons responsible for the operation of the radio station and those who make decisions that are crucial for the functioning of student radio stations. We collected responses between January 9 and February 10, 2023. The structured questionnaire contained 14 questions. Some took the form of closed questions, others were open-ended. The questions were set to elicit responses to our secondary research questions and thus the main research question. The aim of the present research study is to gain insight into the role and status of student radio stations in the higher education system. We will gain an overview of the set topic by analysing the current broadcasting of college radio stations. It is necessary to get an overview and comprehensive information about the functioning and organization and provision of student radio stations, as well as to find out the current status and definition of broadcasting or the motives of students and their experiences with student radio in a particular institution. Based on the stated objective of this study, the research questions need to be formulated.

Main research question:
What is the current state of student, university broadcasting in Slovakia?

Secondary questions:
How are student radio stations anchored in the new Slovak Media Act?
How are newly admitted students prepared for radio broadcasting?
How are student radio stations formally integrated into university structures?
Are student radio stations fulfilling their obligations under the legal norms?
How do student radio stations function in terms of organisation?

There are currently 8 student radio stations operating within universities across the country. As part of the qualitative research, we collected responses from all of the radio stations contacted. We then generalised the results and present their interpretation below.

Name of the Radio Station	University	Web of the Radio Station	Person responsible for completing the data
Aetter	University of Ss. Cyril and Methodius in Trnava	https://aetter.sk/[16]	Miroslav Kapec
INRO	Technical University in Zvolen	https://inro.tuzvo.sk/[17]	Mária Štulajterová
PaF Rádio	Prešov University in Prešov	http://pafradio.unipo.sk/program-radia-paf.html[18]	Alexandra Tomečková
Rádio 9	Technical University of Košice	http://www.radio9.sk/[19]	Michal Porezaný
Rádio Rapeš	University of Žilina in Žilina	https://www.rapes.sk/[20]	Andrej Čižniar
Rádio X	University of Žilina in Žilina	http://www.radiox.sk[21]	Adam Škrváň

16 *Rádio Aetter.* [online]. [2023-02-20]. Available at: <https://aetter.sk/>.
17 *INRO ZVOLEN.* [online]. [2023-02-20]. Available at: <https://inro.tuzvo.sk/>.
18 *PaF Rádio.* [online]. [2023-02-20]. Available at: <http://pafradio.unipo.sk/program-radia-paf.html>.
19 *Rádio 9.* [online]. [2023-02-20]. Available at: <http://www.radio9.sk/>.
20 *Rádio Rapeš.* [online]. [2023-02-20]. Available at: <https://www.rapes.sk/>.
21 *Rádio X.* [online]. [2023-02-20]. Available at: <http://www.radiox.sk>.

ŠtuRKO	Pavol Jozef Šafárik University in Košice	http://sturko.intrak.upjs.sk/[22]	Martina Kollárová
TLIS	Student Dormitory Mladosť – Comenius University in Bratislava	https://www.tlis.sk/[23]	Filip Antala

TABLE 1: *List of active student radios in Slovakia*

Source: own processing, 2023

3 Results

All the radio stations contacted have their own website where they have their stream. When asked: *How do you disseminate your radio broadcasts*, all the radio stations answered that they mainly broadcast on stream, but there were other answers as well. *TLIS*, *Rádio X, Rádio 9* and *Rádio Aetter* also broadcast on the *radia.sk app*, and *Rádio Aetter* also has its own FM transmitter and *Rádio X* has its own app. *INRO*, *PaF* and *Rádio 9* also share broadcast content through speakers in the school dormitory.

Does your radio station pay any fees to SOZA or SLOVGRAM?

Only two radio stations out of the respondents pay fees to the institutions that are responsible for performers' copyrights.

How many members does your radio station have?

The number of staff members that make up the editorial staff of the radio station studios of the surveyed entities starts at 10 and the highest number of members in the editorial staff is 28. Their activities include being in charge of broadcasting, preparing news blocks, enrolling new members, as well as managing social media and promoting the activities and activities in the radio studios.

Radio	Number
Aetter	25
INRO	12
PaF Rádio	20
Rádio 9	25
Rádio Rapeš	28
Rádio X	26
ŠtuRKO	10
TLIS	20

TABLE 2: *Number of people included into student radio stations*

Source: own processing, 2023

Do radio station members have any advantages over other students?

The remuneration of the station's students or those involved in the station is mainly in the form of accommodation benefits. *"For members staying in STU dormitories, we provide work evaluation in the form of dorm points." TLIS Rádio. "Yes it's both accommodation discounts and scholarships. Admittedly each according to merit." Rádio Rapeš*. *Rádio X* is similar: *"They have dorm points, dorm discounts, and occasionally scholarships."* In addition, they consider collaboration with educators or other professional radios to be a benefit: *"Motivational*

[22] *ŠtuRko*. [online]. [2023-02-20]. Available at: <http://sturko.intrak.upjs.sk/>.

[23] *TLIS*. [online]. [2023-02-20]. Available at: <https://www.tlis.sk/>.

scholarship, collaboration with educators, professional radios." ŠtuRKO. PaF Rádio also talks about the reward in the form of credits earned *"More points when applying for accommodation, possibility of applying credits."* At *Rádio 9*, students do not receive any benefits related to incentive pay for their work in the radio studio. They also receive benefits at *INRO Rádio,* as well as at *Aetter Rádio*, which is the only one operating on the frequency: *"They get points when they get accommodation, they can write it down as a subject."*

When asked, if you had to describe student radio broadcasting in 3 words, what would they be?

Those in charge answered mainly with words like experience, experience, diversity or creativity. The essentials that they shared in their answers were processed into a cloud of words that have connotations for people involved in radio programming in educational institutions. A more detailed version of their responses is shown in Picture 1, below.

PICTURE 1: *Word Cloud – Conotation with student radio*

Source: own processing, 2023

What do you consider to be the strengths of student radio broadcasting?

Among the strengths that emerged, in the words of the radio leaders, were diversity, room for trying new things, and a relaxed approach to learning (*Rádio Aetter*). Students can make friends, learn to talk and communicate (*INRO*). Another positive, according to the interviewees, is that it is based on campus, the speakers are in the dormitory rooms, and therefore the content that the radio station produces reaches the students directly as the target audience of the medium. They also described that the language training of the presenters (especially the news presenters) will be improved (*PaF Rádio*). The otherness of the media content and the direct orientation towards the target group of university students, the possibility of regular renewal and the preparation of content tailored to the current semester also resonated in the responses (*Rádio 9*). A recurring positive aspect of the existence of student radio is that it represents a great experience in life. When broadcasting, one learns to speak fluently and in a written manner which will be helpful in, for example, a job interview. One will also get an insight into new things when preparing for a given session (*Rádio Rapeš*). Participation in the radio medium also develops the personality traits of the individual – improving communication, socialising, improving the courage of shy people to express themselves (*Rádio X*). Last but not least, working for student radio media is also related to the development of competences that are later used by graduates in practice. Through student radio we gain a lot of experience that helps us to "grow" and develop in our activities in the future (after school) (*ŠtuRKo*). Hands on skills for students seeing their future in the media, another media space for information about the university and for its and other students *(TLIS)*.

From the above, radio station studio managers consider the following to be strengths:

- experience in media production, specifically radio broadcasting;
- development of communication skills;
- increasing the level of communication in the native language;
- creation of content directly targeted at the university students.

What do you see as the weaknesses of student radio broadcasting?

Among the most frequent negative or weaknesses mentioned were: the turnover of people, the unreliability of students, the students' workload (they cannot devote themselves fully to broadcasting – especially during exam periods) (*Rádio Aetter, Rádio 9*). Also, inactivity and disinterest in being part of the editorial team and creating media content: in our case, there is not as much interest in this as there used to be when people did not have access to the internet and listened to the radio regularly (*INRO*). Furthermore, the technical proficiency of the broadcasting members of the radio station also poses a problem. Limited knowledge in technology, weak influence of the teaching environment (*PaF Rádio*). Many members speak ungrammatically or dialect. This makes the broadcasts lower quality. Admittedly this can be unlearned but it takes time. Broadcasting is only via internet stream (*Rádio Rapeš*). For the creators, feedback in the form of a listenership survey is also demotivating: there is a problem with listenership which demotivates some members (*Rádio X*). Another significant aspect is that students expect to be paid for the work they do: students expect to be paid for the work they do, they don't see it as an experience that will help them in their job searches. With their reluctance, radio activity also declines (*ŠtuRKO*). As podcasts have come to the fore in recent years, some creators also see another drawback: the weak interest in radio broadcasting in the modern era (*TLIS*)

Thus, we can argue that the weaknesses of radio production include:

- inactivity on the part of students;
- low listenership figures;
- lack of financial reward;
- lack of experience with the technology needed in broadcasting;
- poor level of communication in the native language.

How many different shows do you regularly produce and put on the air?

The number of shows varies in the survey conducted at universities in Slovakia. We assume that this is due to the fact that most of the radio stations are gradually switching to stream broadcasting, which is also steadily present in private radio stations in Slovakia, and they prefer it to the classical session with a clearly defined structure.

Radio	Number
Aetter	2
INRO	4
PaF Rádio	9
Rádio 9	6
Rádio Rapeš	10
Rádio X	8
ŠtuRKO	7
TLIS	7

TABLE 3: *Number of radio shows*

Source: own processing, 2023

Can you briefly describe how you go about training new presenters?

Systematic preparation is key to the induction of new presenters: first the theoretical basis, then practice in the training studio (*Rádio Aetter*). Each presenter prepares themselves before their show, the presenters are selected by audition so we know that we can count on them and it will turn out well (*INRO*). The training of new presenters is taken care of by senior presenters who have been in radio for more than two years. They are supervised by a senior presenter

(*PaF Rádio*). They practice broadcasting "to the wall", which includes correct intonation, vocal emphasis, articulation, voiceover training, as well as reading the news on the microphone. Follow-up joint analysis of recordings is also an important part. Later "co-moderation" in session with a more experienced colleague and technician (*Rádio 9*). In some radios we form mass creative workshops: we do workshops and give them homework, for example, making a poll (*Rádio Rapeš*). A senior presenter gets a newcomer in charge and passes on their experience to them (*Rádio X*). The new presenter goes through a training session, first seeing how the broadcast is done, then trying out the "in the wall" broadcast with a senior member of the radio. They do this 2-3 times to get used to their voice in the headphones and then chooses a show and a senior colleague to broadcast with. We operate this system for one semester and only then can they broadcast alone with their own show (*ŠtuRKO*). They always get a senior member with the same focus in radio as a mentor, who has the task of explaining everything to them and showing them what and how radio works. At the meetings in the newsroom we discuss the progress of the new members individually (*TLIS*). Training new presenters is not easy either. Among the most recurrent shortcomings of students who start in radio are, for example, distorted information about working in radio and preparing broadcasts, insufficient speech, poor ability to select topics that are subsequently processed for broadcast, the first contact with the microphone, the students' speech is more commanding than narrative, the absence of work with technology.[24]

Can *you briefly describe how you go about training new editors?*

Systematic training – first theoretical basics, then practice in recording stories, later in the practice studio (news blocks) (*Rádio Aetter*). The training of new editors is handled by senior editors who have been in radio for more than two years. They are supervised by a senior editor (*PaF Rádio*). Workshops to which we invite editors from professional radio stations and make an analysis of them (*Rádio Rapeš*). The editors pass an exam already at the audition, if we like their work and they are capable and adept, we meet them and we explain how the work of an editor is realized, we instruct them in the use of the ictaphone and we try to give them a simple task that they should be able to master. Usually, the presenters are also involved in the editorial work so that they can use their knowledge in the future and not only devote themselves to one activity (*ŠtuRKO*). In newsrooms, the process of apprenticeship for editors is similar to that for moderators. At the moment we don't have editors, but the same way as presenters (*TLIS*). Similar to presenters (it is often a double position) (*Rádio 9*). Similar to moderators, experience is passed on and a few times a year we have sessions where this is explained (*Rádio X*). In some radios the position of editor is completely absent. We don't have editors (*INRO*).

Do you have advertising on air?

Two of the eight radio stations surveyed do not include advertising in their broadcasts. The others answered this question in the affirmative; an interesting finding is that most of the time this advertising is in the form of barter, in one case for free and in two cases for money. Advertising is seen as communication that aims to increase public awareness of products and services. In order to market products and services, radio is essential. Jingles and other unique advertising programs designed to raise public awareness are used to do this.[25] Another question is also related to advertising: *How many different commercials do you air per year?*

[24] BRNÍK, A., BÔTOŠOVÁ, Ľ., KAPEC, M.: *Rozhlasová tvorba a prax*. Trnava : FMK UCM in Trnava, 2020, p. 115.

[25] APUKE, O. D.: *Introduction to Radio Production*. Nigeria : LAP LAMBERT Academic Publishing, 2017, p. 15. [online]. [2023-02-20]. Available at: <https://dvspascentr.ru/wp-content/uploads/2019/12/IntroductiontoRadio-1.pdf>.

Radio	Number
Aetter	9
INRO	1
PaF Rádio	6
Rádio 9	4
Rádio Rapeš	4
Rádio X	10
ŠtuRKO	5
TLIS	1

TABLE 4: *Amount of commercials in a broadcasting*

Source: own processing, 2023

If the legislation was more open and allowed universities and their student radio stations to obtain licences, would you consider applying for a frequency?

Seven of the eight radio stations surveyed would be positive about applying for a licence if it were possible in terms of the legislation. This is a clear illustration that students would be interested in producing in a regional radio environment that has community content. However, financial security is also an important part of this, and as we mentioned that broadcasters under licence and those streaming content also have many obligations from a legislative perspective, it is worth noting the financial side of this as well. Universities do not have the finances to assess the work of students, let alone to pay fees to the institutions that administer the performers' copyrights, as well as the renewal of technology and the various fees that arise from operating a medium under licence. This includes expenses for the broadcasting programme, transmitter, etc. Only *PaF Rádio* station would not be interested in this model.

Radio	Number
Aetter	yes
INRO	rather yes, but we do not have the means to implement
PaF Rádio	no
Rádio 9	rather yes, but we do not have the means to implement
Rádio Rapeš	yes
Rádio X	we are thinking about it
ŠtuRKO	rather yes, but we do not have the means to implement
TLIS	rather yes, but we do not have the means to implement

TABLE 5: *Interest of radio stations to broadcast with a license*

Source: own processing, 2023

4 Discussion

On the basis of the data we received from the respondents who are responsible for the functioning and running of student and university radio studies in Slovakia, we answer the set research questions.

Secondary questions:

How are student radio stations anchored in the new Slovak media law?

The new media legislation in force gives student radio stations a number of rights, but also obligations. All of the radio stations interviewed broadcast their radio broadcasts via online stream and thus fall under the law under content streamed over the Internet. At the same time, it can be argued that their content as well as value orientation can classify them as community radio stations, which are separately characterised in the Media Services Act.

How are newly admitted students prepared for radio broadcasting?

Over and above all, senior radio colleagues are responsible for training the newly recruited students . This means that they operate under their watchful eye for at least one semester or a whole year. They work on honing their communication skills, as well as on scriptwriting or mastering broadcasting techniques. Most of the time, a form of feedback also works, which is beneficial for new members of the editorial staff. At the same time, in many cases, they can broadcast "to the wall". This means that they can practise their broadcasts, record them, expose errors and imperfections, and in this way they can improve.

How are student radio stations formally integrated into the structures of the university?

Student radio station studios are formally umbrellaed by the university or parts of it. Thus, they have the possibility to perform under their name, but we know from practical experience that most of the time they focus on student topics, oriented towards the target group of HE students, and therefore do not explicitly serve as a medium of a given educational institution.

Do student radio stations fulfil their legal obligations?

Almost all of the radio stations interviewed have advertisements on air. Two of the eight radio stations surveyed do not include advertising in their broadcasts. The others answered this question in the affirmative, an interesting finding being that most of the time this advertising is in the form of barter, in one case for free and in two cases for money. The survey does not indicate whether they adhere, for example, to the principles that apply to commercial media communications. At the same time, in the questionnaire that we distributed to radio station managers, we learned that radio stations would be interested in applying for a radio broadcasting licence. Seven of the eight radio stations contacted would be positive about applying for a licence if it were possible in terms of legislation. This is a clear illustration that students would be interested in producing in a regional radio environment that has community content. However, a big question mark in this ambition is the financial aspect, which is linked to the fact that only two radio stations pay fees to the institutions *SOZA* and *SLOVGRAM*.

How do student radio stations work in terms of organisation?

All of the radio stations interviewed broadcast their programmes via streaming over the internet. In Slovakia, according to the results of the survey, the *radia.sk* application is also popular, through which several radio stations share their broadcasts. One radio station has a local frequency and there are still those student radio stations that broadcast through speakers in the dormitories.

Main research question:

What is the current state of student or university broadcasting in Slovakia?

Student or university radio broadcasting has a long tradition in Slovakia, which has undoubtedly produced many popular presenters currently working in the national media in Slovakia. Among other things, the radio stations have a stable place and are popular with the generation of university students who are the target group of these media. However, the motivation and future of these entities operating within universities and colleges is questionable. Students expect better technology, reward for their work and it is not enough to gain skills that they could use later after they finish and graduate from university. The current situation may have been exacerbated by the weakening of stable editorial offices, especially during the pandemic, which demotivated many students, especially in the training and induction process. We therefore predict three possible paths of development:

1. Schools will have radio stations only as a hobby activity and will not reflect the needs of the media, will not be included in the curriculum and plans and will operate as hobby associations at the dormitories. Examples of this model of radio station operation include *Rádio X, Rádio 9, Rádio Rapeš* and *TLIS.*
2. Radio stations are part of the functioning at schools that provide mass media education, but their weakness is that radio is not part of the curriculum of the educational process. They are used as a supplement and an extra-curricular activity that can be a good form of promotion. Overall and what the school has to offer. *PaF* and *ŠtuRKo* radio stations have this type of functioning.
3. The radio and the students' activity in broadcasting along with the provision of broadcasting is part of, or is incorporated into, the curriculum of the adjacent study programmes and also those adjacent to it. This includes, for example, mass media communication and also marketing communication. This includes only *Rádio Aetter*, which broadcasts on the local frequency 107,2 FM.

The clear conclusion of this study is that student radio stations have merit, and we dare say that if their existence were helped in terms of simplifying legislative and bureaucratic processes, we would have several local radio stations run by students in the Slovak Republic. The trend of radio broadcasting has been taken over by the podcast, but also thanks to radio dormitory studios, or more recently student radio stations, it is possible to maintain the opportunity to learn through the concept of learning-by-doing and to acquire skills for practice, but in addition for life. This is proven by the practice of the last decades, where people and former members of the IRS are not lost in the crowd, but are still working in the media, and in various positions – sometimes even in the management of specific media.

5 Conclusion

In the past, student radio broadcasts formed a solid foundation for future careers as well as for student life itself. Today, however, the future of student radio is under threat for a number of reasons. The recent pandemic has made it impossible for students to access dormitories as well as universities. Both the motivation and the collective of radio station studios have weakened, and after several years they have had to re-establish a programme and assemble an editorial staff. Experience shows that despite the aforementioned benefits – such as bonus points for accommodation, credits or scholarships – students are not sufficiently motivated to stay in their positions. Another critical point in the existence of student radio stations is the fact that there has not been a *Radio Rallye* competition since 2019. *Rádiorallye* is an annual competitive showcase of the creation and broadcasting of amateur university, college and boarding school radio station studios, rings, clubs with the participation of entities from the Slovak Republic and the Czech Republic (hereafter referred to as IRŠ). The aim of the *Rádiorallye* competition is to present the best quality production, programme and broadcasting of IRŠ.[26]

This has also changed, currently many schools have radio only as an interest activity and do not reflect the needs of the media, they are not included in the curriculum and curricula and operate as interest associations at the dormitories. Examples of this model of radio operation include *Rádio X, Rádio 9, Rádio Rapeš* and *TLIS*. The second group of radio stations focuses on being part of the functioning at schools that provide mass media education, but their weakness is that radio is not part of the curriculum of the educational process. They use them as a supplement and an extra-curricular activity that can be a good form of promotion overall and what the school has to offer. *PaF* and *ŠtuRKo* radios have this type of functioning. The third

[26] *Rádiorallye*. [online]. [2023-03-02]. Available at: <https://radiorallye.sk/>.

category involves the fact that the radio and the students' activity in broadcasting along with the provision of broadcasting is part of, or is incorporated into, the curriculum of the adjacent programmes of study and also those adjacent to it. This includes, for example, mass media communication and also marketing communication. In this case, working in radio is a practical practice of theoretical skills in laboratory conditions. This includes only *Rádio Aetter*, which broadcasts on the frequency 107,2 FM, providing morning blocks of broadcasts as well as afternoon blocks of broadcasts. In addition, it broadcasts regular news blocks with sports, weather and traffic information from Trnava and the surrounding area where it operates. They also have people in the team that are specifically oriented towards social media management as well as advertising. Professional radio stations frequently select new editors and presenters from among the student radio stations. They are familiar with the fundamentals of operating in the radio medium and have solid production skills. Before the internet was created, the initial purpose of college radio stations was to improve the lives of students who lived in dorms. Each room had its own speaker, which was centrally connected to the radio studio. Today, all student radio stations belong to the universities (not the dormitories).[27] *"Radio is not expensive. It is portable. It can be easily carried around. Unlike other mediums which require full attention, radio can be listened to while doing other activities such as, driving, reading, etc. If we want to sustain the future of student radios it is necessary not only to support the development, functioning, but also to motivate students in creation and participation."*[28] Last but not least, we need to insist on its gradual implementation in the education curriculum to ensure that the quality and effectiveness of student radio stations are improved.

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Leisure, Internet Use and Alcohol Behavior in Adolescence

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ABSTRACT

The paper aims to describe regular leisure activities in the sample and identify the connections between alcohol use (binge, regular use) and leisure activities (categories). In the research, we verify the association between specific types of leisure activities and alcohol use among adolescents. The research sample consists of 533 adolescents (295 girls and 258 boys). The participants' ages range from 14 to 20 years. The questionnaire battery consisted of two questionnaires, namely a questionnaire on situation-motivational alcohol behavior factors and a questionnaire of leisure time and peer relationships. We identified a prevalence of regular drinking, which is 78.8%, and the prevalence of binge drinking in the sample of adolescents is 34.0%. We also identified that the most frequent category of leisure activities in the sample is the combined category of friends and Internet (35.4%). Furthermore, there are statistically significant differences in the incidence of regular and binge drinking between groups of adolescents concerning the form of regular leisure time. Understanding the connection between alcohol consumption and leisure activities is vital to prevention and risk-reduction efforts.

KEY WORDS

Adolescents. Alcohol Behavior. Internet Use. Leisure Activities.

1 Introduction

Alcohol use is a standard part of adolescent life and adolescent college experience. Most young people start with alcohol between the ages of 12 and 16, as it is at this age that they gain more independence and spend more and more time away from home.[1] According to Rojková and Vavrová, over 90% of adolescents aged 16 and over have tried alcohol.[2] Experimenting with alcohol may manifest as binge drinking or later as regular drinking, which poses a risk of developing alcohol behavior.[3] Individuals who try alcohol before the age of 15 are more likely to have alcohol problems in a few years.[4] Mičková and Rojková also found out that the intensity of current alcohol consumption was more pronounced in university students whose alcohol behavior was higher in adolescence.[5] Binge drinking can be characterized by consuming a large amount of alcohol during a short period, followed by a period of abstinence, occurring at least once a month. Binge drinking typically means consuming five or more alcoholic drinks on one occasion for a boy and four or more alcoholic drinks on one occasion for a girl.[6] This type of alcohol behavior is associated with life during studies at high school or university. It is an accompanying phenomenon of leisure activities, which aim to have fun, achieve pleasant experiences. For regular drinking, it is typical to drink alcoholic drinks at least once a week.[7] Johnston et al. found that more than 40% of students reported consuming five or more drinks in a row, which can be defined as heavy drinking characteristic for regular drinking. The research found that nearly one-third of the students were classified as binge drinkers.[8]

1.1 Prevalence of Alcohol Consumption

In Slovakia, the prevalence of alcohol use among adolescents is relatively high, as confirmed by recent research. According to a national survey, adolescents' age of first alcohol experience was on the rise, from 10.8 in 2014 to 11.2 years in 2018.[9] Rojková and Vavrová researched that the prevalence of alcohol experimentation for the group of secondary school respondents

1 VIENO, A. et al.: Introduction. In INCHLEY, J. et al. (eds.): *Adolescent Alcohol-Related Behaviours: Trends and Inequalities in the WHO European Region, 2002-2014.* Copenhagen : WHO Regional Office for Europe, p. 2. [online]. [2022-03-17]. Available at: <https://www.who.int/europe/publications/i/item/9789289053495>.

2 ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 354.

3 MIČKOVÁ, Z., ROJKOVÁ, Z.: Osobnostné, rodinné a situačno-motivačné factory pravidelného pitia u vysokoškolákov. In MILLOVÁ, K. et al. (eds.): *Sociální procesy a osobnost*. Brno : Masarykova univerzita, 2016, p. 254.

4 See: ONDRUŠKOVÁ, E. et al.: *Rodina, voľný čas, psychoaktívne látky a delikvencia*. Bratislava : Univerzita Komenského v Bratislave, 2016.

5 ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 353.

6 ROJKOVÁ, Z., VAVROVÁ, M.: Descriptive Analysis of Alcohol Behaviour and Acting Situation-Motivational Factors Among Adolescents. In MLČÁK, Z. (ed.): *Psychologické aspekty pomáhání 2018*. Ostrava : Ostravská univerzita, 2019, p. 89.

7 ROJKOVÁ, Z.: Nárazové pitie u adolescentov: protektívne a rizikové faktory (SAHA). In PITEROVÁ, I., VÝROST, J. (eds.): *Sociální procesy a osobnost 2018*. Košice: CSPV SAV, 2018, p. 303. See also: ROJKOVÁ, Z., VAVROVÁ, M.: Descriptive Analysis of Alcohol Behaviour and Acting Situation-Motivational Factors Among Adolescents. In MLČÁK, Z. (ed.): *Psychologické aspekty pomáhání 2018*. Ostrava : Ostravská univerzita, 2019, p. 89.; JOHNSTON, L. et al.: *Monitoring the Future: National Survey Results on Drug Use, 1975-2007. Volume II: College Students and Adults Ages 19-45*. Bethesda, MD : National Institute on Drug Abuse, 2010.

8 LUKÁCS, A. et al.: Students in Danger: Binge Drinking Behaviour and Associated Factors in Hungary. In *Slovenian Journal of Public Health*, 2021, Vol. 60, No. 4, p. 249.

9 See: NOCIAR, A.: *Záverečná správa z prieskumu TAD u žiakov ZŠ, študentov SŠ a ich učiteľov v roku 2018.* Bratislava : VÚDPaP, 2018. [online]. [2022-03-17]. Available at: <https://vudpap.sk/wp-content/uploads/2019/06/Zav_Sprava_TAD2018_def.pdf>.

(15-17 years old) is 94.9% of adolescents, about 39.3% of adolescents used alcohol at least once during the last 30 days, and only 9.9% indicated they had drunk 4 or more times within the previous month. Regular drinking was attributed to 19.8% of boys and 19.3% of girls. On the other hand, binge drinking was attributed to 27.7% of boys and 28.3% of girls.[10] In this context, we must notice the national survey, where about 67.5% of 16 years old secondary school students claimed they had already experienced being tipsy, and 38.9% of 16 years old secondary school students had already drunk so much they had had a blackout.[11] Given the high prevalence of adolescents' alcohol consumption, it is essential to assess the risk factors and the protective factors. Protective or risk factors for alcohol consumption can be types of leisure activities, which we analyze in the research. Much foreign research report similar findings. For example, in South America, more than 50% of adolescents had their first drink between the ages of 13 and 15 years.[12] Another research claims that more than 40% of students (aged 17) have consumed alcohol regularly and more than 20% have experienced binge drinking at least once during the previous 30 days.[13] The gender difference between alcohol users was also confirmed in several studies, where men consumed significantly more drinks than women, but the authors of these studies state that this requires further research.[14]

1.2 The Connection Between Structured or Unstructured Leisure Activities and Alcohol Consumption

One of the key elements in reducing the use of alcohol or other addictive substances is an effective way of managing leisure time, because leisure has a significant impact on the development of adolescents. It is an opportunity for free and meaningful decisions, during which adolescents must learn to train their life skills in order to achieve optimal development. Research has shown that there are two types of leisure activities. Firstly, there are structured leisure activities that require a long-term commitment. These structured leisure activities included doing sports, leading a cultural life, or creating expressive art, which have a protective effect against adolescent disruptive behavior such as substance abuse. Hryhorzuk et al. found that a specific leisure activity such as reading books was protective against alcohol use, as compared to the response from those who never read books for leisure for both boys and girls. It was also found that adolescents who prefer structured leisure activities, such as drawing, playing an instrument, reading books or singing were more likely to abstain from alcohol.[15]

On the other hand, there are unstructured leisure activities, such as watching TV, browsing the Internet, playing video games, hanging out with friends, or spending time in malls. These leisure activities have been considered a risk factor for substance abuse. A student's choice of leisure

[10] ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 354.

[11] See: NOCIAR, A.: *Európsky školský prieskum o alkohole a iných drogách (ESPAD) v SR za rok 2015*. Bratislava : VÚDPaP, 2015. [online]. [2022-03-17]. Available at: <https://www.vzbb.sk/sk/projekty/ESPAD_Zav_Sprava.pdf>.

[12] PRIETO-DAMM, B. et al.: Leisure Activities and Alcohol Consumption Among Adolescents from Peru and El Salvador. In *Drug and Alcohol Dependence*, 2019, Vol. 199, p. 33.

[13] See: KANN, L. et al.: Youth Risk Behavior Surveillance – United States 2017. In *Surveillance Summaries*, 2018, Vol. 67, No. 8, no paging. [online]. [2022-03-17]. Available at: <https://doi.org/10.15585/mmwr.ss6708a1>.

[14] FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 258.; HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports,* 2019, Vol. 10, p. 4.; SAMPASA-KANYINGA, H., CHAPUT, J. P.: Use of Social Networking Sites and Alcohol Consumption Among Adolescents. In *Public Health*, 2016, Vol. 139, p. 93.

[15] HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 4.

activity between the structured or unstructured ones is important to adolescent development and the adolescent's alcohol behavior, because research found an interaction effect between structured and unstructured leisure activities and alcohol consumption.[16] Among adolescents, structured leisure activities are associated with lower alcohol use, whereas unstructured leisure activities are linked to greater alcohol use. Therefore, we can say that an unstructured leisure activity such as Internet browsing is associated with higher alcohol consumption and heavy drinking.[17] In the Czech Republic, a study on the health behaviour in school-aged children also found that among adolescents, unstructured activities, such as hanging out with friends or going to malls for fun were associated with risk behaviors.[18] There are also other leisure activities associated with alcohol use, such as spiritual activities, volunteering, or socializing.[19] Socializing is definitely related to hanging out with friends, including visiting entertainment establishments, such as discos or bars, where there is a greater risk of alcohol use for the socializing ones compared to those who never visit such places. For females the risk of ever having used alcohol was higher than for males.[20] These results were also confirmed by Patrick et al. who found that if students attended alcohol-free university-sponsored activities, they consumed fewer drinks than they did when they went out to bars, parties, sporting events, or other entertainment or campus events.[21] Similar results can be observed in another research, where the decline in the frequency of going out with friends explained a major part of the decline in alcohol use.[22] It means that the complexity of the relationship between face-to-face peer contacts or intensive electronic media communication are related to adolescent alcohol consumption. There is also a research which found that no type of leisure activity predicted alcohol use, but community and access to alcohol (accessibility) are predictive, so the macro-social context increases the risk of leisure alcohol use.[23]

1.3 Internet Use and Alcohol Consumption

In today's electronic age, problematic use of the Internet has become a rapidly evolving phenomenon among adolescents.[24] Many students spent most time in casual leisure activities, including socializing within social media[25] and, according to Rojková and Mydlová, the daily extent of Internet usage among adolescents is increasing.[26] The use of the Internet in leisure activities thus affects adolescents' psyche and their social interaction with the environment,

16 KOHÚTOVÁ, K., ALMÁŠIOVÁ, A.: Voľný čas ako prediktor užívania legálnych návykových látok u žiakov základných a stredných škôl. In *Psychológia a patopsychológia dieťaťa*, 2016, Vol. 52, No. 2, p. 159.

17 FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 257.

18 BADURA, P. et al.: Can Organized Leisure-Time Activities Buffer the Negative Outcomes of Unstructured Activities for Adolescents' Health? In *International Journal of Public Health*, 2018, Vol. 63, No. 6, p. 748.

19 FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 253.

20 HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports*, 2019, Vol. 10, p. 5.

21 PATRICK, M. E. et al.: Late Night Penn State Alcohol-Free Programming: Students Drink Less on Days They Participate. In *Prevention Science*, 2010, Vol. 11, No. 2, p. 160.

22 CHOMYNOVÁ, P., KÁŽMÉR, L.: Leisure-Time Socializing with Peers as a Mediator of Recent Decline in Alcohol Use in Czech Adolescents. In *Journal of Substance Use*, 2019, Vol. 24, No. 6, p. 635.

23 CHEN, C. Y. et al.: Leisure Activity Participation in Relation to Alcohol Purchasing and Consumption in Adolescence. In *Addictive Behaviors*, 2019, Vol. 90, p. 299.

24 VAVROVÁ, M.: The Link Between Bullying and Drug Use in Older School Age. In SABOVÁ, L. (ed.): *Psychologica L*. Bratislava : Stimul, 2020, p. 126.

25 BIELIKOVÁ, M. et al.: *Prežívanie voľného času v online priestore a konzumácia legálnych a nelegálnych drog u žiakov základných a stredných škôl*. Bratislava : CVTI SR, 2019, p. 14.

26 ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 143.

but, above all, it has an impact on binge drinking and regular drinking.[27] The use of social media was significantly associated with an increased risk of ever using alcohol in the past 12 months and using alcohol in the past 30 days among both boys and girls.[28] Another research found in a sample of university students a significant correlation between the time spent on the Internet and the frequency of all forms of drug behavior except alcohol consumption, cigarettes, marijuana, or illicit drug use.[29] Besides that, there is an association between Internet activities and drinking, and there are differences depending on what young people do online.[30] Self-presentation, online sociality, or online social network chatting are positively associated with drinking, especially with binge drinking.[31] Moreno et al. found that adolescents share alcohol experience statuses on social media, but these may not be true, adolescents do it to be "cool".[32] Adolescents who perceive the content of the status consider it to be real, which in fact can affect the peer alcohol behavior. In this regard, Nesi et al. found that alcohol content on social networks increased the chances of both drinking and binge drinking.[33] On the other hand, according to Finlay et al., students tended to consume fewer drinks when they spent more time using media.[34]

In theresearch, we verify the connection between alcohol consumption and different leisure activities, including Internet use or Hhanging out with friends. This study aims to describe the prevalence of binge drinking and regular drinking in the total sample and gender groups. It also aims to describe which leisure activities are regular in the sample and in the boys' and girls' groups. We also explore the relation between alcohol use (binge, regular use) and leisure activities (categories) and whether there are any gender differences. Studies mentioned above have shown that some leisure activities, such as Internet use or hanging out with friends increase the risk of drinking. Based on these studies, we have formulated three research questions:

RQ1: What is the prevalence of binge drinking and regular drinking in the total sample and gender groups?

RQ2: Which leisure activities are regular in the total sample and groups of boys and girls?

RQ3: What is the association between alcohol use (binge, regular use) and leisure activities (categories), and are there any gender differences?

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27 SAMPASA-KANYINGA, H., CHAPUT, J. P.: Use of Social Networking Sites and Alcohol Consumption Among Adolescents. In *Public Health*, 2016, Vol. 139, p. 94; LANTHIER-LABONTÉ, S. et al.: Is Problematic Internet Use Associated with Alcohol and Cannabis Use Among Youth? A Systematic Review. In *Addictive Behaviors*, 2020, Vol. 106, no paging. [online]. [2022-03-17]. Available at: <https://doi.org/10.1016/j.addbeh.2020.10633>.

28 HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports,* 2019, Vol. 10, p. 3.

29 See: RUCKER, J. et al.: Problematic Internet Use Is Associated with Substance Use in Young Adolescents. In *Acta Pædiatrica,* 2015, Vol. 104, No. 5, p. 506.; GUTIERREZ, K. M., COOPER, T. V.: The Use of Social Networking Sites: A Risk Factor for Using Alcohol, Marijuana, and Synthetic Cannabinoids? In *Drug and Alcohol Dependence*, 2016, Vol. 163, p. 249.

30 SVENSON, R., JOHNSON, B.: Internet Use and Adolescent Drinking: Does It Matter What Young People Do Online? In *Drug and Alcohol Dependence*, 2020, Vol. 213, p. 2136.

31 See: LARM, P. et al.: The Role of Online Social Network Chatting for Alcohol Use in Adolescence: Testing Three Peer-Related Pathways in a Swedish Population-Based Sample. In *Computers in Human Behavior*, 2017, Vol. 71, p. 290.; GEUSENS, F., BEULLENS, K.: The Reciprocal Associations Between Sharing Alcohol References on Social Networking Sites and Binge Drinking: A Longitudinal Study Among Late Adolescents. In *Computers in Human Behavior*, 2017, Vol. 73, p. 505.

32 MORENO, M. A. et al.: Real Use or "Real Cool": Adolescents Speak Out About Displayed Alcohol References on Social Networking Websites. In *Journal of Adolescent Health*, 2009, Vol. 45, No. 4, p. 421.

33 NESI, J. et al.: Friends' Alcohol-Related Social Networking Site Activity Predicts Escalations in Adolescent Drinking: Mediation by Peer Norms. In *Journal of Adolescent Health*, 2017, Vol. 60, No. 6, p. 645.

34 FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 257.

2 Methods

The research sample consisted of 533 adolescents aged 14-20 years, of which 295 (53.3%) were girls and 258 (46.7%) were boys. The respondents were high school students of various types across the regions of Slovakia. Data collection took place in 2019 and 2020 (before the Covid period) through a questionnaire method and was part of a larger research project (*Development and Standardization of Screening Methods on the Identification of Occurrence and Risk of Problematic Legal Drug Use Among Adolescents*). Therefore, the questionnaire battery consisted of several tools. For the current study, the section of questionnaire on situation-motivational alcohol behavior factors[35] was used, containing items for determining the form of alcohol use (regular, binge drinking, but also drinking intensity), and the original questionnaire of leisure time and peer relationships (authors, unpubl.).

2.1 Variables Operationalisation

Regular drinking: in the item, the respondents had to indicate the age period in which they initiated regular drinking (defined as "at least once a week"); the answers also offered the option: "I have not used alcohol regularly (at least once a week)". An adolescent was assigned a regular drinking value if indicated any period and unassigned if indicated the above-mentioned option.

Binge drinking: in the item, the respondents selected the number of standard glasses (0.5l beer; 2dcl wine, 0.5dcl spirits/hard liquor) they usually drink on the day with a drinking occasion. The binge drinking was assigned when girls referred 4 and more, and boys referred 5 and more glasses.

Leisure activities: in the questionnaire of leisure time and peer relationships, the items were focused on various leisure activities, e.g., sport (and hiking), going out or meeting/talking with friends, using the Internet (games and social networks), going to the cinema or theatre, going to café or pubs, helping in the family (with siblings, etc.), reading books or education, musical or another art activity. For each kind of activity, an individual stated whether they do not perform it at all, they perform it irregularly or regularly in their leisure time. The primary leisure variables (dichotomous variables) were derived from the responses to the above items, and the criteria for assigning the value of the occurrence of regular leisure activity (category) are figured in the table. Next, we created the secondary leisure variables:

- Friends/Internet: a dichotomous variable including only the group of adolescents with sole regular Internet and the group of those with sole Friends as assigned leisure categories.
- Regular leisure activity (category): a multinominal variable created from the above mentioned variable Friends/Internet, completed by the category of Internet+Friends and Others.

<table>
<tr><th></th><th colspan="4">Primary leisure variables</th></tr>
<tr><th></th><th>Internet (Y/N)</th><th>Friends (Y/N)</th><th>Internet + Friends (Y/N)</th><th>Other</th></tr>
<tr><td>F, ...using the Internet, games, social networks</td><td>X</td><td>(x)</td><td>X</td><td>-</td></tr>
<tr><td>D, ...by visiting bars, cafés, having fun, going to a disco, etc.</td><td>(x)</td><td rowspan="2">X</td><td rowspan="2">X</td><td rowspan="2">-</td></tr>
<tr><td>E, ...going just out/to the city, meeting friends, talking</td><td>(x)</td></tr>
<tr><td>...other (sport, art, education, family)</td><td>(x)</td><td>(x)</td><td>(x)</td><td>X</td></tr>
</table>

(x) possible occurrence together with the main X (regularly performance referred)

TABLE 1: *The operationalization of primary leisure variables*

Source: own processing, 2023

[35] See: ROJKOVÁ, Z., VAVROVÁ, M.: *Situačno-motivačné faktory alkoholového správania. Metodológia merania a aplikácia v praxi*. Trnava : UCM, 2017. See also: ROJKOVÁ, Z.: *Situačno-motivačné faktory alkoholového správania: koncept - meranie - overovanie*. Trnava : UCM, 2016.

The description of the demographic and other variables relevant for the investigation is visible in Table 2.

		Total sample N = 533		Girls N = 295		Boys N = 258	
Age	(AM/Range)	16,3/ (14, 20)		16,4/ (14, 20)		16,1/ (14, 18)	
		N	%	N	%	N	%
Sex	Girls	295	53.3				
	Boys	258	46.7				
Regular leisure activities (categories)	Internet	139	25.1	54	18.3	85	32.9
	Friends + Internet	196	35.4	108	36.6	88	34.1
	Friends	116	21.0	75	25.4	41	15.9
	Others (education, family, art, sport…)	102	18.4	58	19.7	44	17.1
Internet (Y/N)	Yes	335	60.6	162	54.9	173	67.1
	No	218	39.4	133	45.1	85	32.9
Friends (Y/N)	Yes	312	56.4	183	62.0	129	50.0
	No	241	43.6	112	38.0	129	50.0
Regular drinking	Yes	436	78.8	234	79.3	202	78.3
	No	117	21.2	61	20.7	56	21.7
Binge drinking	Yes	188	34.0	99	33.6	89	34.5
	No	365	66.0	196	66.4	169	65.5

TABLE 2: *Description of variables in the total sample, in groups of girls and boys*

Source: own processing, 2023

2.2 Data Analysis

Statistical description and statistical inference procedures were used to answer the research questions. The Chi-square test with risk estimation (OR for a table 2x2) was used for statistical comparison of the incidence of alcohol use form in the two groups compared. In the case of comparison of the three groups, Chi-square was also used, and the OR of the individual groups for the occurrence of the form of alcohol behavior was calculated by the binary logistic regression analysis.

3 Results

Within the RQ1, the prevalence of binge and regular drinking in the groups of boys and girls was examined. As shown in Figure 1, the proportion of Regular and Binge drinking is similar for girls and boys, and overall it is 78.8% for regular drinking and 34.0% for binge drinking.

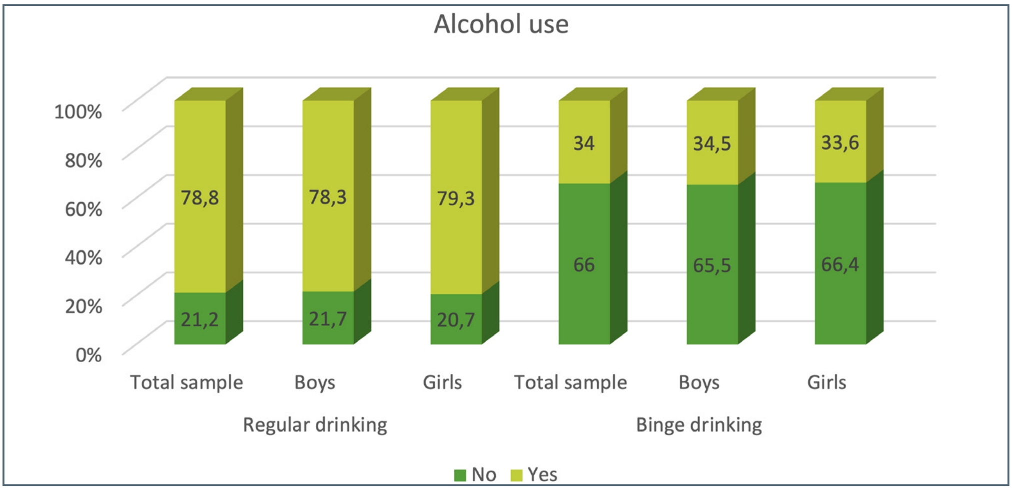

FIGURE 1: *Frequencies of alcohol use forms in the total sample, in groups of girls and boys*

Source: own processing, 2023

Figure 2 shows the percentages of leisure activities which adolescents do regularly (RQ2). The most frequent is the combined category of Friends and Internet (observed together, 35.4%), the next is Internet (25.1%), followed by Friends (21.0%) and Other (18.4%). When we look at the Boys'group and the Girls'group, there is a difference in the 2nd and 3rd order, when in boys a sole regular (in leisure time) Internet use occurs in 32.9% and meeting Friends in 15.9% unlike with the girls, where meeting Friends as a separate regular leisure activity is observed in 25.4% and regular Internet use in 18.3%.

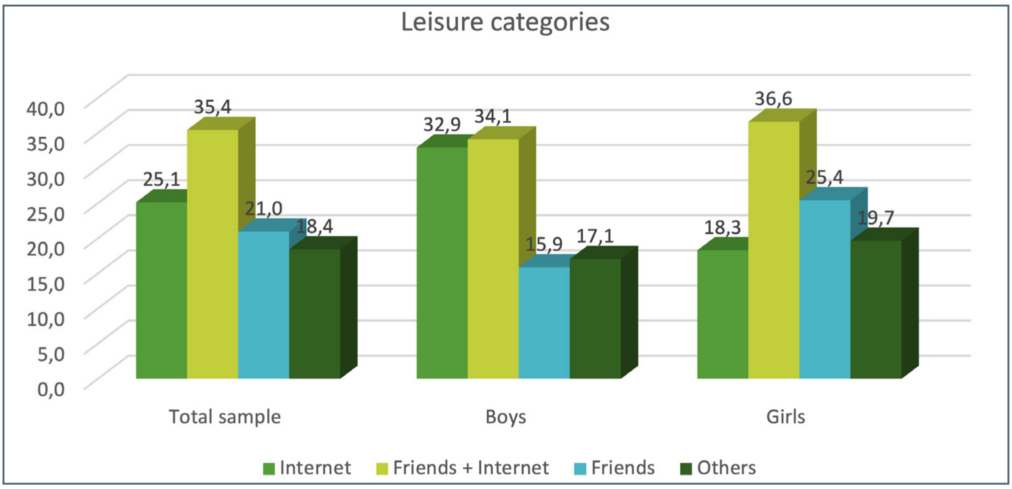

FIGURE 2: *Frequencies of leisure categories in the total sample, in groups of girls and boys*

Source: own processing, 2023

In the study, dichotomous leisure categories are included, as well. These categories may also appear simultaneously in some cases of the sample. In the total sample, regular meeting Friends is observed in 57.0%, regular Internet use in 60.6%. For boys, the regular Internet use in leisure time occurs in 66.9%, for girls in 55.1%. Regular meeting Friends as a leisure category is found in 50.8% of boys and 62.4% of girls.

Within the RQ3, the differences in the occurrence of regular and binge drinking between groups of adolescents concerning the form of regular leisure-time were examined. The Chi-square test of independence was used for the statistical comparison. Based on the results in Table 3, we interpret significantly more frequent binge drinking in adolescents with Friends (Y/N) as a regular leisure activity (Total sample OR 2.753, Boys OR = 2.945, Girls OR = 2.692; $p < 0.01$), whereas regular use of the Internet (Y/N) in leisure time for binge drinking is not significant ($p > 0.05$). Similarly, the occurrence of regular drinking is significantly different with respect to the regular meetings with Friends at leisure (Y/N) (Total sample OR = 4.205, Girls OR = 3.644, Boys OR = 5.257; $p <0.05$), but the difference is insignificant in the case of regarding Internet use (Y/N) as a regular leisure activity. When comparing groups according to the Internet or Friends criterion (as separate categories), a significantly higher frequency of binge drinking was found in the group with Friends as the sole regular leisure category (Total sample OR = 2.931, Girls, 2.478, Boys OR = 3.545; $p < 0.01$) compared to a group with the separate Internet use as a regular activity in leisure time. With regular drinking, we also record a significantly higher occurrence in the group with regular leisure activity Friends (Total sample OR = 3.739, Girls OR = 2.737, Boys OR = 6.560; $p < 0.05$) than is observed in the group with the sole regular use of the Internet.

		Binge drinking			Regular drinking		
		No	Yes	χ^2 /OR[a]	No	Yes	χ^2 /OR[a]
Internet							
Total	No	143 (65.6%)	75 (34.4%)	0,013	50 (22.9%)	168 (77.1%)	0,712
	Yes	222 (66.3%)	113 (33.7%)	/0,979	67 (20.0%)	268 (80.0%)	/1,195
Girls	No	89 (67.4)	43 (32.6%)	0,129	32 (24.2%)	100 (75.8%)	1,779
	Yes	107 (65.4%)	56 (34.6%)	/1,093	29 (17.8%)	134 (82.2%)	/1,468
Boys	No	54 (62.8%)	32 (37.2%)	0,382	18 (20.9%)	68 (79.1%)	0,028
	Yes	115 (66.9%)	57 (33.1%)	/0,844	38 (22.1%)	134 (77.9%)	/0,947
Friends							
Total	No	186 (78.2%)	52 (21.8%)	28,229**	82 (34.5%)	156 (65.5%)	44,283**
	Yes	178 (56.5%)	137 (43.5%)	**/2,753**	35 (11.1%)	280 (88.9%)	**/4,205**
Girls	No	88 (79.3%)	23 (20.7%)	12,156**	38 (34.,2%)	73 (65.8%)	19,939**
	Yes	108 (58.7%)	76 (41.3%)	**/2,692**	23 (12.5 %)	161 (87.5%)	**/3,644**
Boys	No	100 (77.5%)	29 (22.5%)	15,986**	44 (34.6%)	83 (65.4%)	24,645**
	Yes	69 (53.4%)	60 (46.6%)	**/2,945**	12 (9.2%)	119 (90.8%	**/5,257**
Internet/Friends							
Total	Internet	108 (77.7%)	31 (22.3%)	15,657**	45 (32.4%)	94 (67.6%)	16,123**
	Friends	63 (54.3%)	53 (45.7%)	**/2,931**	13 (11.2%)	103 (88.8%)	**/3,793**
Girls	Internet	41 (75.9%)	13 (24.1%)	5,433*	16 (29.6%)	38 (70.4%)	5,181*
	Friends	42 (56.0%)	33 (44.0%)	**/2,478**	10 (29.6%	65 (86.7%)	**/2,737**
Boys	Internet	67 (78.8%)	18 (21.2%)	10,006*	29 (23.4%	56 (65.9%)	10,485*
	Friends	21 (51.2%)	20 (48.8%)	**/3,545**	3 (7.3%)	38 (92.7%)	**/6,560**

a – OR by Risk Estimate Statistic for 2x2, the interpreted category is "Yes" for the second listed group
** $p < 0{,}01$; * $p < 0{,}05$

TABLE 3: *Results of testing the difference in binge drinking, regular drinking between dichotomous leisure category groups – Chí-Square Test*

Source: own processing, 2023

In order to examine the effect of separate and joint occurrence of the Internet and Friends as regular leisure activities to the binge and regular drinking more closely, in Table 4 the results of comparisons between the three leisure-category groups: sole Internet, Internet + Friends, and sole Friends, with the relevant OR (according to the binary logistic regression) are presented. We can see a significant difference regarding the mentioned three leisure categories in the occurrence of binge drinking in the Total sample ($p < 0.01$) and in Boys ($p < 0.01$), while in the Girls' group, the difference is insignificant ($p > 0.05$). With regular drinking, we record significant differences concerning the 3 leisure categories in the Total sample ($p < 0.01$), in groups of Girls ($p < 0.05$) and Boys ($p < 0.01$). However, we emphasize Odds Ratio, which is OR = 3,077 in the Girls group for the Internet + Friends category, and OR = 2.737 for the sole Friends category, unlike the results for the group of Boys, where OR = 4.603 for the Internet & Friends category and OR = 6,560 for the sole Friends category are found (an increased chance of regular drinking for a leisure category compared to the Internet reference category).

		Binge drinking			Regular drinking		
		No	Yes	χ^2 /Exp(B)[a]	No	Yes	χ^2 /Exp(B)[a]
3 Leisure Categories							
Total	Internet	108 (62.4%)	31 (22.3%)	18,876**	45 (32.4%)	94 (67.6%)	29,676**
	Internet + Friends	113 (57.7%)	83 (42.3%)	**/2,537**	22 (11.2%)	175 (88.8%)	**/3,808**
	Friends	63 (54.3%)	53 (45.7%)	**/2,931**	13 (11.2%)	103 (88.8%)	**/3,793**
Girls	Internet	41 (75.9%)	13 (24.1%)	5,748	16 (29.6%)	38 (70.4%)	8,883*
	Internet + Friends	65 (60.2%)	43 (39.8%)	/2,086	13 (12.0%)	95 (88.0%)	**/3,077**
	Friends	42 (56.0%)	33 (44.0%)	/2,478	10 (13.3%)	65 (86.7%)	**/2,737**
Boys	Internet	67 (78.8%)	18 (21.2%)	14,049**	29 (34.1%)	56 (65.9%)	20,768**
	Internet + Friends	48 (54.5%)	40 (45.5%)	**/3,039**	9 (10.1%)	80 (89.9%)	**/4,603**
	Friends	21 (51.2%)	20 (48.8%)	**/3,545**	3 (7.3%)	38 (92.7%)	**/6,560**

a - Exp(B) by Binary Logistic Regression, reference leisure category = Internet
** p < 0,01; * p < 0,05

TABLE 4: *Results of testing the difference in binge drinking, regular drinking between 3 leisure categories groups – Pearson's Chí-Square, Exp(B) by Binary Logistic Regression*
Source: own processing, 2023

4 Discussion

In the study, we focused on identifying the connections between binge drinking, regular drinking, and leisure activities. In the first research question, we explored the prevalence of alcohol consumption among adolescents, especially among gender groups. While the prevalence of alcohol consumption and the consumption of other addictive substances has slightly decreased after several years of increasing use, the use of alcohol by adolescents remains a serious health problem in Slovakia. As can be seen from the presented results, 34.0% of adolescents reported a consumption of a large amount of alcohol during a short period, which is typical for binge drinking. On the other side, 78.8% of adolescents reported that they had drunk alcoholic drinks at least once a week (in the last month), which is typical for regular drinking. The results are hardly comparable, because of the larger age range. Our former study, carried out on data from 2017-2018, found that at least one glass of alcohol in the last 30 days was consumedin 75% of adolescents aged 16-19 (however, it was not "drinking at least once a week") and binge drinking was found in 51%.[36]

[36] ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 352.

Comparable findings were also made by Bieliková et al., where occasional and frequent drinking occur in approximately 65% of adolescents aged 14-18 years and binge drinking in 30%.[37] In our research, binge drinking was defined as the usual drinking of an excessive number of cups, not the occurrence of binge drinking in the last month, which explains the difference. The rationale is also supported by the results of the *Europewide ESPAD 2019* survey, where, on the one hand, binge drinking (last 30 days) occurred in 46% of 16-year-old adolescents and, on the other hand, the average number of drinking opportunities per month was 6 with an average number of cups of 4.7, which corresponds to regular (usual) excessive drinking, as understood in our methodology.[38] In our research group, we found a 34% prevalence of binge drinking, which we consider to be positive information in view of the surveys mentioned above. It is possible that the percentage of prevalence is "reduced" by 14- and 15-year-old respondents in our sample and is not increased by older ones. Alcohol consumption is strongly socially determined (eg., alcohol availability to young people, tolerance, etc.), so intercultural comparisons are difficult, although there are many studies with findings on the prevalence of adolescent drinking.[39] Regarding gender differences, a similar proportion of regular and binge drinking for girls and boys can be interpreted, which is consistent with other foreign and Slovak findings[40] and in contrast with others that interpret a higher prevalence of heavy drinking in the group of men.[41]

Leisure time forms a substantial part of an adolescent's life withleisure activities accounting for more than 40 hours per week of students' time. In the second research question, we focused on regular leisure activities in the total sample, but also in the groups of boys and girls. Several studies have confirmed that adolescents are increasingly spending their free time on social media.[42] However, our results emphasize the continued representation of meeting friends at leisure. The combined category of Friends and Internet reached a higher representation (35.4%), followed by the single category of the Internet (25.1%), then the single category of Friends (21.0%). Regular meetings with friends and Regular spending of time on the Internet (also in co-occurrence) are similarly represented (57% and 60%) in the entire sample, while for girls, Regular meetings with friends in leisure and for boys, using the Internet are slightly exceeding. The results are in line with previous findings, where socializing with friends and family or media use were found as the most popular leisure activities, while cultural leisure activities (reading, drawing, playing a musical instrument) were the least popular. As mentioned, some gender differences were found, which has also support in some researchers who referred that girls

37 BIELIKOVÁ, M. et al.: *Prežívanie voľného času v online priestore a konzumácia legálnych a nelegálnych drog u žiakov základných a stredných škôl*. Bratislava : CVTI SR, 2019, p. 53.

38 See: MOLINARO, S. et al.: *ESPAD Report 2019: Results from the European School Survey Project on Alcohol and Other Drugs*. Luxembourg : Publications Office of the European Union, 2020. [online]. [2022-03-17]. Available at: <http://www.espad.org/espad-report-2019#downloadReport>.

39 See: KANN, L. et al.: Youth Risk Behavior Surveillance – United States 2017. In *Surveillance Summaries*, 2018, Vol. 67, No. 8, no paging. [online]. [2022-03-17]. Available at: <https://doi.org/10.15585/mmwr.ss6708a1>. See also: LUKÁCS, A. et al.: Students in Danger: Binge Drinking Behaviour and Associated Factors in Hungary. In *Slovenian Journal of Public Health*, 2021, Vol. 60, No. 4, p. 249.

40 ROJKOVÁ, Z., VAVROVÁ, M.: A Description of Drug Use Among Adolescents in Slovakia in Different Age and Gender Groups. In *Technium Social Sciences Journal*, 2020, Vol. 10, p. 352.; MOURE-RODRÍGUEZ, L., CAAMANO-ISORNA, F.: We Need to Delay the Age of Onset of Alcohol Consumption. In *International Journal of Environmental Research of Public Health*, 2020, Vol. 17, No. 8, no paging. [online]. [2022-03-17]. Available at: <https://doi.org/10.3390/ijerph17082739>.

41 See: VEREŠOVÁ, M.: *Rizikové správanie dospievajúcich v systéme vyššieho sekundárneho vzdelávania*. Nitra : PF UKF, 2020. See also: FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 258.

42 HRYHORCZUK, N. et al.: Leisure Activity and Alcohol Use Among Ukrainian Adolescents. In *Addictive Behaviors Reports,* 2019, Vol. 10, p. 4.; ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 143.

spent more time away from home with friends, socializing, attending events than men did, and men spent more time using media and doing sports.[43]

In the last research question, we examined the association between regular drinking, binge drinking, and regular leisure activities. We used three ways to categorize regular leisure activities that entered testing. All the results point to the insignificance of regular use of the Internet in leisure time for both regular and binge drinking. On the other hand, regular meetings with friends in leisure time are found to be a significant risk factor for both forms of alcohol behavior, but with a higher risk of regular drinking (than binge drinking) and a higher risk for boys than for girls.

However, the findings of the comparative analysis and risk estimation are important as long as we include the group with a joined form of regular Internet use and Meeting friends. We found that this form increases the risk of binge drinking, compared to the sole use of the Internet, in boys only, approximately 3 times, while with the sole category of Meeting friends, the chance is even higher (3.5 times). In regular drinking, the risk is higher with the joined Internet plus Friends leisure form in both boys and girls. Girls are at 3 times higher risk of regular drinking within the combined category of Internet + Friends than the girls who regularly use only the Internet, while with the girls who only regularly Meet friends in their free time the chance is 2.7 times higher. (compared to spending their free time only on the Internet). We can therefore interpret roughly the same risk, which lies in spending time with peers, and using the Internet slightly increases it. For boys, the interpretation is different, the chance of regular drinking is 4.6 times higher if they regularly spend time on the Internet and also Meet friends, compared to those who only use the Internet. However, for the boys who only regularly spend their free time with friends, the chances are up to 6.6 times higher. Thus, we can interpret that regular use of the Internet as a leisure activity appears to be a protective factor that reduces the risk of regular and binge drinking in boys who spend time with friends, while in girls this moderating effect has not been found.

An association between some leisure activities and alcohol was examined in several studies, especially in the last decades.[44] In our former study, results showed a relation between the time spent with electronic media, especially on the Internet, and all forms of drug behavior.[45] Hypothetically, this means that a regular leisure activity such as spending time on the Internet is associated with drug use, but other leisure forms were not included. On the other hand, the findings of Kohútová and Almášiová, who explored a predictive potential of all leisure forms to legal drug use, brought knowledge about insignificant Internet use as a leisure activity for this drug use form.[46] According to the findings, it is obvious that mainly unstructured leisure activities are associated with higher regular drinking or binge drinking. Unstructured activity can be considered both aimless browsing the Internet, playing video games (like banishing boredom), watching online content, and also meeting friends without a specific goal or interest. In our research, the function of leisure activity was not investigated, which may be the reason that regular use of the Internet has not proven to be risky for alcohol use, compared to regular meeting friends in leisure time. Research on specific activities on the Internet considers spending

[43] ROCKAFELLOW, B. D., SAULES, K. K.: Substance Use by College Students: The Role of Intrinsic Versus Extrinsic Motivation for Athletic Involvement. In *Psychology of Addictive Behaviors*, 2006, Vol. 20, No. 3, p. 285.; FINLAY, A. K. et al.: Leisure Activities, the Social Weekend, and Alcohol Use: Evidence from a Daily Study of First-Year College Students. In *Journal of Studies on Alcohol and Drugs*, 2012, Vol. 73, No. 2, p. 253.

[44] See: TIBBITS, M. K. et al.: The Relation Between Profiles of Leisure Activity Participation and Aubstance Use Among South African Youth. In *World Leisure Journal*, 2009, Vol. 51, No. 3, p. 158.; MU, K. J. et al.: Internet Use and Adolescent Binge Drinking: Findings from the Monitoring the Future Study. In *Addictive Behaviors Reports*, 2015, Vol. 2, p. 65.

[45] ROJKOVÁ, Z., MYDLOVÁ, K.: Extent of Spending Leisure Time Through the Electronic Media and Drug Behaviour of Youth. In *Communication Today*, 2019, Vol. 10, No. 2, p. 144.

[46] KOHÚTOVÁ, K., ALMAŠIOVÁ, A.: Voľný čas ako prediktor užívania legálnych návykových látok u žiakov základných a stredných škôl. In *Psychológia a patopsychológia dieťaťa*, 2016, Vol. 52, No. 2, p. 158.

time on social networks,[47] sharing statuses on alcohol experiences,[48] exposure to alcohol content,[49] general self-presentation,[50] chatting[51] to be particularly risky for alcohol use. These activities are part of the construct of problematic use of the Internet, which is a clearer risk factor not only for the use of legal or illegal drugs,[52] but also other risky behavior of adolescents, linked to using alcohol secondly (cyberbullying, risky sexual behavior[53]). When comparing girls and boys, as mentioned above, for boys, regular use of the Internet seems to be a factor reducing the chances of alcohol consumption compared to spending free time with friends, but for girls, this effect is not visible. It may be explained through a higher socializing function of using the Internet in girls (e.g. for chatting), which is consistent with findings of Larm et al., who observed the relation between social context pathway in alcohol use among girls with a high level of online chatting on social networks.[54]

5 Conclusion

The study provided findings on the relation between the two most preferred leisure activities in adolescence and regular or binge drinking. We have found that meeting friends regularly poses a greater risk to adolescents than using the Internet, and even for boys, using the Internet can be a protective factor. The study points out the importance of a multi-component investigation of risk factors, and we recommend including the function (intention, structuring) of leisure activities in further research. It also supports the distinction between regular and binge drinking as two forms of behavior with different determinants and the justification for gender comparison. Despite the presented results, it is necessary to longitudinally examine the connection between alcohol and problematic internet use.

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photo: Linda Barborková

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Popularisation of Science and Science Journalism on Social Media in Slovakia

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ABSTRACT

This study focuses on the presentation and interpretation of scientific information and data by Slovak creators on the social platform *Instagram*. Media content presented on social media often becomes problematic, as popular science posts are more in an entertaining than scientific form. It happens that popular science content is presented inaccurately, without deeper context. In addition, scientific misinformation and misleading information appears, which can pose a danger to audience members who trust such information. Science journalism has found its place not only in traditional media, but also on social media platforms, where problematic information on scientific topics goes viral and achieves a high level of user interaction. In an unregulated or under-regulated social networking environment, it is also more difficult for users to discern the credibility and relevance of the information presented, especially when referring to existing scientific studies or authorities. However, data from these sources may be taken out of context, interpreted in a misleading way or accompanied by completely fabricated or distorted conclusions. Such false scientific content undermines confidence in objective science journalism and discredits the work of science journalists. Several digital tools are now available that can help readers distinguish real scientific information from false information. Critical thinking, media literacy and scientific literacy are key skills that can be used to detect manipulative techniques and navigate the issue of false media content. In this paper, we therefore clarify the importance of media, scientific and information literacy skills to help identify misinformation in media content related to science and research.

KEY WORDS

Instagram. Popularisation of Science. Pseudoscience. Scientific Information. Science Journalism. Scientific Literacy. Social Media.

1 Introduction

We understand the concept of popularization as a process of dissemination of knowledge in any field that is understandable in content and form to the general population of recipients. Thus, the primary target audience of the popularisation process is individuals who are not experts in a given field, but who, for various reasons, may find the knowledge presented interesting and useful. The basic principle of popularisation is the ability to convey the key parameters and characteristics of the presented topic in a comprehensible way, including a reasonable degree of simplification of technical terms from the relevant domain of expertise. According to M. Bucchi popularization can take different forms, including the media, museums, science festivals, science blogs, and science cafés.[1] The media plays a critical role in popularizing science by presenting scientific information in a way that is accessible and relevant to the general public. Similarly, science museums and science festivals provide an opportunity for the public to interact with science in a more informal and engaging way. However, there is an ongoing debate about the effectiveness of popularization in promoting scientific literacy and public engagement with science.

Some scholars argue that popularization can lead to the oversimplification and distortion of scientific information, which may result in misunderstandings and misconceptions.[2] Others argue that popularization can be a useful tool in enhancing public engagement with science and promoting informed decision-making.[3] Popularization can also foster a better understanding of science as a social and cultural phenomenon, highlighting the ways in which science is shaped by societal values and beliefs.[4] B. Jurdant defines popularisation of science as a process of communicating scientific knowledge, emphasising that popularisation of science can take different forms and the entities that represent these activities.[5] Different groups of actors are involved in the process of science popularization – especially scientists, science communicators, educators, journalists, and policymakers.[6] On the one hand, it is the scientists themselves who are an important element in the popularisation of science and technology. An examination of their efforts to popularise science allows us to identify the many different motivations, attitudes and intentions that lead them to this activity.[7] However, communicating scientific findings to the general public can be challenging for scientists, as the technical language and jargon used in scientific publications may be inaccessible to non-experts. Science communicators can bridge this gap by translating scientific language into more accessible terms and formats such as infographics, videos, and podcasts.[8] In the context of social dissemination of scientific knowledge, educators also play a vital role by teaching science in schools and universities.

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1 See: BUCCHI, M.: Of Deficit, Deviations and Dialogues: Theories of Public Communication of Science. In M. BUCCHI, B., TRENCH, B. (eds.): *Handbook of Public Communication of Science and Technology*. London : Routledge, 2008, p. 57-76.

2 See: WYNNE, B.: Misunderstood Misunderstanding: Social Identities and Public Uptake of Science. In *Public Understanding of Science*, 1992, Vol. 1, No. 3, p. 281-304.

3 See: IRWIN, A., MICHAEL, M.: *Science, Social Theory and Public Knowledge*. Maidenhead : Open University Press, 2003.

4 See: GIERYN, T. F.: *Cultural Boundaries of Science: Credibility on the Line*. Chicago, IL : University of Chicago Press, 1998.

5 See: JURDANT, B.: Popularization of Science as the Autobiography of Science. In *Public Understanding of Science*, 2016, Vol. 2, No. 4, p. 365-373.

6 See: POLIAKOFF, E., WEBB, T. L.: What Factors Predict Scientists' Intentions to Participate in Public Engagement of Science Activities? In *Science Communication*, 2007, Vol. 29, No. 2, p. 242-263.

7 MASSARANI, L., MOREIRA, C. I.: Popularisation of Science: Historical Perspectives and Permanent Dilemmas. In *Quark*, 2004, No. 32, p. 75.

8 See: BURNS, T. W., O'CONNOR, D. J., STOCKLMAYER, S. M.: Science Communication: A Contemporary Definition. In *Public Understanding of Science*, 2003, Vol. 12, No. 2, p. 183-202.

Effective science education can help cultivate scientific literacy and critical thinking skills in the general public, promoting a more informed public discourse about scientific issues.[9] Policymakers also have an important role to play in science popularization. They can use scientific information to inform policy decisions and promote evidence-based policymaking.[10] Journalists are one of the most important actors in the process of popularizing science towards the general public. They have the ability to frame scientific information in ways that can influence public perceptions as well as decisions about public policies. However, it is crucial for journalists to accurately report scientific findings and avoid sensationalism or misinterpretation of research.[11]

Scientific information in the online space can take the form not only of text, but also of images, video or sound. The Internet and social media are also flooded with fabricated and unverified scientific information, often created with malicious intent on the part of the creator. Fake scientific information is often rapidly becoming popular among social media users. According to B. Francistyová and J. Višňovský, it is currently impossible to set limits on where and whom media content can reach.[12] Such information may pose a certain danger to the public. A. G. B. Radin and C. J. Light argue that the Covid-19 pandemic and its consequences have led to an increase in the use of social media. Social distancing has also reinforced the value and power of effective science communication on social networking platforms.[13] Despite strict regulations, false scientific information is still being created and posted on social media platforms such as *Facebook*, *Instagram*, *Twitter*, *YouTube*, and so on. According to a *Pew Research Center* survey, as many as 33% of Americans consider social media, especially the *Facebook* platform, as an important way to obtain science information.[14] There are several methods and digital tools through which the authenticity of scientific information can be verified. In this study, we will discuss why fake scientific information is becoming popular, how to defend against it, and how it is regulated.

2 Current Status of the Issue

Instagram and other social networking platforms provide the opportunity to discover and understand science topics, especially for Generation Z and Generation Alpha, who spend most of their time on *Instagram*. For many people, once they have left formal schooling, the media become the main and often even the only source of scientific information.[15] In 2015, research was conducted to assess the state of public awareness of science and the popularisation of science and technology in Slovakia by the agency *TNS SK* (now the name of the organisation is *Kantar Slovakia*). The research sample included 1600 respondents, of which 50.1% were women and 49.9% were men. The largest number of respondents indicated that they most

9 MILLER, S., SCOTT, E. C., OKAMOTO, S.: Public Acceptance of Evolution. In *Science*, 2006, Vol. 313, No. 5788, p. 765-766.

10 See: MILLER, J. D.: Public Understanding of Science at the Crossroads. In *Public Understanding of Science*, 2001, Vol. 10, No. 1, p. 115-120.

11 PETERS, H. P., BROSSARD, D., DE CHEVEIGNÉ, S. et al.: Interactions with the Mass Media. In *Science*, 2008, Vol. 321, No. 5886, p. 204-205.

12 FRANCISTYOVÁ, B., VIŠŇOVSKÝ, J.: Neo-Acceptance of Hallyu as a Result of Changes in the Film Industry: K-Pop in Europe and on Slovak Radio. In PROSTINÁKOVÁ HOSSOVÁ, M., GRACA, M., SOLÍK, M. (eds.): *Marketing & Media Identity 2022: Metaverse Is the New Universe.* Trnava : FMK UCM in Trnava, 2022, p. 46.

13 RADIN, A. G. B., LIGHT, C. J.: TikTok: An Emergent Opportunity for Teaching and Learning Science Communication Online. In *Journal of Microbiology & Biology Education*, 2022, Vol. 23, No. 1, p. 1-2.

14 KRÄMER, K.: *As a Bogus Food Safety Video Reaches 83 Million on Facebook, Fact Checkers Take Up the Fight Against Fake Science.* [online]. [2023-02-08]. Available at: <https://www.chemistryworld.com/news/fact-checkers-take-up-the-fight-against-fake-science-on-facebook/4010452.article>.

15 See: GUENTHER, L.: Science Journalism. In ORNEBRING, H. (ed.): *Oxford Encyclopedia of Journalism*. New York, NY : Oxford University Press, 2019.

often use the Internet to find information about science and technology. Young people aged between 18 and 25 showed the greatest interest in this topic. Interest in science and technology is sinusoidal in nature, as it subsequently decreases with increasing age for adults and only increases again after the age of 50.[16] In this sense, social networks can be described as one of the most important tools for popularising science among young people.

Since the 1980s, the popularity of science has expanded significantly on a global scale.[17] B. Jurdant defines popularisation of science as the process of communicating scientific knowledge. He emphasises that popularisation of science need not be limited to written texts, but other forms can also be used.[18] According to Z. Vitková, popularisation is understood in the literature as a process of dissemination of knowledge in a generally understandable way. This process seeks to ensure that its basic elements – information, popularisation and journalism – influence the audience in an appropriate way, complement each other and gradually convey new knowledge through different information and journalistic genres. Z. Vitková states that the creators of this process strive for flexibility, adaptability and the ability to convey theoretical impulses from basic and applied research, but at the same time they must respond to the demands of practice. A common feature of this process is the simplification of professional terms so that they can be understood by a lay audience.[19] Scientists have been and still are one of the main actors in the popularisation of science and technology. An examination of their efforts to popularise science makes it possible to identify many different motivations, attitudes and intentions that have led them to this activity.[20] However, we now observe that science popularisation on social networking platforms such as *Instagram* is not only undertaken by scientists, but also by science journalists, influencers, science enthusiasts, nutritionists, fitness trainers and others who have not completed a university degree, are not authors of scientific studies and research, and are not familiar with the process and criteria of scientific inquiry. Therefore, it is important to recognise that such authors may not have the expertise to correctly interpret scientific data and information. Published media content from such creators may only be opinions, tips and cannot always be described as reliable scientific popularisation content.

Another problem may be that popularizers of science who are not scientists are not always able to recognize pseudoscience from real science. This problem is also pointed out by G. C. Cornelis, who talks about the dangers of popularizing science where pseudoscience can appear. He stresses the importance of presenting science objectively and clearly distinguishing between science and pseudoscience. He suggests avoiding the more speculative aspects of science in order to avoid confusion and misleading the public, even though these aspects may be attractive to the public.[21]

Media content published on social networking platforms promoting science does not have to be published only by competent persons who can distinguish real science from pseudoscience, i.e. true information from false information. On the other hand, the question arises as to who is qualified to determine the reliability of the facts and to judge the veracity

16 BUNČÁK, J., HRABOVSKÁ, A., SOPÓCI, J.: *Popularizácia vedy medzi verejnosťou.* Bratislava : Centrum vedecko-technických informácií SR, 2015. [online]. [2023-02-12]. Available at: <https://vedanadosah.cvtisr.sk/wp-content/uploads/2020/10/Popularizacia_vedy_medzi_verejnostou_-_zaverecna_analyza_-_final.pdf>.

17 MASSARANI, L., MOREIRA, C. I.: Popularisation of Science: Historical Perspectives and Permanent Dilemmas. In *Quark*, 2004, No. 32, p. 75.

18 JURDANT, B.: Popularization of Science as the Autobiography of Science. In *Public Understanding of Science*, 2016, Vol. 2, No. 4, p. 365-366.

19 VITKOVÁ, Z.: Ako prezentovať svoj výskum laikom prostredníctvom médií. In POSPIŠOVÁ, J. (ed.): *Ako popularizovať vedu.* Martin : Neografia, 2015, p. 47.

20 MASSARANI, L., MOREIRA, C. I.: Popularisation of Science: Historical Perspectives and Permanent Dilemmas. In *Quark*, 2004, No. 32, p. 75.

21 CORNELIS, G. C.: Is Popularization of Science Possible? In OLSON, A. M. (ed.): *The Paideia Archive: Twentieth World Congress of Philosophy*. Bowling Green, OH : Philosophy Documentation Center, 1998, p. 30-31.

of such information. In 2004, R. Keyes declared that we are living in a post-truth era and that we are in a stage of social development in which lying has become common at all levels of contemporary life. Facts and their denial are no longer decided by any authority, but essentially by each individual, regardless of his or her education and reputation or acquired knowledge in the field. The manipulation of data by anyone, including scientists, is becoming easier and easier. Today, due to the easy availability of information and communication technologies and the Internet, it is possible to create and disseminate various types of manipulated media content in unlimited quantities.[22]

Common criticisms that are made in relation to science journalism include lack of accuracy, lack of depth and lack of consideration of the text. This means that it happens that important information is omitted or misinterpreted. The author only superficially treats a topic that lacks the context and background of scientific research and does not provide the public with an overall picture of the results of science and research. This phenomenon can also be observed in the case of media content published on social networking platforms. This problem is also pointed out by Z. Vitková, who states that *"the line between popularisation, which serves greater clarity, and oversimplification at the expense of factual accuracy, even tabloidisation, is therefore very fragile"*.[23] She also recommends using photographs, easy-to-understand graphs, examples from practice, etc., when communicating scientific results to the general public.

Online communication platforms are increasingly used by scientific institutions and scientists themselves to disseminate their research and scientific information. By combining traditional scientific news and publications in peer-reviewed scientific journals with scientific news on social media, it is possible to engage more science enthusiasts. However, in this busy online space, readers use a variety of conscious and unconscious heuristics to judge the veracity of content. Some authors suggest that in the battle against misinformation, scientists should make more use of their existing profiles on social media platforms to present credible scientific information, as the credibility of information on social media is heavily influenced by any personal connections to the author themselves.[24] Today, researchers are not only using social media platforms to present the results of their work – in many cases they are becoming the subject of research, or integrating them at different stages of research, such as in the selection of research questions, research samples, etc. However, there is a concern about maintaining the reliability of the information presented on these platforms.[25] According to A. D. Scheufele and M. N. Krause *"some scholars have argued that decreasing public and policy support for science, among other factors, has created new incentives for scientific organizations to use mass media and other public-facing channels to promote particular findings or areas of research. Media, in turn, rely on celebrity scientists as resources for newsworthy accounts of breakthrough science. This has engendered concerns that hype and overclaims in press releases and other scientific communication can lead to misperceptions among nonexpert audiences about the true potential of emerging areas of science, especially if science is unable to deliver on early claims of cures for diseases, for instance."*[26]

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22 HOPF, H., KRIEF, A., MEHTA, G., MATLIN, A. S.: Fake Science and the Knowledge Crisis: Ignorance Can Be Fatal. In *Royal Society Open Science*, 2019, Vol. 6, No. 5, p. 190161.

23 VITKOVÁ, Z.: Ako prezentovať svoj výskum laikom prostredníctvom médií. In POSPIŠOVÁ, J. (ed.): *Ako popularizovať vedu.* Martin : Neografia, 2015, p. 49.

24 BOOTHBY, C. et al.: Credibility of Scientific Information on Social Media: Variation by Platform, Genre and Presence of Formal Credibility Cues. In *Quantitative Science Studies*, 2021, Vol. 2, No. 3, p. 845-846.

25 Ibidem.

26 SCHEUFELE A. D., KRAUSE, M. N.: Science Audiences, Misinformation, and Fake News. In *PNAS*, 2019, Vol. 116, No. 16, s. 7667.

Disinformation, misinformation or malinformation is a real problem of the 21st century in the field of scientific information. We have also seen a number of disinformation or false information in recent months in relation to Covid-19[27] or the war in Ukraine[28]. Disinformation in the context of this study is seen as false information that is deliberately created to harm a person, social group, organisation or country.[29] B. Staats includes here deliberately created conspiracy theories or rumors.[30] Misinformation is also false information, but not created with the intent to harm.[31] These are unintentional errors, such as inaccurate descriptions of photographs, dates, statistics, and the like. The last category is malinformation, which B. Staats defines as the intentional publication of private information for personal or corporate interest and the intentional alteration of the context, date, or time of the actual content.[32] A study by researchers at the Massachusetts Institute of Technology (MIT) found that fake news spreads faster on *Twitter* than real news. The MIT researchers say it is possible that the same phenomenon occurs on other social media platforms, but caution that thorough studies on the issue are needed.[33]

Information, images and videos have been and are being produced in relation to Covid-19 that are not scientifically verified and pose a threat to society as a whole. For this reason, it can be described as disinformation scientific information. Also in the Slovak Republic, we have seen many pieces of fake scientific information related to Covid-19, which, due to sensational headlines, topicality and non-congruent manipulated visual content, is becoming viral and spreading rapidly among users on social networking platforms. In addition to scientific, misinformation is also being created in relation to the Covid-19 pandemic. This is misinterpretation of the results of scientific studies. Here too, *Meta* has launched an information hub that brings information on Covid-19 from government, civil, medical and other sites.

There are several initiatives underway or under discussion to address the societal problem of the dissemination of false scientific information. Current initiatives include developing tools that automatically identify false information, improving social media policy and self-regulation, taking responsibility for content published on social media, engaging scientists in the fight against fake news, increasing critical thinking and scientific literacy, educating and promoting ethical practices and research integrity in science.[34]

Meta, which owns the social networking platforms *Facebook* and *Instagram*, seeks to combat scientific disinformation and fake news in three areas – disrupting economic incentives, creating new products to curb the spread of fake news, and helping people make more informed decisions when faced with fake information. When it comes to combating fake news, one of the most effective approaches is to remove the economic incentives for the spreaders of

27 PANASENKO, N., MOROZOVA, O., GAŁKOWSKI, A. et al.: COVID-19 as a Media-Cum-Language Event: Cognitive, Communicative, and Cross-Cultural Aspects. In *Lege Artis. Language Yesterday, Today, Tomorrow*, 2020, Vol. 5, No. 2, p. 123-124.

28 See: HUDÁKOVÁ, V., PIEŠ, L.: Rusko-ukrajinský konflikt: analýza vybraných príspevkov serióznych a alternatívnych médií na sociálnej sieti Facebook. In MAGÁLOVÁ, L., MACÁK, M., KOLENČÍK, P.: *Quo vadis massmedia, quo vadis marketing*. Trnava : FMK UCM in Trnava, 2022, p. 284-301.

29 See: IRETON, CH., POSETTI, J.: *Journalism, Fake News & Disinformation: Handbook for Journalism Education and Training.* Paris : UNESCO, 2018.

30 STAATS, B.: *Misinformation, Disinformation, Malinformation: What's the Difference?* [online]. [2023-02-08]. Available at: <https://minitex.umn.edu/news/elibrary-minnesota/2022-05/misinformation-disinformation-malinformation-whats-difference>.

31 See: IRETON, CH., POSETTI, J.: *Journalism, Fake News & Disinformation: Handbook for Journalism Education and Training*. Paris : UNESCO, 2018.

32 STAATS, B.: *Misinformation, Disinformation, Malinformation: What's the Difference?* [online]. [2023-02-08]. Available at: <https://minitex.umn.edu/news/elibrary-minnesota/2022-05/misinformation-disinformation-malinformation-whats-difference>.

33 DIZIKES, P.: *Study: On Twitter, False News Travels Faster Than True Stories*. [online]. [2023-02-17]. Available at: <https://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308>.

34 STAATS, B.: *Misinformation, Disinformation, Malinformation: What's the Difference?* [online]. [2023-02-08]. Available at: <https://minitex.umn.edu/news/elibrary-minnesota/2022-05/misinformation-disinformation-malinformation-whats-difference>.

misinformation, as many fake news stories are created with a financial profit motive. For this reason, *Meta* has taken certain steps – to apply machine learning in detecting fake news, to strictly enforce social network policies that will make it more difficult for disinformation creators to purchase advertising space on the platform, and to update fake account detection tools. The company has decided to work with news organizations to co-develop products, provide tools and services for journalists, and help people get relevant information. *Meta* is part of the *News Integrity Initiative*, whose mission is to improve news literacy and increase trust in journalism around the world.[35] Another important step by *Meta* was the launch of the *Climate Science Information Centre*. The main objective of the centre is to make relevant articles and information on climate science available.[36]

A perfect example is the fake food safety video that has reached over 83 million views on *Facebook*. The video showed rice being heated to melt pieces of plastic that had been deliberately added to it. The theory that real rice contains plastic was never backed up by scientific studies and was just misinformation. K. Douglas, a conspiracy theory researcher at the University of Kent in the UK, says that *"it's unsurprising that people worry about what goes into their food, but they often find it difficult to tell the difference between real and fake information. It is therefore very easy for fake scientific information to spread far and wide on the internet."*[37]

Although much disinformation is related to politics, some fact-checkers are beginning to focus more on the misuse of scientific data. User reports and machine learning tools are helping *Facebook* identify potentially misleading videos, images, or articles. These are automatically compiled into a list for each fact-checking partner, who can then pick and choose the pieces of content they want to address. *Full Fact* checks 30 to 40 pieces of content each month, Lead Stories around 60 – although the time it takes to evaluate a story varies considerably. Scientific claims are often the trickiest to disprove. Fact-checkers then use one of eight rating options, including "true", "false" and "satire". Posts that are rated as false or contain a combination of accurate and misleading information are downgraded so that they appear lower on users' timelines. According to *Meta*, this reduces the number of views on *Facebook* by approximately 80%. In addition, any user who wants to share disinformation content is shown a link to the rebuttal article.[38] As tech companies continue to struggle with changes to their algorithms and interfaces, third-party fact-checking groups such as *Factcheck.org* have emerged.[39] Also in the Slovak Republic, there are platforms and sites that verify facts and refute disinformation and hoaxes, such as *hoax.sk* or the Slovak Police *Facebook* page – *Hoaxy a podvody – Polícia SR* (eng. *Hoaxes and Scams - Police SR*). Strict social networking guidelines, numerous initiatives, and partnerships with technological platforms are unable to control bogus scientific material. Given the volume of postings and newly generated accounts that occur every day, social media cannot automatically identify all false information and phony accounts.

35 MOSSERI, A.: *Working to Stop Misinformation and False News*. [online]. [2023-03-02]. Available at: <https://www.facebook.com/formedia/blog/working-to-stop-misinformation-and-false-news>.

36 CHEE, Y. F., PAUL, K.: *Facebook Launches Climate Science Info Center Amid Fake News Criticism*. [online]. [2023-02-13]. Available at: <https://www.reuters.com/article/facebook-climatechange-int-idUSKBN2660M5>.

37 KRÄMER, K.: *As a Bogus Food Safety Video Reaches 83 Million on Facebook, Fact Checkers Take Up the Fight Against Fake Science*. [online]. [2023-02-08]. Available at: <https://www.chemistryworld.com/news/fact-checkers-take-up-the-fight-against-fake-science-on-facebook/4010452.article>.

38 Ibidem.

39 SCHEUFELE, A. D., KRAUSE, M. N.: Science Audiences, Misinformation, and Fake News. In *PNAS*, 2019, Vol. 116, No. 16, p. 7667.

1.1 Scientific and Media Literacy as an Important Skill in the Validation of Scientific Information

Important skills for science journalists include evaluating the evidence behind a scientific claim and recognizing problematic scientific reports and errors in scientific studies.[40] This skill is also important for science popularizers who create media content on social media platforms. The main reason for this is that it happens that journalists or media makers craft articles based on biased scientific research, which they then publish in news outlets or on social media, presenting false or empirically unsubstantiated information about the results of science and research to their readers.

Another problem is that various media content creators, such as science journalists or science popularisers, produce and interpret information from scientific studies that are not credible and have low relevance, or the source of the information is news articles that do not refer to the original source of the research. Today there are several predatory journals that publish studies with manipulated results for a high fee.

A perfect example is the misleading scientific study by J. Bohannon, director of the *Institute for diet and health*, who published a study in 2015 on accelerating weight loss by eating chocolate. This report was picked up by countries and media around the world. In reality, J. Bohannon is not the director of the institute, but a science journalist who wanted to point out how easily biased scientific information is disseminated in the mainstream media. The research itself was indeed carried out, but the research sample was insufficient and the research measured too many factors.[41] For this reason, it is very important that a science journalist or science populariser does not fall victim to false scientific information.

The *Science Media Centre* recommends several points that can help to distinguish real science from pseudoscience:

- Correlation and Causation – there are differences between the established ones, whereas correlation implies that there may not be a consequence between variables, or one may not influence or cause the other.
- Unsupported conclusions – scientific studies must present facts that are proven and clearly articulated.
- Research sample size – research with small sample sizes often poses a threat to the credibility of the research and its results. A larger research sample provides results that can be considered representative.
- Unrepresentative sample – if a sample is used that is not sufficiently reflective of the population as a whole, the conclusions can be considered biased.
- Control group – In clinical trials, a control group of test subjects is required to be matched to a control group that has not yet been administered a test substance. In more general experiments, a control test is also needed, but in this all variables under study are controlled.
- Blind testing – is considered difficult to perform and often unethical, as subjects are not told that they are part of a test or control group for the sake of the relevance of the results.
- Sensational headlines – are created to attract the reader. The problem with such headlines is that they often oversimplify research results or present biased information to make the articles appear more appealing.

[40] *Spotting Bad Science: The Definitive Guide for Journalists*. [online]. [2023-02-04]. Available at: <https://www.sciencemediacentre.co.nz/coveringscience/spotting-bad-science-the-definitive-guide-for-journalists/>.

[41] GODOY, M.: *Why a Journalist Scammed the Media into Spreading Bad Chocolate Science*. [online]. [2023-02-04]. Available at: <https://www.npr.org/sections/thesalt/2015/05/28/410313446/why-a-journalist-scammed-the-media-into-spreading-bad-chocolate-science>.

- Misinterpretation of results – can lead to the publication of incorrect, false or distorted information. For this reason, it is important to verify information from the original source, i.e., the research, rather than just from another article that may have published incorrect information.
- Conflict of interest – although many companies employ scientists to research and publish results, while this does not mean that the research is invalid, on the other hand, we must take these results in the context that the research may be biased or influenced by outside influence for monetary or personal gain.
- Selective reporting of data – represents the deliberate selection of data and claims that support research results but ignore research that does not support the results or data.
- Non-repeatable results – consistency of results, is an important element and therefore results must be repeatable by independent researchers. Every hypothesis or assumption requires rigorous proof, even more so when we are talking about an independent study.
- Peer review – during this scientific process, researchers and experts critically review studies before they are published. Research that does not pass peer review may indicate that the research or data is flawed.[42]

In addition to the above points, scientific and media literacy is also important to help detect disinformation. According to K. Lodl, Associate Dean of Nebraska Extension, scientific literacy is the knowledge of science as well as the scientific framework by which people make decisions based on facts, research, and knowledge, not opinions or rumours. Scientific knowledge helps people be better informed and make the best possible decisions based on the best available knowledge.[43] P. Cormax, who teaches science education, focuses on the study and promotion of scientific literacy, which he believes is key in analyzing information and disinformation.[44] While early definitions of media literacy focused on the ability to consume and produce media, more recent definitions see it as a framework of participation that includes consumption and production, but also builds an understanding of the role of media in society, as well as the essential skills of research and self-expression necessary for citizens of a democracy. Media literacy also has a protective function. It helps individuals in the media world to protect their personal information, to avoid cybercrimes such as phishing, and to detect fake news, hoaxes and other problematic content. Media literacy in the context of scientific information helps to make more informed decisions. The importance of media literacy also extends to information sharing. Individuals need to be able to critically assess the quality of sources and news, but they also need to have responsible responses when it comes to sharing information.[45] Another possible solution may be to hone critical thinking skills so that people can distinguish between real scientific information and conspiracy theories. As an example of good practice, a data literacy initiative in nearly 150 public schools is trying to give children the skills to distinguish between authentic and fake information.[46]

[42] *Spotting Bad Science: The Definitive Guide for Journalists*. [online]. [2023-02-04]. Available at: <https://www.sciencemediacentre.co.nz/coveringscience/spotting-bad-science-the-definitive-guide-for-journalists/>.

[43] GARBACZ, M.: *What Is Science Literacy and Why Is It Important?* [online]. [2023-02-10]. Available at: <https://sdn.unl.edu/article/what-science-literacy-and-why-it-important>.

[44] HOLSOPPLE, K.: *How to Fight Fake News with Scientific Literacy.* [online]. [2023-02-07]. Available at: <https://www.alleghenyfront.org/how-to-fight-fakes-news-with-scientific-literacy/>.

[45] See: ROSENTHAL, S.: Media Literacy, Scientific Literacy, and Science Videos on the Internet. In *Frontiers in Communication*, 2020, Vol. 5, no paging. [online]. [2023-02-07]. Available at: <https://doi.org/10.3389/fcomm.2020.581585>.

[46] VIJAYKUMAR, S.: *Pseudoscience Is Taking Over Social Media and Putting Us All at Risk*. [online]. [2023-02-13]. Available at: <https://www.independent.co.uk/news/science/pseudoscience-fake-news-social-media-facebook-twitter-misinformation-science-a9034321.html>.

The CRAAP test is most commonly used to assess the credibility of information. This can help the reader evaluate the information. The CRAAP test includes: timeliness of the information, relevance of the information, authority, accuracy and purpose of the information.[47] A science populariser can also apply the CRAAP test to the processing of videos, photographs and other media based on scientific articles published by journalists in journals or on online news portals. There are a number of free platforms and tools that can be used to verify the authenticity and source of a photo, such as *TinEye* or *Google*. This search will show where else on the web the image has appeared. We can also see if the photo has been tampered with, for example through deepfake technology.[48]

The mentioned above information shows that the different competences complement and overlap each other. A reader who has a sufficiently high level of critical thinking and media and scientific literacy can evaluate the relevance of scientific information and visual content and reject unverified facts, conspiracy theories and rumours.

3 Methodology

The main aim of the study is to find out how scientific data and information are presented and interpreted by Slovak media creators on the popular social network *Instagram* through quantitative and qualitative content analysis. The secondary aim is to clarify, through semi-structured interviews, the practices of science popularizers on the *Instagram* platform in the creation of science popularization posts.

Through expressions, we identified profile accounts that are primarily focused on the dissemination of media content that contains scientific data and the author(s) aim to popularize science. We conducted searches on *Instagram* using the terms: „výskum“ (eng. research), „veda“ (eng. science), „vedu“, „vede“, „vedy“, „vedecký“, „vedecké“, „vedecká“, „vedecké dáta“. We also included relevant synonyms in the search. We used the above terms to identify relevant profile accounts that are public and in the Slovak language. The search was terminated when the saturation threshold was reached, i.e., no other current and research-relevant *Instagram* accounts appeared in the results. In the research material we also included *Instagram* accounts that were offered to us by *Instagram* based on its algorithm. The profile accounts had to meet certain criteria – the author had published at least one science-popularization post in 2022, the published content is available in the Slovak language, and the *Instagram* account is publicly accessible, i.e., the published content can be seen by all *Instagram* users, not just followers, who must be pre-approved by the author.

The identified contributions will be categorised according to a model developed by *The Dutch Research Council*, a Dutch institution. The content that popularises science will be divided into four main categories:

[47] MUIS, R. K., DENTON, C., DUBE, A.: Identifying CRAAP on the Internet: A Source Evaluation Intervention. In *Advances in Social Sciences Research Journal*, 2022, Vol. 9, No. 7, p. 240-241.

[48] *Tips for Students on How to Identify Fake News.* [online]. [2023-02-15]. Available at: <https://onlinedegrees.und.edu/masters-cyber-security/tips-for-students-on-how-to-identify-fake-news/>.

Disciplines of science and technology	Subgroups
Humanities	Archaeology; field studies; philosophy; history; art and architecture; music, theatre, performing arts and media; religious studies and theology; language and literature; linguistics; history of science.
Technical Sciences	Science and technology; computer science technology; electronics and telecommunications; engineering.
Natural Sciences	Agriculture; biology and environmental science; clinical medicine; life sciences; physical chemical and earth sciences; veterinary medicine.
Social Sciences	Business administration; public administration and political science; communication science; cultural anthropology; demography; economics; gender studies; educational sciences; development studies; pedagogy; psychology; law; sociology.

TABLE 1: *Disciplines of science and technology and their subgroups*

Source: own processing based on categorization from the Dutch institution *The Dutch Research Council*, 2023

In the last phase, we conducted semi-structured interviews with the creators of selected profile accounts that produce media content containing scientific data and information about the results of scientific research. The research sample consisted of three media creators of these *Instagram* accounts – *@veda_vkocke* (Šimon Popovič), *@kreslim_vedu* (Lucia Ciglar) and *@vedeckeokienko* (Ivan Gábriš). Semi-structured interviews were conducted via the *Google Meet* platform. Through semi-structured interviews, we investigated how (social media content creators) process information and what skills are important in interpreting scientific information. Based on this, we highlight the variation or uniformity in the processing of scientific information by media makers who have different highest educational attainments. Furthermore, we also focus on the practices in verifying the scientific data and information they present on their profile accounts, which are available to the general public or to users of the social network *Instagram*.

As part of the qualitative part of our research, we formulated the following research questions (RQs):

RQ1: Which skills are important for a social media maker and how can they be improved?

RQ2: What sources of expertise (digital platforms, databases, guides and courses) are used by social media creators and can help them improve their skills and expertise in interpreting scientific data and information?

RQ3: What practices do social media creators apply when creating popularization media content?

4 Results

Through the terms and suggested *Instagram* accounts, we identified nine *Instagram* accounts that published at least one post interpreting scientific information or data in 2022 and can be thematically categorized under the scientific discipline – humanities, social sciences, engineering, and natural sciences. Another important criterion we used to determine whether the content was popularization content was language that should be simple and understandable to the general public, i.e., recipients are not required to have expert knowledge. The last criterion was the goal of the popularization content, i.e., whether the author sufficiently explains the information in order for the general public to better understand the topic presented. We added as contributions aimed at popularizing science contents that deal with topics in different fields of science and the information focuses on popularizing science. We included images, videos and texts about prominent scientists and their discoveries, examples of science in everyday life, scientific theories, experiments and trials among the contributions that focus on popularising science.

Instagram username	Number of followers	Number of published posts in 2022	Number of published posts in 2022 that popularize science
@vedeckeokienko	40 103	72	45
@kreslim_vedu	15 597	3	2
@veda_vkocke	5263	5	3
@vedator_sk	58 072	52	8
*@_skumavka_*	22 120	32	17
@sofiin__svet	1836	14	10
@aurelium_zcv	430	97	16
@karin_science	15 981	22	10
@dvebabyajovede	1827	13	1

TABLE 2: *Number of followers and published posts in 2022*

Source: own processing, 2023

Through quantitative research, we highlighted the current state of popular *Instagram* accounts and their published content in 2022, such as images, videos and carousel – a type of post where the author has the option to publish multiple videos or still images within a single post. In Table 2, we provide information on nine *Instagram* accounts where we can find science-popularization content. Specifically, we report the number of followers and the number of posts they published in 2022, while we also report the number of posts that popularize science. The total number of followers for these users ranges from 430 (for user *@aurelium_zcv*) to 58,072 (for user *@vedator_sk*). In terms of the number of published posts, the differences between users are more pronounced. The user *@vedeckeokienko* published the most science-popularization posts in 2022, while the user *@kreslim_vedu* published only 3 posts. Interestingly, *@kreslim_vedu* publishes detailed infographics, which may explain the lower number of posts compared to other users. On average, the number of posts in 2022 is around 25. An interesting finding relates to the number of posts that popularize science. The user *@vedeckeokienko* published almost three quarters of his posts (i.e. 45 out of 72) with the aim of popularizing science. In contrast, the user *@dvebabyajovede* published only one post aimed at popularising science.

The Table 2 shows that, on average, each user has at least half of their posts aimed at popularizing science. A significant difference between the number of posts published in 2022 and the number of posts that popularise science can be observed for users *@vedator_sk*, *@karin_science*, *@dvebabyajovede* and *@aurelium_zcv*, for whom the proportion of popularisation posts is less than half. An interesting finding is that user *@vedator_sk* has the highest number of followers, but the share of its popularization posts is only 15.4%. Nevertheless, *@vedator_sk* is one of the most popular Slovak science popularizers, with more than 170 podcast episodes. On *Instagram*, his work contributes not only to the popularisation of science, but also to the fight against scientific misinformation narratives, such as the impact of 5G technology on human health or the topic dedicated to Covid-19. On the other hand, the user *@sofiin__svet*, which has only 1,836 followers, dedicated 71.4% of its posts to the popularization of science. Overall, popularizing science on *Instagram* is not a priority for all users and there are differences in the number of posts. Users *@vedeckeokienko* and *@_skumavka_* are the most active in this regard and focus primarily on science-popularization content. On the other hand, users *@dvebabyajovede* and *@aurelium_zcv* also cover other topics.

Instagram username	Image and photo	Video and reels	Carousel
@vedeckeokienko	8	33	4
@kreslim_vedu	1	0	1
@veda_vkocke	0	0	3
@vedator_sk	5	0	3
@_skumavka_	4	0	13
@sofiin__svet	2	0	8
@aurelium_zcv	6	0	10
@karin_science	1	1	8
@dvebabyajovede	1	0	0

TABLE 3: *Number of individual types of posts aimed at popularising science in 2022*

Source: own processing, 2023

From the Table 3, it can be seen that images and carousel posts are the most popular type of posts aimed at popularising science on *Instagram*. This type of content allows users to present more detailed information, as up to ten still images, videos or a combination of both can be used within a single post. The use of different types of posts may depend on what type of content the account is sharing and what target audience they are trying to reach. User *@vedecke_okienko* has posted up to 33 videos and reels that appeal primarily to a younger audience. One possible reason why this account focuses mainly on videos and reels could be the fact that the author of the account is a high school chemistry teacher who uses these videos and reels to show how chemical processes work, how different chemicals react with each other, and to explain and show different chemical experiments. In addition, short engaging videos have a greater potential to go viral, reach a wider audience and get more interaction from users. However, reels and videos are not the only type of content shared by the *@vedecke_okienko* account. As it comes from the data presented in Table 3, it is evident that the user also presents scientific topics through static images.

Instagram username	Humanities	Technical sciences	Natural sciences	Social sciences
@vedeckeokienko	0	3	42	0
@kreslim_vedu	0	0	2	0
@veda_vkocke	0	2	1	0
@vedator_sk	0	3	4	1
@_skumavka_	0	0	17	0
@sofiin__svet	0	6	3	1
@aurelium_zcv	0	4	12	0
@karin_science	0	0	9	1
@dvebabyajovede	0	0	1	0

TABLE 4: *Categorization of published posts into disciplines of science and technology*

Source: own processing, 2023

Based on an analysis of the posts published on *Instagram*, it can be observed that the largest share of them was focused on the field of natural sciences. It can be assumed that the obtained results reflect the knowledge, interests and preferences of individual science popularizers on the *Instagram* platform, who are more interested in natural and technical sciences than in humanities and social sciences. It is the majority of the authors of the *Instagram* accounts analysed by us, such as *@vedeckeokienko*, *@_skumavka_*, *@kreslim_vedu* and others, who are university-educated people who are graduates in fields that we classify as natural sciences. One possible reason that may explain this phenomenon is that the natural sciences include various subfields such as chemical, physical, biological and other sciences. These subgroups can be considered interesting and attractive to the recipient as they can be presented in visually appealing images, photographs and videos – chemical experiments, different types of animals, space, etc. Another reason may be that the natural sciences are quite dynamic and new discoveries and research within the social and technical sciences are constantly emerging. *The Web of Science Group Master Journal List*[49] database lists 7342 journals[50] in the natural sciences and engineering category, 3090 journals[51] in the social sciences category and 1551 journals[52] in the humanities category. This means that research and publication activity in the natural sciences is now much more extensive and intensive than in the other sciences. In Table 5 we show what types of sources are mentioned by science popularizers on *Instagram*.

***Instagram* username**	**The source of the information is a news agency report**	**The source of the information is an article from another medium**	**The information has been drawn from several sources**	**The source of the information is scientific studies**	**Information on the sources used is not given**
@vedeckeokienko	0	0	0	0	45
@kreslim_vedu	0	0	0	2	0
@veda_vkocke	0	0	0	0	3
@vedator_sk	0	1	1	2	5
*@_skumavka_*	0	0	0	0	17
@sofiin__svet	0	0	5	0	5
@aurelium_zcv	0	1	0	0	15
@karin_science	0	0	5	2	3
@dvebabyajovede	0	1	0	0	0

TABLE 5: *Source of the information presented*

Source: own processing, 2023

In the Table 5, we present individual numbers that show what sources the nine *Instagram* users drew from when creating their science posts. The majority of users did not provide any information on where they drew from when creating science popularisation posts. The profiles *@sofiin__svet* and *@karin_science* listed multiple sources from which they drew information in 5 posts. For example, *@sofiin__svet* used science studies, a wiki encyclopedia, and foreign news outlets such as cnn.com to create her post. The *Instagram* profile *@karin_science*, for example, sourced several scientific studies in 1 post and combined them with links to the World Health Organization's website.

As we reported above, the user *@vedeckeokienko* primarily displays various chemical experiments in videos and reels posted on the profile. These may be his own chemical experiments that are unique, in which case citing sources would be irrelevant. However, for content that is based on existing scientific literature and research, it is important to cite sources for the specific information that users provide in their content or in the descriptions of a given post. Also on social media, the scientific information presented needs to be supported by

49 *Web of Science Group Master Journal List*. [online]. [2023-02-12]. Available at: <https://mjl.clarivate.com/search-results>.

50 Note of the authors: We have included the following categories of disciplines registered in the *Web of Science Group Master Journal List* database: Agriculture, Biology and Environmental Sciences, Clinical Medicine, Electronics and Telecommunications, Engineering, Computing and Technology, Life Sciences, Physical, Chemical and Earth Sciences.

51 Note of the authors: We have included the following categories of disciplines registered in the *Web of Science Group Master Journal List* database: Social and Behavioral Sciences, Business Collection.

52 Note of the authors: We have included the following categories of disciplines registered in the *Web of Science Group Master Journal List* database: Arts and Humanities.

relevant sources in order to maintain credibility and reliability. This is also the case when presenting well-known scientific discoveries, as it is on social networking platforms that scientific misinformation and hoaxes are created and disseminated. Often, the correct citation of sources for individual posts allows the general public to verify the information and also to learn more about the topic presented, as *Instagram* limits the total number of characters in the description of a post. When analysing the posts, we encountered that, for example, *@vedator_sk* posted additional relevant information about the presented topic in the comments section. The main drawback on *Instagram* are the inactive hyperlinks in the description of posts. Users cannot simply click through to the link. Instead, they have to manually copy and paste the URL into their browser, which can be impractical for users. For this reason, we recommend that authors of science content use platforms such as *bit.ly*, where it is possible to shorten the hyperlink.

We conducted interviews with three individuals who create and disseminate media content, offering their interpretations of scientific data and information pertaining to the outcomes of scientific research. Further characteristics of the research sample:

- the first interview was conducted with Šimon, who created an *Instagram* profile called *@veda_vkocke*. Šimon is 14 years old and a primary school pupil,
- the second interview was conducted with Ivan, who studied at the Faculty of Science at Masaryk University in Brno. He is currently a high school chemistry teacher and popularizes the science of chemistry through his *Instagram* profile called *@vedeckeokienko*. Ivan is 25 years old and his highest educational attainment is a university degree,
- the third interview we conducted was with Lucia, a molecular biologist who studied biochemistry and cell biology at Jacobs University in Bremen, Germany. She did her PhD at the European Molecular Biology Laboratory (EMBL) in Heidelberg. Lucia is 38 years old and is currently involved in consulting, education and mentoring in the field of life sciences. In addition, she is dedicated to creating professional infographics for the general public, data visualization and graphics for the scientific community through the *Instagram* account *@kreslim_vedu* popularizes science.

Using semi-structured interviews with selected science-focused media content creators, we found out how they process and approach the creation of media content with scientific information and data. We also focused on the issue of scientific misinformation and investigated how they verify the credibility of the research information, press release, news or journalistic article from which they draw and publish information. Qualitative research offered us a deeper understanding of the issues under study.

In the first question, we were interested in what skills are important for science journalists and media makers who create media content focused on science topics.

Lucia replied that science popularisers *"need to be mainly science literate. They have to be knowledgeable about science and have an overview of what they are writing about. By that I don't mean knowledge, knowledge in a specific field, but they have to be familiar with the scientific literature, they have to understand what the scientific method is about, how scientific information is published, what the differences are in the quality of scientific publications."* She went on to say that it is important to be able to communicate and interpret scientific information, but she thinks it is just a matter of training.

Ivan stated that *"first and foremost you probably need to be an expert in what someone does. So I can't go interpret scientific data and information and popularize science if I don't know anything about it. Even in the scientific realms, there are a lot of topics that I avoid because I don't feel I'm expert enough to discuss them. In that case, if such a topic strikes my fancy, I'll just repost someone who I know has written about it correctly. I guess one of those things is definitely expertise and then creativity I guess. Because that's where you have to engage the curriculum because I'm a high school teacher and if I give dry facts, nobody's going to read it. So I have to somehow connect the dots."*

Šimon considers it important to be able to search and evaluate which sources are reliable and trustworthy.

RQ1: Which skills are important for a social media maker and how can they be improved?

In response to the first question that which skills are important for them and media content creators interpreting scientific information and data, they confirmed that scientific literacy and expertise are very important when interpreting scientific data. It is Lucia who sees scientific literacy as the most important and crucial in processing and interpreting scientific data information. She also points to scientific methodology and differences in the quality of published research. Ivan considers expertise in a scientific topic and creativity as important skills in processing scientific information. Šimon considers it important to work with sources that are credible.

The second question was as follows: what sources of expertise (databases, manuals, courses, and other materials) are you familiar with or have you worked with that can improve your skills and expertise in creating media content that contains scientific information and scientific data?

Lucia responded that *"I like to follow other accounts of how they do it and I like to be inspired. There are a lot of accounts abroad that do a great job communicating science. For example, what I use a lot are different articles written for non-specialists."* She went on to say that *"as far as resources that would improve skills, like how to communicate science, I confess I don't know if I know of any. I simply take inspiration from other science popularizers."*

Ivan does not know of any manuals or courses for science journalists or science popularisers. He further stated that *"whenever I think of something that I want to create, I have to have some background behind it. Mostly I draw from scientific articles. I try to use Google Scholar the most, where I look up some scholarly publications and try to transcribe them into language that even a non-expert in the subject can understand. And based on that, I improve my skills and expertise."*

Šimon also responded that he does not know of any sources of expertise that can improve skill and proficiency in media content creation.

RQ2: What sources of expertise (digital platforms, databases, guides and courses) are used by social media creators and can help them improve their skills and expertise in interpreting scientific data and information?

Responses from respondents indicate that none of the respondents are aware of specific sources of expertise that can improve skills and proficiency in creating media content that contains scientific information and scientific data. Lucia takes inspiration from foreign accounts that communicate science. Ivan improves his skills and expertise by simplifying information from scholarly publications.

The third question focused on procedures for processing scientific information and data and ways of verifying the veracity and credibility of the information.

Lucia said that the idea is important and then it just depends on the specific topic. She further states that *"some of the pictures I was able to draw just off the top of my head, but that's really the exception. So most of the time I really have to go to the literature to search and verify, which takes quite a long time. Then I draw, create, improve and often simplify. I try to figure out what doesn't need to be in the picture, what's unnecessary, and I try to put those superfluous things away in the interest of simplification but I'm also careful not to lose that scientific precision there."* For some topics, such as those dealing with vaccinations, she collaborated with a geneticist to create media content. Feedback from the target audience is also important to her, among whom she has a base of people who are willing to review information and images. Based on their comments, she further edits them, improves them and finally publishes them.

Šimon starts by looking for a topic that interests him. Next, he searches for an issue that is related to that topic. He uses the *Google* browser to search for resources that sufficiently cover the topic. He further stated that *“I definitely check if the sources are credible. I then divide the information into two groups – information that I understand and information that I have yet to understand through other sources.”* Šimon also draws on news articles, but he verifies their credibility through the sources on which the author has drawn.

Ivan most often draws directly from articles that have been handled by a journalist. Ivan further adds *that “I rarely follow up on the original sources of a given piece of research. That is, if I know it is a credible author or journalist I try to take the idea and go a different way. I don’t want to exactly copy the information from the article, but I want to come up with some innovation to link it to something else, for example. In the vast majority of cases I draw from other popularizers, that is, science journalists.”* In some cases, Ivan draws information directly from videos. He verifies their credibility through the DOIs listed in the videos.

RQ3: What practices do social media creators apply when creating popularization media content?

All three respondents agreed that the first thing they do is to come up with a topic they want to report on. Lucia next searches for professional and relevant literature, which takes her the most time. She then devotes herself to the creative process of the actual writing of the article. After coming up with an idea for a topic, Šimon searches for relevant sources from which he then draws information. He then also begins the creative process of creating the images. This process is also similar for Ivan. We see the difference in the sources they draw from and the way they verify the credibility of the source and the information. Lucia draws mainly from primary research, i.e. primary data. When creating media content, she works with specialist literature or with an expert on the scientific topic. Šimon and Ivan also draw information from news articles. Šimon checks the credibility of news articles through sources that link to original research. Ivan relies on the credibility of the author of the news article. He is the only respondent who also draws information from videos or other popularizers of science. He verifies the credibility of the videos through the DOIs that are published in the videos.

5 Conclusion

The research focused on the analysis of popular *Instagram* accounts that share science-related content and aimed to determine the state of science popularisation on this platform. The study identified nine *Instagram* accounts grouped into different scientific disciplines and evaluated their content based on criteria such as ease of language and the goal of popularization. The accounts differed in the number of followers and posts published in 2022. Some accounts had a significant proportion of posts aimed at popularizing science, while others had fewer. The analysis also showed that images and carousel posts were the most popular content types for science popularization. In addition, the study found that natural sciences received the most attention among the accounts analyzed, likely due to their visual attraction and more intensive research activity in the field. The sources of information for the posts varied, with some users providing no information about their sources. The study highlighted the importance of citing sources to maintain credibility and combat scientific misinformation. We found out that there are very few *Instagram* accounts in Slovakia that are dedicated to popularising science. This may be due to the fact that the same skills and expertise are needed for a media creator as for a science journalist. Unlike science journalists, media creators should have more skills in creating graphics, editing audio or video.

The study did not address the effectiveness of science popularisation efforts or the accuracy of the information presented. Future research could explore these aspects and include a larger sample of *Instagram* accounts to provide a more comprehensive understanding of science popularization on this platform.

Based on the semi-structured interviews, we found that respondents did not know about any sources of expertise that could help them improve their professionalism and skills. Lucia, Ivan and Šimon recognise the importance of publishing validated and objective scientific information. They draw inspiration from other popularizers of science and use resources such as lay articles and scholarly publications. Their creative content creation process includes topic selection, research, simplifying complex information, and engaging audiences.

Low levels of scientific and media literacy and critical thinking are one of the reasons why media producers and science journalists are unable to find, process and interpret credible and relevant scientific data and information. For this reason, it is important for media makers who are involved in science popularisation to realise a common goal with science journalism, namely to help people understand science and its relevance to society.

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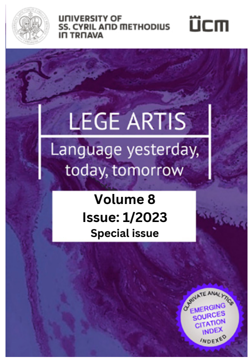

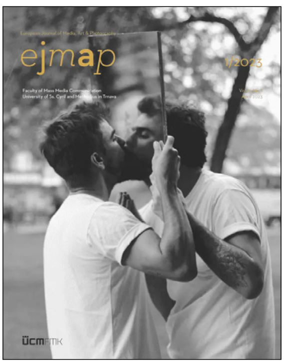

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