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FAKE NEWS: POSSIBILITY OF IDENTIFICATION IN POST-TRUTH MEDIA ECOLOGY SYSTEM

Abstract

The main aim of the article is identification of the attitudes towards the processes of identification and verification of fake news in the environment of digital media. The subject of the research refers to the users' attitudes towards fake news. As indicated by the research, the attitudes towards fake news are not unambiguous. About 2/3 of the respondents claim that they are not able to distinguish fake news from true information; only every twelfth respondent declares that they know tools for verification of information, although the research survey has been carried out among students of media management, journalism and marketing – students who deal with information in social media.

Key words: fake news, social media, information, trust

Information comes as basic good which affects social well-being. A modern society and a modern state – its administration, education, culture, national economy and armed forces – cannot function efficiently without a rationally developed field of information. The quality of the functioning of that system depends on a specific feature of information, that is namely: its reliability which makes it possible for us to evaluate accuracy, completeness, valence and trust towards information. Performing various roles in social processes, people are creators and recipients of information. Their activities are supported by bots (especially social bots) which

create, segregate and distribute media content, contributing to formation of the modern post-media environment.¹

A part of information conveyed in social media is fake news that is namely: distorted signals not correlated with the truth, which may mislead their recipients. Such information comes as an element of info-environment defined by the term of *post-truth*.² The Authors of the definition emphasize relations taking place between fake news and falsehood, propaganda and lies, however the emphasis is distributed unevenly. For example, Douglas writes about “deliberate publication of fictitious information, hoaxes, and propaganda”.³ Recognising the fact that the *fake news* term refers to a separate phenomenon, and its meaning stems from actual results of dissemination, it has been assumed – after Axel Gelfert – that it is reserved for the cases of purposeful design and presentation of (usually) false information or misleading statements.⁴

Fake news may appear as images (when an image is presented as real events, places or stories which are untrue or inaccurate), films (when presented facts, events, places or stories are untrue or inaccurate) and texts (when stories, citations or news are presented as facts, events or places which are untrue or inaccurate). Urgent news and pieces of information of very high propagation are the most difficult to be verified. Fake news are disseminated by a complex media ecosystem of Internet websites, social media and bots.⁵ The main sources of fake news, either human or bot, take advantage of the easy access and an easy way to establish social relations in social media.

In the cyberspace where social media become the main source of information, fake news introduce information noise which accompanies Internet users, who are lost in excessive information. Creation and distribution of fake news may be of institutional character (for example, as a part of a purposeful campaign) and of individual character. Participation in the process of disseminating fake news may be of intentional (including intentional participation in creation and distribution of fake news) or unintentional nature. In developed media systems, basic sources of information are social media and search engines which find answers to the questions posed by users and provide such answers in accordance with the accepted and corrected programs that segregate and present media content.

Considering its topics, fake news refers to each field of life, and it may bring about some significant threats especially in the political, economic and social fields. Fake news

¹ P. Celiński, *Postmedia. Cyfrowy kod i bazy danych*, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin 2013; E. Ferrara, O. Varol, C. Davis, F. Menczer, A. Flammini, *The Rise of Social Bots*, “Communications of the ACM” 2016, vol. 59(7), pp. 96–104; S. Woolley, *Automating Power: Social Bot Interference in Global Politics*, “First Monday” 2016, vol. 21(4).

² R. Keyes, *The Post-truth Era: Dishonesty and Deception in Contemporary Life*, St. Martin's Press, New York 2004.

³ K. Douglas, C.S. Ang, F. Deravi, *Farewell to Truth? Conspiracy Theories and Fake News on Social Media*, “The Psychologist” 2017, vol. 30(36), pp. 36–42.

⁴ A. Gelfert, *Fake News: A Definition*, “Informal Logic” 2018, vol. 38(1), pp. 84–117.

⁵ R. Hanna, A. Rohm, V.L. Crittenden, *We're All Connected: The Power of the Social Media Ecosystem*, “Business Horizons” 2011, vol. 54(3), pp. 265–273.

is an important factor in decision-making processes, it affects opinions about dominating beliefs. Its identification and verification has become one of the most significant challenges which modern broadcasters and recipients/users of media have to face.

The research on fake news is carried out in the following main fields:

- reliability of information in the context of high trust towards the Internet as the information environment, trust towards Google and other social platforms as sources of information, in comparison to traditional media;
- identification, tagging and elimination of fake news;
- responsibility assumed by new media organisations for dissemination of fake news – the search engine of Google, Facebook and Twitter platforms;
- creation and dissemination of fake news by social bots (which maintain contact with people).

Reliability comes as a specific feature of information which makes it more trustworthy, allows us to verify it and to evaluate its accuracy, completeness and value better. Reliability of information does not however determine its quality, although it comes as its consequence. Therefore, information can be reliable, however of low quality because of a shortfall of other quality attributes.

In the context of media, reliability is one of the most important factors of perceiving information, however it is difficult to find explicit and undisputed reliability, because it depends on receivers' perception, their competences and critical attitudes and even on their level of cynicism. Hence, the evaluation of reliability remains subjective. The research on reliability of information refers to the reliability of sources, content of information and medium.⁶

In the new media environment, where users formulate pieces of information and share them, the source of information is one of the most important criteria for the evaluation of information reliability. The relation between the reliability of information and its quality has been analysed in such a context.⁷ In the research on the reliability of news, the influence exerted by the revision of information on its reliability is analysed along with the influence exerted by such elements as a user's name, a number of followers, a type of links which direct to reliable sources, a number of retweets.⁸ Furthermore, the influence exerted by the quality of information and its usability on its reliability is also analysed.⁹

⁶ M. Metzger, *The Study of Media Effects in the Era of Internet Communication*, [in:] R.L. Nabi, M.B. Oliver (eds.), *The Sage Handbook of Media Processes and Effects*, Sage, Thousand Oaks, CA 2009, pp. 561–576.

⁷ D.K. Berlo, J.B. Lemert, R.J. Mertz, *Dimensions for Evaluating the Acceptability of Message Sources*, "Public Opinion Quarterly" 1969, vol. 33(4), pp. 563–565.

⁸ M.R. Morris, S. Counts, A. Roseway, A. Hoff, J. Schwarz, *Tweeting Is Believing? Understanding Microblog Credibility Perceptions*, [in:] *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work (CSCW2012)*, 2012, pp. 441–450.

⁹ S. Ha, J. Ahn, *Why Are You Sharing Others' Tweets? The Impact of Argument Quality and Source Credibility on Information Sharing Behaviour*, [in:] *Proceedings of the International Conference on Information Systems (ICIS 2011)*.

So far, the research also emphasizes the significance of the easiness that is needed to create an Internet news portal where fake news can be accessed, the convenience offered by the environment of social media for sharing fake news (mainly considering its viral potential) and the influence exerted by the polarisation of public opinions on fake news diffusion.¹⁰

Fighting fake news

Traditional mass media organisations (press, radio, television) solve the problem of fake news with the use of good journalist practice: through verification of presented information. In the post-media environment, however, the problem of fake news is related, first of all, to operations done by search engines and to the organisation of so called social media which have already become the main source of information, especially for younger recipients. Such operations refer not only to human activities involving creation and distribution of fake news, but also to activities of bots which create and distribute fake news.

Organisations which administrate platforms, so called social media and search engines, which come as a significant element of the modern media ecosystem of fake news, do not define themselves as media organisations. They define themselves as technological organisations and reject any social obligations that media organisations are usually burdened with. The identified mass increase in the presence of fake news on platforms and search engines in the years 2016–2017 suggests that a self-redefinition of social roles performed by social media organisations and search engines should be considered along with the involvement into disclosure and elimination of fake news. Facing threats which result from mass occurrence of fake news, the platforms of the leading social media (e.g. Facebook, Twitter) and search engines (especially Google) turn to their users for help in elimination of fake news.

Fake news identification and elimination: Current state of knowledge

Interdisciplinary research on fake news and factors contributing to their development, tagging and elimination has been carried out with particular intensity since 2016, following the crisis of trust towards information in the context of the political presidential elections in the USA and in France, and also in the context of the Ukrainian conflict.

Creation and distribution of fake news for various purposes have already become common and easily noticeable in the course of technological advancement,

¹⁰ A. Hunt, M. Gentzkow, *Social Media and Fake News in the 2016 Election*, "Journal of Economic Perspectives" 2017, vol. 31(2), pp. 211–236.

and they follow a definition of the media environment as a media ecosystem of the post-truth, where facts have less influence on the development of public opinion than the reference to emotions and personal beliefs. This is an environment where the term “lie” used to refer to some news disappears, and it is replaced with some less negative terms, such as erroneous presentation, selective presentation, information based on facts.

Media users, organisations related to traditional media and new media organisations, especially social media and search engines, participate in the process of identification, tagging and elimination of fake news. In the case of search engines, algorithmic solutions are applied. Research studies on the process of identification, tagging and elimination of fake news refer to human participation in the process and the use of bots in it. Research studies which refer to human participation in the discussed process are scarce. The involvement of social media users into detection of fake news has been analysed with the use of a special application for users that protects Facebook users against malicious content. Research studies which refers to the efficiency of fake news verification in the cyberspace by people indicate a generally approached, potential role of traditional media, such as press, in that process.¹¹ The potential of combining the automatic verification of fake news on Twitter with a possibility to report fake news by users has been analysed in the above-mentioned context.¹²

In research studies which are focused on the possibilities of fake news identification, the analysis referring to the operation of bots in social media takes an important place. The research is mainly focused on the efficiency of algorithmic identification, tagging and elimination of fake news. Furthermore, the research indicates the development of more and more sophisticated forms of social bots which emulate human behaviour in the Internet and consequently, they are difficult to detect and to eliminate. The tradition of research studies on algorithmic verification and operation of bots in propagation of fake news is very short. The current studies in this field indicate that, considering financial motivation of fake news creators, bots are rarely used in diffusion of false information. They are more frequently used in order to win political support.¹³

Research studies have been also concentrated on the demand for an automated system of fake news detection in the Internet.¹⁴ Such an algorithm of automated

¹¹ J.A. Lischka, *A Badge of Honor? How The New York Times Discredits President Trump's Fake News Accusations*, “Journalism Studies” 2017, pp. 1–18.

¹² S. Jain, V. Sharma, R. Kaushal, *Towards Automated Real-time Detection of Misinformation on Twitter*, [in:] *2016 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, IEEE, September 2016, pp. 2015–2020.

¹³ S. Kumar, R.A. Villa, K.M. Carley, *Identifying Bots that Spread Fake News*, 2017, online sources: http://sbp-brims.org/2017/proceedings/papers/challenge_papers/IdentifyingBots.pdf [entered: 21.10.2019].

¹⁴ C. Shao, G.L. Ciampaglia, A. Flammini, F. Menczer, *Hoaxy: A Platform for Tracking Online Misinformation*, [in:] *Proceedings of the 25th International Conference Companion on World Wide Web*, International World Wide Web Conferences Steering Committee, April 2016, pp. 745–750.

identification and verification of fake news with the use of a speech classifier for Twitter was developed in 2015.¹⁵ Research studies which refer to verification of fake news on Facebook have been focused on the possibilities of tagging (for example by adding flags to fake news). Such fake news flags could inform Facebook users that a particular piece of information might be untrue, and it should be verified with different sources. Research studies which refer to the participation of bots in verification of fake news have been focused mainly on Twitter which is also identified as information medium.¹⁶ The analysis has been concentrated on the reliability of bots, which – as creators and distributors of information on Twitter – are in some circumstances treated by users as a reliable source of information. In such a context, the operation of information bots has been analysed in various stages of media content creation: supervision, data analysis and article writing.¹⁷

Relations between users and patterns of their behaviour are analysed in order to detect bots which distribute fake news. In this field, research studies refer to machine learning, the use of honeypots that is: traps which are aimed at the detection of unauthorized attempts of using the system or acquiring data. The possibilities of using likes on Facebook and simultaneous use of various algorithms have been also analysed.¹⁸

In the research, it has been stated that a significant problem comes with distinguishing truth from falsehood, considering the extent to which fake news are able to emulate real news and the extent to which the world is able to take us by surprise with some truly unbelievable news. An important factor is the imitation of true news portals (e.g. CNN politics) by portals serving fake news and the use of journalistic formats and templates applied to present information, which are familiar to recipients.¹⁹

Research gap

Interdisciplinary research on fake news and factors contributing to their development, tagging and elimination has been carried out with particular intensity since 2016, following the crisis of trust towards information in the context of the

¹⁵ S. Vosoughi, *Automatic Detection and Verification of Rumors on Twitter* (Doctoral dissertation, Massachusetts Institute of Technology 2015).

¹⁶ C. Castillo, M. Mendoza, B. Poblete, *Information Credibility on Twitter*, [in:] *Proceedings of the 20th International Conference on World Wide Web*, ACM, March 2011, pp. 675–684.

¹⁷ T. Lokot, N. Diakopoulos, *News Bots: Automating News and Information Dissemination on Twitter*, “Digital Journalism” 2016, vol. 4(6), pp. 682–699.

¹⁸ Z. Chu, S. Gianvecchio, H. Wang, S. Jajodia, *Who Is Tweeting on Twitter: Human, Bot, or Cyborg?*, [in:] *Proceedings of the 26th Annual Computer Security Applications Conference*, 2010, pp. 21–30.

¹⁹ G. Pennycook, T.D. Cannon, D.G. Rand, *Prior Exposure Increases Perceived Accuracy of Fake News: Social Science Research Network*, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2958246 [entered: 6.02.2018].

political presidential elections in the USA and in France, and also in the context of the Ukrainian conflict.²⁰ Fake news have been analysed from the perspective of journalism, including citizen journalism and computer science.

Preliminary research indicates that there is a noticeable gap in expert literature which justifies the advisability of the intended research tasks. So far, the research on fake news has been focused, first of all, on its theoretical interpretation, identification of fake news with the use of algorithms and the possibilities of elimination of fake news. The main focus is on the efficiency of solutions which should contribute to the elimination of fake news, and to a lesser extent, on responsibility for the creation and distribution of fake news.

There have not been any research studies on attitudes towards the acceptance of fake news in the post-media environment. The factors which refer to the participation of users in detection and elimination of fake news were very rare and not much research has been given to the ways of fake news for users. Studies on how to distinguish fake news from real information are also rare.

The research problem

While analysing and recognising the attitudes of media users it is possible to verify fake news. Resulting from the above assumption, the basic research problem is to provide answer to the following research question: What are the attitudes of media users towards fake news?

In the course of the research process, the following research questions have been formulated:

- Is the identification and elimination of fake news a desired activity in the post-media environment and what factors affect it?
- Is it possible to identify and eliminate fake news in the post-media environment?

The research follows the tradition of Management Science which has been practiced as a discipline of economics and humanities, with its fundamental Weber assumptions of interdisciplinary and non-paradigm character, focused on human experience, improvement of life quality, with consideration of a broader, ethical, political and historical context.²¹

²⁰ I. Khaldarova, M. Pantti, *Fake News*, "Journalism Practice" 2016, vol. 10(7), pp. 891–901.

²¹ B. Czarniawska-Joerges, *Exploring Complex Organizations: A Cultural Perspective*, Sage, Thousand Oaks, CA 1992.

Results

In order to carry out the research on attitudes towards fake news, the quality research survey has been applied, in accordance with methodological recommendations. The research is focused on small groups of respondents, and it generally refers to the factors which are difficult to measure. The aim of the qualitative research is to explain and to understand motives of behaviour, to reach undisclosed motives of behaviour, to identify and to interpret beliefs and motivation.

For the requirements of the research, a group of some students of full-time MA courses at two Polish universities has been selected. The students study at the majors in journalism, media management, advertisement management and marketing. As users of social media, they form an untypical group, whose members are well acquainted with the new media ecosystem, they understand the significance of information given in media and the mechanisms of social impact exerted by information (information management).

The survey referring to verification of fake news has been carried out among 221 students of at the Jagiellonian University in Krakow (133 students) and at the University of Gdansk (88 students) in May – June of 2018. A questionnaire was formulated for the needs of the research.

96% of the students declare that the Internet is the main source of information; 3% of them indicate television, 1% of them indicate press. Among the Internet users, 94% acquire their information from social media and 91% of the students declare that they are familiar with the problem of fake news. 84% of the respondents believe that fake news comes as a serious problem in social media, 6% of them think that fake news is not a social problem in that media environment. 78% of the respondents believe that fake news has a short-term impact, 16% of them believe that fake news has a long-term impact. Answering the question about the consequences of fake news, 91% of respondents indicate (it has been possible to select each answer) that fake news contributes to a decrease in trust towards the contents presented in social media, 82% of them mention an increase in disinformation, 81% of the respondents state that it contributes to social division and conflicts, 53% of them indicate spreading aggression and 49% of the respondents believe that it contributes to propagation of unethical methods for development of media contents. 76% of the respondents have personally experienced fake news in social media; 93% of people who have been exposed to fake news declare that they have actually believed in that fake news. 66% of the respondents admit that they have consciously and unconsciously contributed at least once to the dissemination of fake news taken from social media. 68% of the respondents admit that they cannot distinguish fake news from real information in social media (only 7% of them claim that they can do it). Only 12% of the respondents declare that they regularly verify information they receive, 47% of them do it occasionally, and 38% of the respondents do not verify information at all.

Conclusion

The Internet is the main source of information for the most students, and social media form the main channel for the access to the information. For the most students in the surveyed group, who are full-time MA students at the majors related with creation and distribution of information (journalism, media management, advertisement and marketing), fake news comes as an important social problem, however, they believe that – generally – it has short-term influence. Fake news contributes, first of all, to a distortion in the picture of reality and to a decrease in trust towards the contents presented in social media.

Common awareness of the presence of fake news is not followed by equally common verification of fake news. Even in the group consisted of students who use social media, who seem to be best prepared to function in the environment of post-truth and who – because of their majors – are well familiar with mechanisms and logic of social media, only every eighth person verifies information. 38% of them do not verify information at all. Considering such circumstances, approximately 2/3 of the respondents admit that they are not able to distinguish fake news from true information.

The obtained results are not representative, and they make come as a starting point for further research, combining qualitative and quantitative methods. Considering the above-mentioned results, further research on the discussed problems should be focused on the attitude towards the “reliability” of information presented in social media, factors of fake news verification and responsibility for creation and diffusion of fake news.

Bibliography

- Berlo D.K., Lemert J.B., Mertz R.J., *Dimensions for Evaluating the Acceptability of Message Sources*, “Public Opinion Quarterly” 1969, vol. 33(4), pp. 563–565.
- Castillo C., Mendoza M., Poblete B., *Information Credibility on Twitter*, [in:] *Proceedings of the 20th International Conference on World Wide Web*, ACM, March 2011, pp. 675–684.
- Celiński P., *Postmedia. Cyfrowy kod i bazy danych*, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin 2013.
- Chu Z., Gianvecchio S., Wang H., Jajodia S., *Who Is Tweeting on Twitter: Human, Bot, or Cyborg?*, [in:] *Proceedings of the 26th Annual Computer Security Applications Conference*, 2010, pp. 21–30.
- Czarniawska-Joerges B., *Exploring Complex Organizations: A Cultural Perspective*, Sage, Thousand Oaks, CA 1992.
- Douglas K., Ang C.S., Deravi F., *Farewell to Truth? Conspiracy Theories and Fake News on Social Media*, “The Psychologist” 2017, vol. 30(36), pp. 36–42.
- Ferrara E., Varol O., Davis C., Menczer F., Flammini A., *The Rise of Social Bots*, “Communications of the ACM” 2016, vol. 59(7), pp. 96–104.
- Gelfert A., *Fake News: A Definition*, “Informal Logic” 2018, vol. 38(1), pp. 84–117.

- Ha S., Ahn J., *Why Are You Sharing Others' Tweets? The Impact of Argument Quality and Source Credibility on Information Sharing Behaviour*, [in:] *Proceedings of the International Conference on Information Systems (ICIS 2011)*.
- Hanna R., Rohm A., Crittenden V.L., *We're All Connected: The Power of the Social Media Ecosystem*, "Business Horizons" 2011, vol. 54(3), pp. 265–273.
- Hunt A., Gentzkow M., *Social Media and Fake News in the 2016 Election*, "Journal of Economic Perspectives" 2017, vol. 31(2), pp. 211–236.
- Jain S., Sharma V., Kaushal R., *Towards Automated Real-time Detection of Misinformation on Twitter*, [in:] *2016 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, September 2016, pp. 2015–2020.
- Keyes R., *The Post-truth Era: Dishonesty and Deception in Contemporary Life*, St. Martin's Press, New York 2004.
- Khaldarova I., Pantti M., *Fake News*, "Journalism Practice" 2016, vol. 10(7), pp. 891–901.
- Kumar S., Villa R.A., Carley K.M., *Identifying Bots that Spread Fake News*, 2017, online sources: http://sbp-brims.org/2017/proceedings/papers/challenge_papers/IdentifyingBots.pdf [entered: 21.10.2019].
- Lischka J.A., *A Badge of Honor? How The New York Times Discredits President Trump's Fake News Accusations*, "Journalism Studies" 2017, pp. 1–18.
- Lokot T., Diakopoulos N., *News Bots: Automating News and Information Dissemination on Twitter*, "Digital Journalism" 2016, vol. 4(6), pp. 682–699.
- Metzger M., *The Study of Media Effects in the Era of Internet Communication*, [in:] R.L. Nabi, M.B. Oliver (eds.), *The Sage Handbook of Media Processes and Effects*, Sage, Thousand Oaks, CA 2009, pp. 561–576.
- Morris M.R., Counts S., Roseway A., Hoff A., Schwarz J., *Tweeting Is Believing? Understanding Microblog Credibility Perceptions*, [in:] *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work (CSCW2012)*, 2012, pp. 441–450.
- Pennycook G., Cannon T.D., Rand D.G., *Prior Exposure Increases Perceived Accuracy of Fake News: Social Science Research Network*, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2958246 [entered: 6.02.2018].
- Shao C., Ciampaglia G.L., Flammini A., Menczer F., *Hoaxy: A Platform for Tracking Online Misinformation*, [in:] *Proceedings of the 25th International Conference Companion on World Wide Web*, International World Wide Web Conferences Steering Committee, April 2016, pp. 745–750.
- Vosoughi S., *Automatic Detection and Verification of Rumors on Twitter* (Doctoral dissertation, Massachusetts Institute of Technology 2015).
- Woolley S., *Automating Power: Social Bot Interference in Global Politics*, "First Monday" 2016, vol. 21(4).