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Risk assessment

FLOOD DISASTERS IN MONTENEGRO AND AROUND THE WORLD: DISCOURSE ANALYSIS OF MEDIA REPORTING IN ENGLISH AND LANGUAGES IN USE IN MONTENEGRO

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Abstract. The article aims at presenting the results of the analysis of changes in the public discourse reporting about floods by media and their attitude towards natural disasters. The authors used the methods of critical and semantic-pragmatic and statistical quantitative and qualitative analysis, as well as the analysis of lexical cohesion and the use of the forms of deontic modality to research the change of the media language over the last two decades (2000–2022), in terms of sentences length, strong adverbial and adjectival emphatic forms used in public discourse by English speaking media and the media in Balkans reporting about floods at global level and in Montenegro.

Keywords: public discourse, floods, media, semantic-pragmatic and statistical analysis.

AIMS AND BACKGROUND

This paper aims at illuminating the connection between the language of media and natural disasters, in both language systems, since floods and soil erosion have been esteemed as the most dangerous and devastating processes of land degradation which significantly influences the quality of living of all around the world[1–5]. Special attention was paid to the difference in sentence length and the use of the deontic modality within the researched time range, as well as the emphatic use of adjectives and adverbs, to show the levels of (none) tentativeness, including possible differences in the usage of deontic modality. Therefore, the results could confirm the states of the authors who claim that media language belongs to the type of organised persuasive and strategic communication[6] which is formed to

* For correspondence.

frighten, convince and influence public opinion[7]. The hypotheses with which we started the research are:

H1 – the average sentence length is shorter in contemporary newspaper articles;

H2 – the frequency of the use of emphatic adjectival phrases in contemporary articles has increased;

H3 – the frequency of the use of emphatic adverbial phrases in contemporary articles has increased in the contemporary articles;

H4 – the frequency of the use of strong deontic verbs in contemporary articles has increased in the contemporary articles

Ecological catastrophes and how they are presented in the media come into the focus of academic research in the late 20th and early 21st centuries, as noticed by, Reis, Matted and Barrios[7]. The authors (ibid) agree that the media play '*a critical role in communicating and understanding disasters*'[6,7], particularly highlighting the articles and books published at the beginning of the 21st century which deal with discourse analysis and media[8–10], as well as those focused on contemporary perspectives in media language[11,12]. Thus, J. Brian Houston with his research team[13] point out the immeasurable potential of social media to facilitate communication in a disaster and refer to authors who deal more deeply with this issue[13–15]. Houston and the authors predominantly emphasise the allegations of those authors[16,17], who understand the social media as a more direct form of communication with a clear goal to get out of the crisis as soon as possible. However, our work was particularly influenced by an article by Tim Wharton[17] who has highlighted correlations between lexical acquisition and comprehension of the text using the ideas of the Associationism Theory of Mind and Natural Pragmatics, as well as a new approach offered by Rothkrantz and Fitrianie[18] and their methods of measuring relationships between public awareness and education for flooding disasters, and Massive Open Online Course (MOOC) research. The results and conclusions of the accomplished researches were compared with those obtained by the authors Rothkrantz, Lefetr et al.[19], who pointed out the possibility of predicting the influence of speech and gestures on the media consumers.

EXPERIMENTAL

Methods. The qualitative method we used was aimed to classify and enumerate specific features of texts in domains of media discourse, to offer their complete and detailed description with an understanding of the deeper dimensions. The research was done to take into account the contextualisation, as well as the assumptions of possible interpretations of the researched texts. The survey has been conducted by statistical analysis to define the change in the length of the sentence

in ten years and the frequency of emphatic forms in them. The obtained data were observed following the previously set parameters, and we discussed the obtained results.

The corpus of this research comprises 112 articles published online, on the portals of CNN, BBC, Washingtonpost.com, The New York Times, Vreme, Vijesti, Novosti and CDM in the years 2012, 2014, 2016, 2018 and 2020, with texts, both in English and languages in use in Montenegro (according to the Constitution of Montenegro: Montenegrin-Serbian-Bosnian-Croatian, MSBC language). When selecting the corpus, we took into account that the number of articles and lexical items published during both study periods was uniform and that the chosen texts concern the attitude of media towards the floods. Therefore, we processed fifty-six articles in English and the same number of articles in MSBC languages comprising 95 787 words. The research of lexical cohesion included the qualitative analysis of repetition of the strong adverbial and adjectival phrases used by the authors to influence the formation of readers' attitudes towards the situation. In addition to the analysis of lexeme repetition and its forms, we conducted an analysis comprising the comparison and change of frequency of using strong deontic modality forms in the researched period.

The research process was conducted in three stages in January 2020, January 2021, and January 2022. The questionnaire included 20 questions divided into three groups. The first group of questions was related to basic data on respondents, while the second group of questions referred to the respondents' attitudes about the frequency of reading, the category of articles they read most often, how much the title affects to stay on a particular article, whether they read whole articles or only the title and the first paragraph, and how they are affected by numbers and statistics in general, especially when found in the initial position of the title/paragraph. Respondents were asked questions to determine their views on the media's influence on their using the Likert scale, and question and answers graded from 1 'strongly disagree' to 5 'strongly agree'.

The obtained results were processed in the program IBM SPSS Statistics-version 26, in which descriptive statistics and Pearson's correlation coefficient were made. A limiting factor in this paper is the lack of statistics from some previous MSBC-speaking surveys, which would help us make an additional correlation with this research.

The research comprised 39 respondents from English and 42 respondents from Western Balkan speaking area, i.e. a total of 81 respondents. When it comes to the gender of the respondents, 20 male and 19 female respondents from the English-speaking area were included, while the percentage ratio between the respondents in relation to the gender parameter among MSBC readers is the same (50–50%). In relation to age, the largest number of respondents is aged 31–40 (29 respondents, or 35.8% of the total number of interviewed), and the smallest num-

Table 1. Sample structure by gender, age and level of education

Gender	EN respondents	MSBC respondents	Percentage, EN (%)	Percentage, MSBC (%)
Male	20	21	51.28	50
Female	19	21	48.72	50
Age	EN respondents	MSBC respondents	Percentage, EN (%)	Percentage, MSBC (%)
21–30	9	7	23.07	16.66
31–40	16	13	41.25	30.95
41–50	7	15	17.94	35.71
51–60	3	5	7.69	11.9
60 and more	4	2	10.25	4.76
Level of education	EN respondents	MSBC respondents	Percentage, EN (%)	Percentage, MSBC (%)
Elementary school	2	3	5.12	7.14
High school	12	15	30.76	35.71
College	14	10	35.89	23.8
Faculty	8	11	20.51	26.19
MA degree	2	2	5.12	4.76
PhD degree	1	1	2.54	2.38

Source: research of the authors

ber are respondents older than 60 (6, or 7.4%). Sample structure by gender, age and level of education is presented in Table 1.

RESULTS AND DISCUSSION

The research was focused on: (1) Media reporting before the floods; (2) Media reporting during the floods; (3) The untold stories; (4) Misreporting; (5) Media as partners in emergencies. However, using the focus groups: (a) students and young researchers; (b) researchers from the field of Ecological engineering and disaster risk management; (c) specialists on Media Management, we established the lists and recommendations concerning the Media reporting prior and during the floods; The untold stories and Misreporting.

Respondents were asked, '*Do you think that an interesting title is a condition for reading the text?*' The largest number of respondents answered affirmatively (66.9% of respondents), most of whom were women, while almost a third of respondents believe that the title is not the most relevant or do not have an opinion on it. The question '*Do emphatic forms trigger feelings of fear and anxiety?*' was mostly opposed in terms of answers. More than half of male respondents (54.7%) answered that they do not pay attention to the way something is communicated, while the majority of female examinees (88.6%) pointed out that these forms are the ones that trigger a certain emotion in them. Only 21% of respondents from the MSBC speaking area expressed a willingness to act in case of an environmen-

tal disaster, alerted through the media, while as many as 35.8% of respondents neither think nor need to react. The situation is significantly different for English-speaking readers. A very large percentage (75.8%) said they would be very happy to take some kind of action or activism to help the community.

A very high percentage of the younger population said that it was very important to him/her that the text he/she opened be as concise as possible, i.e. that the indication of the minutes needed to read will de/motivate them to read it. The results of the research indicate a highly statistically significant relationship ($p = 0.035$) between the variable 'age of respondents' and 'frequency of reading articles on major disasters' with the value of Pearson's coefficient of 0.128, which indicates a slight negative relationship between them, in terms that older respondents are less likely to decide to read an article about the great catastrophe to the end. There has, also, been identified a significant correlation between the parameter 'level of education' and 'frequency of reading articles on major disasters' where it was found that these older respondents in, most cases, were those of lower level of education. These results coincide with those obtained by Killing[23]. Pearson's coefficient (0.552) determined between the 'influences' of affective forms on the impression left by the article' and the parameter 'gender' indicates a strong correlation between female readers and the influence of affective expressions on them. This connection was not dependent on the mother tongue of the examinees, and women proved to be much more sensitive than men, especially those female readers having a higher level of education.

These results correspond to those obtained by the extensive research published by Holmes and the authors[20–22]. The results regarding the correlations between 'age of respondents' and the information on how much time is needed to read an article show that the notification is especially important to younger generations, which has already been confirmed by Kling's findings[23]. When asked whether the length of the text influences the choice to read it, 82% of MSBC speakers answered that it was getting more and more important, which indicates that globalization and increasing use of the Internet has led to the equalization of readers' habits regardless the mother tongue of the reader[21].

The qualitative part of the research addressed the key issue of this paper, which is whether the title, subtitle, and structure of the article can affect the reader and which language elements would a respondent single out as the most influential ones.

The answers we received to the first question were that the readers are, mainly, attracted by the title, number of victims and the shortage of the article, only then they read the subtitle first paragraph and conclusion. Also, if they notice a tag indicating the reading the article will not be time consuming, they will, more likely, read it. The possible emotional reaction is said to be very important and identified as a trigger to help to the endangered.

The results in relation to the average sentence length; change of the usage of strong adverbial forms, strong adjectival forms and strong deontic modal forms have been presented in Figs 1, 2 and 3.

To have a clearer view of the results, we divided the period during which we researched five phases during which we recorded the characteristics of the media language that are in focus. Therefore, we observed both strong adverbial, adjective and forms of deontic modality as a percentage, concerning the total number identified in articles.

Figure 1 indicates a tendency to shorten the average sentence length in both language systems, noting that, when it comes to English, the change is signifi-

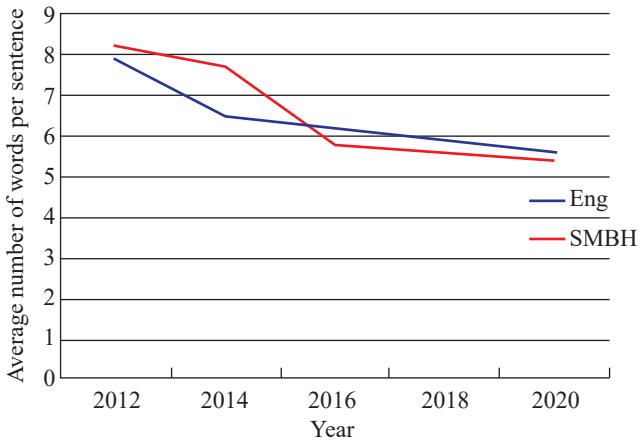

Fig. 1. Average sentence length in the articles in both languages

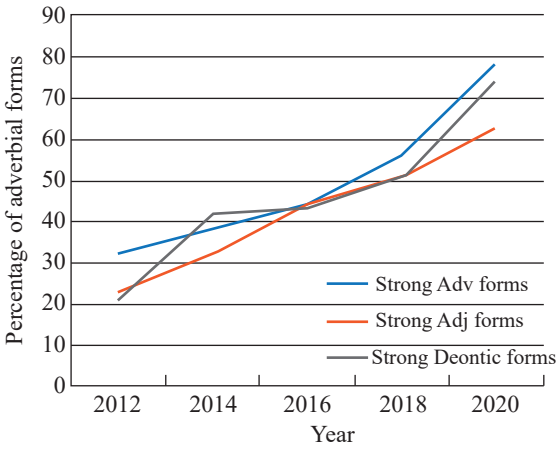

Fig. 2. Change of the usage of strong adverbial forms, strong adjectival forms and strong deontic modal forms: English media

cantly gradual, while in MSBC the change occurs in the period 2014-2016 so that during the last studied phases stabilised again.

The results of research concerning the media that publish articles in English indicate gradual increased use of strong adverbial forms and somewhat less gradual use of adjectival ones, while strong deontic forms are used more intensively in the period from 2014–2018 when their frequency significantly increases and reaches as much as 79% of the total recorded.

Figure 3, illustrating the results indicating the change in the usage of strong adverbial forms, strong adjectival forms and strong deontic modal forms in the MSBC media, points to a less gradual intensification of the use of strong adverbial forms than those used in media that publish articles in English. While the English media recorded a sharp increase in the use of strong deontic forms in the period around 2014, the MSBC media in the period from 2012/14, reduced the use of strong deontic forms from 42 to 32%, and then their use intensified sharply, and in 2020 they reach over 60% of the total number of deontic forms. The use of strong adjective forms intensified in the period 2012-2016, and then the growth is moderate until 2018, when again there is a sharp increase in their use, with a tendency to further growth.

The results of the quantitative analysis indicate that the public discourse in the most recent researching period has suddenly become much sharper, both in terms of the choice of language formulations and their repetition in and in terms of strong deontic modality aimed at the audience. Taking into account the overall social context as well as the time range in which the survey was performed, it can be concluded that the initial hypotheses were confirmed in terms that the survey

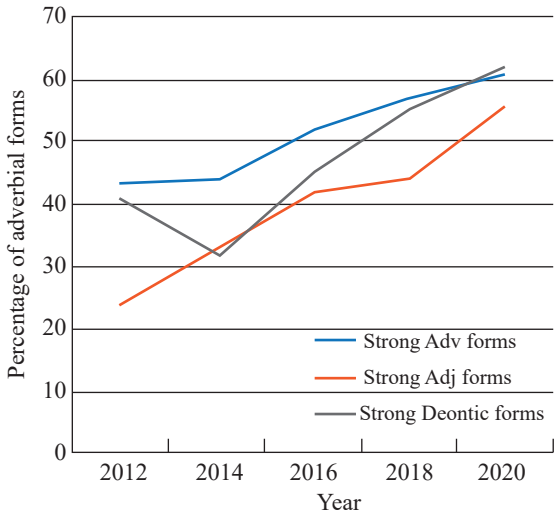

Fig. 3. Change of the usage of strong adverbial forms, strong adjectival forms and strong deontic modal forms: MSBC media

proved that the sentences have become shorter in both language systems (H1). Furthermore, the results proved that the affective adjective and adverbial forms have become less threatening, and that after the period 2002–2012, the affectivity of expression significantly intensified (H2; H3), as well as the frequency of using strong deontic modal verbs.

The overview of media reporting about the floods, globally, highlights the importance of establishing a quicker and more efficient system for the early warning of citizens, and on achieving a better cooperation between public authorities and the media, to ensure data accuracy and more rapid flow of information flow, what is in line with the recommendations of Carpenter[25].

Every time that a natural disaster occurs in any of the studied areas, the attention is often short-lasting and ceases as soon as the danger passes, while the disaster becomes less and less important as the main news, and media rarely report on the processes of complete reconstruction and recovery[26].

During the research analysing selected articles taken from both speaking area and in the period from the years 2012, 2014, 2016, 2018 and 2020 the following „untold stories' appear, and there were no responses to the questions that citizens claimed to have the right to know (checking the list of Jankovic, Srdic, and Bacanovic)[27], such as: *Could it have been prevented? Did the warning system function properly? Was the protection system efficient enough? Were the riverbeds maintained? Did local communities have rescue plans? Did the relevant authorities perform their duties conscientiously? Was there any corruption?*

The media discourse have a significant potential to expand understanding of the flood in a system resilience context, facing an array of pressures[22,24] and striving to build resilience across spatial and temporal scales[24], consistent with disaster literature that discusses the role of previous flood experience in the community learning process[25,26]. Flood experience also demonstrated that past floods provide only a partial model for learning[26], stressing the need for preparedness for unprecedented change, also reflected in our analysis.

CONCLUSIONS

Floods in developed countries are tending to be portrayed not as natural disasters but as political disasters as communities begin to consider them as ''foreseeable risks''[9,12,13] and government has either failed to warn of the risk or manage the cause. This obstructs the opportunity for learning as communities absolve themselves from responsibility for disaster management. When there is not much information available, memories of previous events have diminished or other actors, such as government are perceived to be taking responsibility, learning is reduced as the community tends to be less prepared[12]. The results of the researches carried out for the purpose of this article point to the changes that are happening in the modern language of the media today. In the context of the media, modern English

and MSBC change in a way that becomes more economical, the authors express their views in a shorter sentence, at the same time, it becomes more threatening and less soft with more frequent repetition of strong adverbial and adjective phrases. The headlines are, according to the examinees, sensational, subtitled as well, with a unique goal, which is to gain the attention of the reader, and thus the sponsor. The results obtained by comparing the use of characteristic forms in two language systems indicate similar changes, profitable behaviour, and development of two languages, which confirms the findings of many authors who emphasise the importance and influence of English on other language systems, especially in areas characterised by intense communication.

Finally, after the analysis presented, but mostly based on the recommendations from Jankovic, Srdic and Bacanovic[27] we are recommending using media reporting to improve understanding of the importance and significance of gender roles, it is necessary that journalist's use gender-sensitive and anti-discrimination terminology.

It would be useful if the Emergency Management could create, with the support of the media, a video-animation for Emergency Preparedness and Response, and distribute it to the media outlets throughout Montenegro, but also to the other countries covered with this analysis, with creating versions adjusted to people with visual and hearing impairments. The media must be part of emergency management team. The reports will certainly be more accurate if journalists are acquainted with the organisation and way of responding to emergencies, and particularly if they know personally the team members.

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