DATA JOURNALISM IN THE CONTEXT OF IMPORTANT POLITICAL EVENTS: THE CASE OF SLOVAKIA

Norbert Vrabec :: Ján Proner

ABSTRACT *Data journalism is one way to provide readers with objective and relevant reports. The study is a content analysis of the use of data journalism by Slovak online news portals. The research sample consists of 11,267 articles published during February 2020, February 2019, June 2019 and November 2019. The aim was to use a quantitative research strategy to determine whether significant policy events have an impact on the higher frequency of data journalism components in domestic news. The results show that data journalism is an integral part of newsrooms. Despite this, the use of data faces several problems, especially in terms ofjournalists' lack of skills and experience in this area of journalism. This is also reflected in the limits of the use of data journalism in reporting on an influential agenda that has an impact on public and political life. Newsrooms do not respond adequately to the presence of a significant political and public agenda, which is mainly processed in the form of text articles, while more sophisticated components of data journalism are used only sporadically.*

KEYWORDS

DATA JOURNALISM, ONLINE NEWS PORTALS, PUBLIC AGENDA, POLITICAL NEWS

Authors' note
Norbert Vrabec :: University of Ss Cyril and Methodius in Trnava, Slovakia **::** norbert.vrabec@ucm.sk
Ján Proner :: University of Ss Cyril and Methodius in Trnava, Slovakia **::** jan.proner@ucm.sk

INTRODUCTION

Data journalism is part of a quantitatively oriented approach to journalistic practice (Coddington, 2015) and includes the inclination to dynamic and interactive forms of computational newsrooms in the digital age (Anderson, 2013). Data journalism is one of the ways to provide readers with authentic and relevant information. Newsrooms around the world are aware of the power of data in creating new stories. Online technology platforms and the Internet are fundamentally changing the way information is distributed. Data journalism is part of the current media ecosystem, including the tools and practices that emerge from the digital processing of information sources and structures (Bounegru, 2012). Data can act as an early warning tool; by analysing it, journalists can often identify problems before they cause some damage (Pacula, 2014). Through data analysis, new meanings and connections can be discovered, which provides a unique perspective into selected issues. The data open up new opportunities in journalism to highlight the context examined or to support their claims. Therefore, it is more important than ever to process this information correctly and to offer readers knowledge that is validated, factual and provides a quick understanding of the issue (Meyer, 2002).

Felle´s (2016) findings, based on qualitative interviews with 26 data journalists in 17 countries, suggest the emergence of digital data reporting as a key tool in accountability journalism. Data journalism is increasingly using digital data analytics tools and approaches to better inform and engage audiences on issues of the public interest. Although the skills and tools needed to apply data journalism differ from traditional news production, journalistic values and professional standards remain (Karlsen & Stavelin, 2014). We can even assume that they are reinforced by a more empirical data-based approach to information processing.

Thanks to data and digital platforms and their more or less complex processing, new opportunities for journalistic innovation are emerging. As journalists began to introduce technology, interactivity and connectivity into their reporting, they start creating innovative forms of news and interactive features that help the audience better understand the context of data and acquire new insights derived from it (Fink & Anderson 2015; Howard, 2014; Mair & Keeble 2014).

Gray (2012) states that with the advent of computers and the Internet, the work of a journalist has expanded. Using the data, the work of a journalist changes to highlighting the individual trends, changes, and the causes and explanation of what the information means. New theoretical frameworks and methodologies can provide insights into the differences and similarities of journalistic culture worldwide (Mellado et al., 2017). The work of journalists with data in the context of editorial work is determined not only by the availability of relevant technologies and the skills of their users but also by the socio-cultural context of media systems which have to face emerging unregulated technologies and the consequences of an increasingly globalised media environment (Rao, 2019).

The goal of this study is to collect a set of knowledge, results, and facts about data journalism practice in Slovak internet media, particularly in the context of the key political events (parliamentary and presidential elections). First, we attempt to describe the current condition of politically focused data journalism in Slovak online news portals while also analyzing the content employed as a distinct reporting style. Second, we compare the volume of data journalism stories during periods of significant political events (parliamentary and presidential elections) with periods when important political events do not occur. Finally, we compare the use of data journalism frameworks in online news and consider whether there are significant differences between the frequency of journalistic data processing and reporting on politically essential topics.

DATA JOURNALISM

Aspects and perspectives

The attempts to define data journalism are based on various aspects and perspectives. Therefore, the final and clear definition of data journalism has not been reached yet. There are several approaches to defining data journalism, yet each of them shares a common starting platform, which Ausserhofer et al. (2017, p. 5) describe as "the concentrated use of structured information in the making of news." In a related meta-analysis, a set of 40 scholarly papers published over the period 1996-2015 was selected. All these papers empirically address the issue of data journalism and its essential characteristics. Some theoretical approaches focus on the procedural aspects of the matter, i.e., that this type of journalism deals with the acquisition, analysis, evaluation and interpretation of quantitative data, which then mediate the audience in the form of various structured visualisations (Baack, 2013; Hullman et al., 2015). Other definitions focus on how data journalism is integrated into editorial work, how it affects the work of journalists and editorial teams, what skills and tools are needed to apply data journalism to inform better and to engage audiences (Bounegru, 2012; Felle; Karlsen & Stavelin, 2014; Uskali & Kuutti, 2015; 2016; Tandoc & Oh, 2015).

In 2017, the Google news lab and PolicyViz conducted a study that focused on the use of data journalism and its current state in news organisations (Rogers et al., 2017). One of the goals was to find out how the respondents define the term data journalism. The sample consisted of more than 900 editors-in-chief, editors, reporters, data experts and data designers. Many respondents referred to data journalism as to a professional practice focusing on data processing, debating what journalists can do with the data, what their formats are and how the data are structured and visualized in the context of media content. Others described data journalism as working with analysis, coding, and visualization, which are an important part of editorial work. In some answers, data journalism was compared to classical journalism. It turned out that the main feature that marks off data journalism from classical journalism is the fact that the primary source amounts to data. This framework is also proof that the concept of data journalism is still evolving and has not yet fully been defined in practice.

One of the basic definitions describes data journalism as a set of approaches, capabilities, and tools that use data in journalism (Ser, 2015). As journalists obtain information from interviews or documents, data journalists look for context, trends and patterns in the data.

The strength of data journalism lies in the fact that a journalist can produce stories that would be difficult or impossible to create in the classical way (Remington, 2012). Simon Rogers, the founder of *The Guardian Datablog*, sees data journalism as a journalistic expression that offers a wide range of uses in various forms: from visualisations to long-form articles. A vital element of these journalistic manifestations is that the information is based on numbers and statistics while the journalist seeks to create stories from the data (Rogers, 2013). One of the specifics of data journalism is the framework of its research, which is usually multidisciplinary and applies not only knowledge from statistics and IT, but also approaches and research strategies from humanities and social sciences (Appelgren & Nygren, 2012). Veglis and Bratsas (2017) proposed a definition framework for data journalism based on extracting and filtering information from various data sources, which are then processed through traditional journalistic procedures and the use of IT technologies, including their visualisation and online distribution.

In our research study, we define data journalism as a form of journalism that uses data, numbers, and statistics that can uncover and visualise new information horizons and stories. This comprehensive information is processed using a wide range of technological and software tools. It uses knowledge obtained from statistics and permits searching the data for patterns, structures and revealing various trends. Data journalism presents ways and methods that can collect, analyse and transform data into a visually more tangible perceptible form.

The context of data journalism practices

Media ecosystems' political, social, and economic conditions fundamentally influence journalistic practice and some widely shared professional norms and practices in different countries and regions (Hanitzsch et al., 2019). The practice of data journalism is currently widespread across all continents. Ausserhofer et al. (2017) investigated the academic literature published between 1996 and 2015 and selected a corpus of 40 academic papers on empirical research on data journalism and related practices that shape the discourse around the practices embraced by journalists and media organisations around the world. Even so, research is primarily focused on journalistic cultures, media markets and the political environment in the context of liberal and democratic media systems (Appelgren et al., 2019). Another problem is the lack of testing the existing data journalism theories through quantitative methods and larger samples (Ausserhofer et al., 2017). According to Zamith (2019), most research studies use case-study ethnographies and interviews with data journalists. Borges-Rey (2017) claims that a general epistemological framework of data journalism is based on specific norms and the rituals of the media professionals, and that it depends on specific structural and institutional conditions of the given media system. The context of the journalistic practices and performances can be aligned within

specific data journalism issues such as contextual accuracy, transparency, interactivity, diversity, and information provenance (Engebretsen et al., 2018; Young et al., 2018; Zamith, 2019). The Internet and digital data platforms are nowadays the most influential source of information from which the media audiences, as well as journalists, obtain knowledge about the world. Meanings are programmed and stored in computers as data. In linguistic and semiotic terms, they correlate with the physical and nonphysical world (Fedorov, 2019; Gálik & Gáliková Tolnaiová 2020). In this regard, data journalism has created numerous promises from both inside and outside media. Databases and algorithms are anticipated to improve openness in modern democracies by allowing journalists to dig deeper and more thoroughly into issues, reducing their reliance on official sources (Parasie, 2019).

Data journalism tools provide journalists with a wide range of options for working with data. They can present to their audience the results of polls of electoral preferences, their mutual comparison across different research agencies and time series, modelling scenarios of future coalitions of political parties, and analysis of their election programmes. A promising form of data processing is infographics concerning the past of individual politicians, an overview of scandals or corruption scandals in which they were involved, as well as other possibilities for creative and investigative journalistic work. In this context, data journalism is becoming a useful tool and at the same time a strategy for the control of public officials, which gives journalists and non-governmental organisations potent weapons to control the transparency of public policies and those interested in entering political life. "The networked and interactive nature of digital media allows its users a more active relationship with the news." (Vozab, 2019, p. 109) and data journalism also brings new opportunities in the field of civic participation. In this context, Kanižaj and Lechpammer (2019, p. 28) emphasise the "need for media literacy and the public's competence to recognize credible content from multiple sources". Data journalism has the potential to strengthen the ability of audience members to distinguish factual information from opinions, as well as to identify media texts with high content validity.

THE CURRENT STATE OF DATA JOURNALISM IN SLOVAKIA

Data journalism in Slovakia is a relatively new concept, however, in the past ten years, it has found a place in most daily newsrooms. In current academic research, only a few theoretical studies deal with this topic (Folentová & Kováč, 2016; Hacek, 2018, Hacek 2019; Vrabec, 2015) and there is no representative survey on the current state of data journalism in the Slovak media. From the available data, however, we can conclude that we do not consider the prevailing ways of working with data in Slovak newsrooms as data journalism in the true sense of the word. In most cases, it is the use of different types of infographics based on a descriptive visualisation of the available data. This means that graphically processed data only illustrate the meaning structure that the journalist created mainly on the basis of data from research agencies, or from data provided by governmental and non-governmental organisations, or other providers of publicly available statistics

(Vrabec, 2015). This means that journalists do not rely on the active search and processing of interesting data when creating media content but rather on the visualisation and subsequent description of and commenting on information. Data visualisation is mostly used to describe and explain election results and opinion polls. Instead of extensive texts with detailed results, news portals most often choose simple graphs or representations in maps or tables with exact data on who voted and how (Folentová & Kováč, 2016). In addition to the results of surveys of political party preferences and surveys of the popularity of politicians, the Slovak media regularly process data on economic trends, various aspects of lifestyle, and the objectivity of television news and media viewership (Hacek, 2018). However, these trends concerning the use of data that can be noticed in Slovak newsrooms are not unique and similar tendencies can be observed in the practice of data journalism in other countries. Static and dynamically generated visualisations can be included among the most frequented products of data journalists (Heravi & Lorenz, 2020). Surveys such as the one conducted by Knight (2015, p. 55) have shown that "data journalism is practised as much for its visual appeal as for its investigative qualities, and the overall impact, especially in the tabloid format is as much decorative as informative". Her analysis of the forms and formats of data journalism find that superficial data journalism is limited in scope and design. According to the study of the implementation of everyday data journalism in *The New York Times* and *The Washington Post* (Zamith, 2019), content is generally produced by small teams with a primary focus on institutional (primarily governmental or/and NGO) sources. These kinds of journalistic output are usually characterised by fairly complex data visualisation, but minimal original data collection and investigation of contextual factors related to these data.

METHODS

Research objectives

In this study, we respond to a more profound need to understand the research problem in question, and our goal was to obtain a set of knowledge, findings and facts about data journalism practice in the Slovak online media, especially in the context of significant political events (parliamentary and presidential elections). The aim of the paper is twofold. Firstly, we try to clarify the current state of politically focused data journalism in Slovak online news portals, while analysing the types of content used as a distinctive reporting style. Secondly, we are trying to compare the volume of data journalism stories during periods of significant political events (parliamentary and presidential elections) and during periods in which significant political events do not occur. The idea was thus to use content analysis to scrutinise whether there is a connection between the number of data journalism elements in different periods, which differ from each other by the intensity of representation of critical political topics in public and media discourse. Our research interest was to compare the use of data journalism frameworks in online news and to consider whether there are significant differences between the frequency of journalistic data processing and reporting on politically essential topics. We aim to answer two research questions:

N. Vrabec, J. Proner : DATA JOURNALISM IN THE CONTEXT OF IMPORTANT POLITICAL EVENTS ...

PRELIMINARY REPORT / DOI: 10.20901/ms.12.24.3 / SUBMITTED: 13.12.2020.

RQ1: How does an important political agenda affect the practice of data journalism in Slovak newsrooms?

RQ2: Is the frequency of using elements of data journalism increasing during the period of electoral political events?

We aim to test the following hypothesis:

H1: We assume that during the period of significant political events (presidential and parliamentary elections) the media publish articles with a significantly higher number of articles with elements of data journalism than during periods without significant political events.

Research strategy

We used quantitative content analysis to determine the number and frequency of manifestations of data journalism in online news portals. For quantitative content analysis, we used a coding book explicitly created for this research. The coding book contained a coding scheme with an overview of the variables, including a detailed description of their operationalisation. This document also included a coding manual setting out coding procedures and standards. The following variables were used in the coding book: the source where the article was published; the article's headline; the thematic focus of the article – politics, economics, traffic reports, weather and other types of domestic news; type of data visualisation (infographics, chart, table, animated infographic, other types of data visualisation). The first stage of coding was to sequence the media content into individual elements (coding units); in our case, all the articles related to domestic news from the six most visited online news portals. The coding was performed manually via two coders. The outputs of both coders were compared with each other. The basic measure for inter-coder reliability was a percentage agreement between coders, which reached 93%. Any discrepancies in the coding were then discussed by the research team. The coding units on which the coders disagreed were rechecked and, after mutual agreement, were subsequently consensually placed into a category.

The Research Sample

As a research sample, we chose media content (news articles published in the domestic news section) from six Slovakia's most visited news online portals - *Aktuality.sk*, *Sme.sk*, *Pravda.sk, Pluska.sk*, *HNonline.sk* and *Čas.sk*. We excluded the sports and finance/business sections from the study. If financial or business reports were included in the domestic news section, we also included them in our selection. We selected the portals based on statistics from the AIMmonitor. The AIMmonitor survey is an audited survey that was launched in Slovakia in 2007 and involved 40 media content providers operating 89 domains. The AIM monitor analyses the activity on web portals, concerning their traffic, number of impressions, number of real users, and time spent on web portals (Interactive Advertising Bureau Slovakia, 2016). In our research, we analysed a total of 11 267 articles that were published in February 2020, November 2019, June 2019 and February 2019. We chose the deliberate, purposeful selection of the research sample in order to be able to

compare periods during which critical political events occurred with periods during which this type of events did not happen. In February 2019, a presidential election campaign took place in the Slovak Republic. In February 2020, a pre-election campaign took place before the parliamentary elections. We chose the months of November 2019 and June 2019 because during these periods there were no significant political events in the Slovak Republic. The data were processed in Excel and IBM SPSS programmes. We used the T-Test for 2 Independent Means to test our hypothesis.

RESULTS

In formulating the hypotheses, we assumed that presidential and parliamentary elections have an impact on the increased frequency and quantity of media content focused on visualisation and analytical data processing. We mainly assumed that during these periods, the media published data-driven stories, various types of infographics, graphically processed data on surveys of voter preferences, economic programmes of individual candidates and similar types of media content. The main research question was how these emerging journalistic data processing practices affect the way media organisations cover political events.

As part of the research, we analysed the media content of domestic news on the six largest news portals in Slovakia. We found that during the period of presidential and parliamentary elections, the volume of news containing data journalism was greater than during periods without significant events affecting political events in the country. Of the total number of 11,267 articles that were published in February 2020, November 2019, June 2019 and February 2019, 481 articles contained data visualisations or other forms of data journalism.

During the period before the presidential election in 2019, out of the total number of 2 714 articles, only 138 articles contained elements of data journalism (4.85%). We recorded a similar share during the period before the parliamentary elections in 2020 when we identified only 135 texts that contained any form of data visualisation or other elements of data journalism (Table 1, Table 2).

Table 1. **Analysis of data journalism elements during the periods with major political events (presidential and parliamentary elections)**

Period	Articles with elements of data journalism (N)	Articles with elements of data journalism (%)	Articles without elements of data journalism (N)	Articles without elements of data journalism (%)
February 2020	135	4.79	2747	95.20
February 2019	138	4.85	2576	95.14
Mean	136.5	4.82	5323	95.17

Table 2. **Analysis of data journalism elements during the periods without major political events (presidential and parliamentary elections)**

Period	Articles with elements of data journalism (N)	Articles with elements of data journalism (%)	Articles without elements of data journalism (N)	Articles without elements of data journalism (%)
June 2019	113	3.82	2761	96.17
November 2019	95	3.41	2702	96.03
Mean	104	3.61	5463	96.10

During periods of significant political events, the largest share of data journalism was in the domestic news of the daily *HNonline* (10.10% share in the presidential election and 7.37% share before the parliamentary elections). This finding (Table 3, Table 4) is logical, as it is a newspaper that belongs to the group of serious media and its target group are readers with a higher level of education and socioeconomic status. At the same time, this daily is increasingly devoted to economic and political topics, with which it deals more analytically.

Table 3. **Articles with elements of data journalism**

	February 2020		February 2019		June 2019		November 2019	
	N	%	N	%	N	%	N	%
Aktuality.sk	21	5.36	24	4.71	15	3.11	23	5.54
Sme.sk	28	4.23	33	5.48	18	2.67	15	2.34
Pravda.sk	22	5.58	9	3.11	2	0.72	7	1.98
Plus.sk	7	2.44	4	1.82	4	1.56	6	2.35
HNOnline.sk	28	7.37	41	10.10	50	11.71	17	4.80
Cas.sk	29	3.78	27	3.93	24	3.18	27	3.47
Sum / Mean	135	4.79	138	4.85	113	3.82	95	3.41

Table 4. **Articles without elements of data journalism**

	February 2020		February 2019		June 2019		November 2019	
	N	%	N	%	N	%	N	%
Aktuality.sk	371	94.64	486	95.29	467	96.89	392	94.46
Sme.sk	634	95.77	569	94.52	656	97.33	626	97.36
Pravda.sk	372	94.42	280	96.89	277	99.28	347	98.02
Plus.sk	280	97.56	216	98.18	253	98.44	249	97.65
HNOnline.sk	352	92.63	365	89.90	377	88.29	337	92.20
Cas.sk	738	96.22	660	96.07	731	96.82	751	96.53
Sum / Mean	2747	95.20	2576	95.14	2761	96.17	2702	96.03

On the other hand, our analysis showed that the lowest representation of data journalism components was in the tabloid daily *Pluska* (1.82% in February 2019, 2.44% in February 2020). We assume that these results are due to the overall concept and structure of tabloid media content, which uses photographs more often instead of graphs and tables. Articles in the tabloid prefer to minimise text components and work more with captions and pixels that are more attractive to their target audience. The analytical data from the SME online portal was surprising. This media outlet belongs to the category of serious media and, in addition, specialises in political news and journalism. During the period before the presidential election, data journalism accounted for only 5.48% of the total content of daily domestic news. Before the parliamentary election, even this share was only 4.23%. According to the analysis of interviews with the editors of this newspaper, the probable reason for this situation is to be found in personnel limits – specifically, in the fact that the editors do not have enough necessary skills and experience to work with data. Furthermore, we identified this problem in other newsrooms. Despite the existence of suitable hardware and software equipment, the weakness of Slovak newsrooms is the lack of journalists who would be able to actively work with statistical data and use the possibilities available in digital data tools.

The results of statistical hypothesis testing showed that the number of articles with data journalism published during major political events are not significantly different from the number of articles published during the period without the presence of important political events. The result is not significant at p < .05 (t-value = 1.09316, p-value = .286148).

Table 5. **T-Test for 2 Independent Means**

Hypothesis testing results:
t-value: 1.09316
p-value: .286148
The result is not significant at p < .05

This result suggests that the potential of data journalism in newsrooms in Slovakia is not sufficiently used. This result of quantitative content analysis is surprising, as data journalism provides many new possibilities and opportunities to increase the quality and attractiveness of media content in informing about public affairs. The content analysis of articles published during critical political events shows that newsrooms prefer journalistic services working with text and using elements of scandalisation and infotainment. Journalistic content of this type is prevailingly based on the personal political preferences and opinions of the authors than on data-based stories.

Because the media are the most essential source of knowledge of politics and current events (Mitchell et al. 2016; Shehata & Strömbäck, 2014), media coverage of politics and society, as well as how closely people follow the news, are intrinsically tied to democracy's quality and character. From a democratic standpoint, the most important

task of journalism is to supply citizens with the information they require (Kovach & Rosenstiel, 2014; Strömbäck, 2005). Data-driven journalistic approaches further develop how news coverage can add to a democratic vote-based system, mainly when relevant stakeholders deliver pertinent data sets. Appropriate data processing and visualisation might help journalists set the political agenda by presenting and disclosing public issues and strengthening citizens' political participation (Parasie & Dagiral, 2013). Raw data and information come from various sources, including official data producers, governments, statistical bodies, agenda setters and stakeholders. Subsequently, journalists collect and understand it, put it in context, improve its quality, and frame it by using appropriate technological tools. This user-centred and value-sensitive approach is essential because it means that the value of information is perceived and driven by the shared needs of users in the social, cultural and political context (Diakopoulos, 2012). The results of our research show that the Slovak newsrooms do not sufficiently use this potential of data journalism. Even during the election period, they rely mainly on official data from election polls and polls that determine the popularity of individual politicians among voters. From the formal point of view, the editors mainly use static and dynamic visualisations of available data and actively search for the original data collection and investigate contextual factors related to this data only to a minimal extent.

CONCLUSION

From the analysis of data, we found that data journalism is currently an integral part of Slovak online newsrooms. Infographics and data visualisations in particular have the potential to clearly and intelligibly transform data into an understandable form that provides added value for the reader. However, there are not many journalists who devote themselves entirely to data journalism in Slovak newsrooms. Data projects require specific skills and, in particular, more time, which editors often lack. We can state that it is time-consuming not only to look for stories in the data but also to come up with a system for choosing the right information. The skills of journalists are also related to this. Working with data, their understanding, analysis, but also their visualisation requires above-standard knowledge and abilities. Access to open data and the involvement of activists are crucial factors for the development of data journalism in many countries (Appelgren & Nygren, 2014). The printed word and data develop discursive, abstract thinking, unify the flow of time, and in the context of the collective mentality, promote cognition and critical thinking (Gálik, 2020). According to Kačinová (2020), the development of the ability to differentiate information according to quality becomes an essential part of the models of the journalistic alphabet. Based on the results of our research, we assume that one of the reasons for the low use of data journalism in politically oriented journalism is mainly insufficient data skills and lack of experience of journalists with statistics. Newsrooms do not respond adequately to the presence of an influential political and public agenda, which is mostly processed in the form of text articles, while more sophisticated components of data journalism are used only sporadically. Beckett (2019) emphasises the role of collaboration between newsrooms that could also involve technology companies, academia, and civil society organisations. In this context, it is essential to work on the

continuous improvement of the qualifications and skills of journalists, who should have the opportunity to undergo lifelong learning in the field of data platforms and statistical data processing. Significant challenges also face universities, which provide training for future media professionals and should include data journalism and statistics as an integral part of their curricula.

References

>Anderson, C.W. (2013). Towards a sociology of computational and algorithmic journalism. *New Media & Society*, *15*(7), 1005–1021. https://doi.org/10.1177/1461444812465137

>Appelgren, E., & Nygren, G. (2012). Data journalism in Sweden – opportunities and challenges: A case study of Brottspejl at Sveriges Television (SVT). In C. Mills, M. Pidd, & E. Ward (Eds.), *Proceedings of the Digital Humanities Congress 2012*. HRI Online Publications. https://www.dhi.ac.uk/openbook/chapter/dhc2012-appelgren

>Appelgren, E., & Nygren, G. (2014). Data Journalism in Sweden. *Digital Journalism, 2*(3), 394–405. https://doi.org/10.1080/21670811.2014.884344

>Appelgren, E., Lindén, C.G., & van Dalen, A. (2019). Data Journalism Research: Studying a Maturing Field across Journalistic Cultures, Media Markets and Political Environments. *Digital Journalism, 7*(9), 1191–1199. https://doi.org/10.1080/21670811.2019.1685899

>Ausserhofer, J., Gutounig, R., Oppermann, M., Matiasek, S., & Goldgruber, E. (2017). The Datafication of Data Journalism Scholarship: Focal Points, Methods and Research Propositions for the Investigation of Data-intensive Newswork. *Journalism, 21*(7), 950–973. https://doi.org/10.1177/1464884917700667

>Baack, S. (2013). A new style of news reporting: Wikileaks and data-driven journalism. In B. Rambatan, & J. Johanssen (Eds.), *Cyborg Subjects: Discourses on Digital Culture* (pp.113–122). Create Space Independent Publishing.

>Beckett, C. (2019). *New powers, new responsibilities. A global survey of journalism and artificial intelligence*. London School of Economics and Political Science.

>Borges-Rey, E. (2017). Towards an Epistemology of Data Journalism in the Devolved Nations of the United Kingdom: Changes and Continuities in Materiality, Performativity and Reflexivity. *Journalism, 21*(7), 915–932. https://doi.org/10.1177/1464884917693864

>Bounegru, L. (2012). Data journalism in perspective. In J. Gray, L. Bounegru, & L. Chambers (Eds.), *The data journalism handbook: How journalists can use data to improve the news* (pp. 17–22). O'Reilly.

>Coddington, M. (2015). Clarifying Journalism's Quantitative Turn. *Digital Journalism*, *3* (3): 331–348. https://doi.org/10.1080/21670811.2014.976400

>Diakopoulos, N. (2012). *Cultivating the landscape of innovation in computational journalism*. CUNY Graduate School of Journalism & Tow-Knight Center for Entrepreneurial Journalism.

>Engebretsen, M., Kennedy, H., & Weber, W. (2018). Data Visualization in Scandinavian Newsrooms: Emerging Trends in Journalistic Visualisation Practices. *Nordicom Review, 39*(2), 3–18. https://doi.org/10.2478/nor-2018-0007

>Fedorov, A. (2019). Schools and Universities in Audiovisual Media: Experts' Opinions. *Communication Today, 10*(1), 110-122.

>Felle, T. (2016). Digital watchdogs? Data reporting and the news media's traditional 'fourth estate' function. *Journalism*, *17*(1), 85–96. https://doi.org/10.1177/1464884915593246

>Fink, K., & Anderson, C.W. (2015). Data Journalism in the United States. *Journalism Studies, 16*(4), 467–481. https://doi.org/10.1080/1461670X.2014.939852

>Folentová, V., & Kováč, P. (2016). Novinári sa nechávajú kontrolovať, zdieľajú dáta. In M.Bočák, L. Regrutová, & J. Rusnák (Eds.), *Médiá a text 5* (pp.72-75). Prešovská univerzita v Prešove.

>Gálik, S. (2020). Philosophical Reflection of the Influence of Digital Media on Current Education. *Media Education (Mediaobrazovanie), 60*(1), 100–106.

N. Vrabec, J. Proner : DATA JOURNALISM IN THE CONTEXT OF IMPORTANT POLITICAL EVENTS ...

PRELIMINARY REPORT / DOI: 10.20901/ms.12.24.3 / SUBMITTED: 13.12.2020.

>Gálik, S., & Gáliková Tolnaiová, S. (2020). Cyberspace as a New Existential Dimension of Man. In E. Abu-Taieh, A.El Mouatasim & I. Al Hadid, (Eds.), *Cyberspace* (pp.13–25). IntechOpen.
>Gray, J. (2012). *The Data Journalism Handbook.* O'Reilly Media.
>Hacek, J. (2018). Čo potrebujú novinári vedieť, ak píšu o prieskumoch verejnej mienky. *Otázky žurnalistiky, 61*(3-4), 140–149.
>Hacek, J. (2019). Vznik a vývoj otvorených zdrojov pre novinárov na Slovensku. *Otázky žurnalistiky, 62*(3-4), 47–57.
>Hanitzsch, T., Folker H., Ramaprasad, J., & de Beer, A.S. (Eds.). (2019). *Worlds of Journalism: Journalistic Cultures around the Globe.* Columbia University Press.
>Heravi, B. & Lorenz, M. (2020). Data Journalism Practices Globally: Skills, Education, Opportunities, and Values. *Journalism and Media, 1*(1), 23–40. https://doi.org/10.3390/journalmedia1010003
>Howard, A. B. (2014). *The Art and Science of Data-Driven Journalism.* Tow Center for Digital Journalism.
>Hullman J, Diakopoulos N, Momeni E, & Adar, E. (2015). Content, context, and critique: Commenting on a data visualization blog. In D. Cosley, A.Forte, L. Ciolfi, & D. McDonald (Eds.), *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing* (pp. 1170–1175). The Association for Computing Machinery. https://doi.org/10.1145/2675133.2675207
>Interactive Advertising Bureau Slovakia. (2016, June 30). *Výskum internetovej návštevnosti AIMmonitor pokrýva 95% slovenských online užívateľov* [Press release]. Retrieved 23/07/2020, from https://www.iabslovakia.sk/tlacove-centrum/vyskum-internetovej-navstevnosti-aimmonitor-pokryva-95-slovenskych-online-uzivatelov/
>Kačinová, V. (2020). The Topic of Media-Disseminated Mis-Information and Dis-Information as an Integral Part of General Education in Slovakia. *Media Literacy and Academic Research, 3*(1), 18 –31.
>Kanižaj, I., & Lechpammer, S. (2019). The Role of Organisations of Journalists in Promoting Media Literacy – Building Credibility and Trust. *Media Literacy and Academic Research, 2*(1), 24–37.
>Karlsen, J., & Stavelin, E. (2014). Computational journalism in Norwegian newsrooms. *Journalism Practice, 8*(1), 34–48. https://doi.org/10.1080/17512786.2013.813190
>Kovach, B., & Rosenstiel, T. (2014). *The Elements of Journalism: What News People Should Know and the Public Should Expect.* Three Rivers Press.
>Knight, M. (2015). Data Journalism in the UK: A Preliminary Analysis of Form and Content. *Journal of Media Practice, 16*(1), 55–72. https://doi.org/10.1080/14682753.2015.1015801
>Mair, J., & Keeble, R.L. (2014). *Data Journalism: Mapping the future.* Abramis Academic Publishing.
>Mellado, C., Hellmueller, L., Márquez-Ramírez, M., Humanes, M.L., Sparks, C., Stepinska, A., Pasti, S., Schielicke, A.M., Tandoc, E., & Wang, H. (2017). The Hybridization of Journalistic Cultures: A Comparative Study of Journalistic Role Performance. *Journal of Communication*, *67*(6), 944–967. https://doi.org/10.1111/jcom.12339
>Meyer, P. (2002). *Precision Journalism: A Reporter's Introduction to Social Science Method.* Rowman & Littlefield.
>Mitchell, A., Gottfried, J.A., Barthel, M., & Shearer, E. (2016). *The Modern News Consumer.* Pew Research Center.
>Parasie, S., & Darigal, E. (2013). Data-driven journalism and the public good: "Computer-assisted-reporters" and "programmer-journalists" in Chicago. *New Media & Society, 15*(6), 853–871. https://doi.org/10.1177/1461444812463345
>Parasie, S. (2019). Data journalism and the promise of transparency. In H. Tumber, & S. Waisbord (Eds.), *The Routledge Companion to Media and Scandal* (pp.263–272). Routledge.
>Rao, S. (2019). Nation-State and Journalism. In H. Ornebring, & H. Wasserman (Eds.), *Oxford Research Encyclopedia of Journalism Studies* (pp. 1–19). Oxford University Press.
>Remington, A. (2012). *Social Science Done on Deadline": Research Chat with ASU's Steve Doig on Data Journalism.* Shorenstein Center on Media, Politics and Public Policy, Harvard University's Kennedy School of Government.
>Rogers, S. (2013). *Facts are Sacred.* Faber & Faber.

>Rogers, S., Schwabish, J., & Bowres, D. (2017). *Data Journalism in 2017: Current State and Challanges Facing the Field Today.* Google News Lab.
>Ser, K. K. K. (2015). *Best Practice for Data Journalism.* Media Development Investment Fund.
>Shehata, A., & Strömbäck, J. (2014). Mediation of Political Realities: Media as Crucial Sources of Information. In F. Esser & J. Strömbäck (Eds.), *Mediatization of Politics. Understanding the Transformation of Western Democracies* (pp. 93–113). Palgrave Macmillan.
>Strömbäck, J. (2005). In Search of a Standard. Four Models of Democracy and their Normative Implications for Journalism. *Journalism Studies, 6*(3), 331–345. https://doi.org/10.1080/14616700500131950
>Tandoc Jr. E.C., & Oh, S.K. (2015). Small departures, big continuities? Norms, values, and routines in The Guardian's big data journalism. *Journalism Studies*. *18*(8), 997-1015. https://doi.org/10.1080/1461670X.2015.1104260
>Uskali, T., & Kuutti, H. (2015). Models and streams of data journalism. *The Journal of Media Innovations, 2*(1), 77–88. https://doi.org/10.5617/jmi.v2i1.882
>Veglis, A., & Bratsas, C. (2017). Reporters in the age of Data Journalism: The case of Greece. *Journal of Applied Journalism & Media Studies, 6*(2), 225–244. https://doi.org/10.4018/978-1-5225-2255-3.ch103
>Vozab, D. (2019). Generational Patterns of Digital News Consumption: from Traditionalists to Millennial Minimalists. *Medijske Studije / Media Studies 10*(20), 107–126. https://doi.org/10.20901/ms.10.20.6
>Vrabec, N. (2015). Data journalism as a tool to increase media literacy among media professionals. In J.Matúš, & D.Petranová (Eds.), *Marketing Identity : Digital Life - part II. : Conference Proceedings from International Scientific Conference* (pp. 544-552). University of Ss. Cyril and Methodius in Trnava.
>Young, M. L., Hermida, A., & Fulda, J. (2018). What Makes for Great Data Journalism? *Journalism Practice, 12*(1), 115–135. https://doi.org/10.1080/17512786.2016.1270171
>Zamith, R. (2019). Transparency, Interactivity, Diversity, and Information Provenance in Everyday Data Journalism. *Digital Journalism, 7*(4), 470–489. https://doi.org/10.1080/21670811.2018.1554409

PODATKOVNO NOVINARSTVO U KONTEKSTU VAŽNIH POLITIČKIH DOGAĐAJA: SLUČAJ SLOVAČKE

Norbert Vrabec :: Ján Proner

SAŽETAK *Podatkovno novinarstvo je jedan od načina pružanja objektivnih i relevantnih izvještaja čitateljima. Studija uključuje analizu sadržaja upotrebe podatkovnog novinarstva na slovačkim online news portalima. Uzorak koji je analiziran sastoji se od 11,267 članaka objavljenih tijekom veljače 2020., veljače 2019., lipnja 2019. i studenog 2019. godine. Cilj je bio koristeći kvantitativnu istraživačku strategiju utvrditi imaju li značajni politički događaji utjecaj na povećanu upotrebu komponenti podatkovnog novinarstva u domaćim vijestima. Rezultati pokazuju kako je podatkovno novinarstvo integralni dio redakcija. Unatoč tome, upotreba podataka nailazi i na nekoliko problema, posebice u smislu nedostatka vještina i iskustva samih novinara u ovom području novinarstva. To je vidljivo u ograničenoj upotrebi podatkovnog novinarstva u izvještavanju o važnim temama koje imaju utjecaj na javni i politički život. Redakcije ne odgovaraju adekvatno na značajne političke i javne teme koje se uglavnom obrađuju kroz tekstualne članke, dok se profinjenije komponente podatkovnog novinarstva koriste tek sporadično.*

KLJUČNE RIJEČI

PODATKOVNO NOVINARSTVO, *ONLINE* PORTALI VIJESTI, JAVNA AGENDA, POLITIČKE VIJESTI

Bilješka o autorima

Norbert Vrabec :: Sveučilište Sv. Ćirila i Metoda u Trnavi, Slovačka **::** norbert.vrabec@ucm.sk
Ján Proner :: Sveučilište Sv. Ćirila i Metoda u Trnavi, Slovačka **::** jan.proner@ucm.sk