

Teaching earth science students to recognize communicative intent in media headlines: clickbait phenomenon

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Abstract. This paper examines ways of teaching Earth science students techniques to recognize manipulative clickbait in the online versions of American newspapers. The study presents an analysis of headlines in the online versions of the newspaper aiming to determine the specificities of the use of clickbait and to further classify the techniques through which it is employed. The analyzed data was collected from the Sports and Business sections of the 2021 online issues of the New York Times and the Washington Post. The frequency of clickbait use was found in each of the newspapers in general and in each of the studies section in particular. The analysis resulted in the classification of the techniques of achieving the clickbait effect. The individual characteristics of the journalists' styles of the newspapers under study was further investigated. The quantitative analysis revealed varying amounts of clickbait in the headlines of the online newspapers.

1 Introduction

These days, it is very important to keep up with all the latest news and events. Without this, it is almost impossible to survive, because information - the main resource - quickly loses its relevance. Despite this, it is becoming rarer and rarer to find a person reading the latest issue of a newspaper. People are switching en masse to electronic versions of news sources, justifying this by the accessibility of information, as well as the freedom of its choice. The modern person believes that they choose the information they need by selecting articles on the website of their favorite publication, and spare themselves from absorbing the information garbage that the printed newspaper imposes on them through the catchy headlines on the front page.

Regardless of the type of information source, the main task of journalists remains to attract the reader's attention. To achieve this goal, they resort to various methods including manipulation.

Discussing online versions of news sources, it should be noted that the measure of success now is not the number of copies sold, but the number of clicks. Internet press

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compete for clicks by trying to get the audience's attention in various ways, including clickbait, creating intrigue and a desire to click [1]. In this struggle, journalists are increasingly resorting to this controversial technique. If previously clickbait was associated only with low-quality, yellow press, advertisements, and unreliable sources [2], now it is quite common to take the "bait" even in well-known and influential publications [3]. In such a large information space to achieve the desired result, that is, to grab attention, almost all publications begin to use clickbaits, which already has consequences. A movement against clickbait is actively developing [4].

One of the imperatives of the information society is the need for all of its members to constantly consume information. Although quality newspapers remain a critical part of the news landscape, more and more readers consume information digitally. The growth of the demand for online news sources is justified by a number of reasons dictated by modern realities. Using electronic versions of news newspapers, readers have direct, open and fast access to necessary information, which satisfies key needs of a member of modern society.

Regardless of the type of source of information, the primary goal of journalists remains to capture the reader's attention. To achieve this, journalists employ a number of specific techniques. To increase circulations of print media editors resort to the use of large catchy headlines and pictures on the front page. With the advent of digital media, these are being replaced by methods that meet the needs of the new era. While in print journalism, the success of a news story is measured by the number of copies sold, in online journalism it is measured by the number of clicks made on the headline. Accordingly, the techniques are aimed at increasing the number of such clicks. One such technique is clickbait. By using it, the author of the article creates intrigue for the reader, awakening their curiosity and a desire to click on the article.

This technique is widely known in both the journalistic and reading communities but is often viewed in different ways. While some actively use it in their work, believing clickbait to be an effective means of attracting the attention of the audience in the vast information space, others treat it as manipulation and try to avoid it in every possible way in both writing and reading. The negative attitude towards clickbait is justified by the quality of newspapers in which it was originally used. Previously, clickbait used to be associated exclusively with low-quality, yellow press, advertisements, and unreliable sources [2]. Today, however, this type of manipulation is now found even in well-known and influential publications, which makes one wonder about its nature [3].

2 Theoretical framework

The phenomenon of clickbait was first defined by D. Geiger in his blog on December 1, 2006 as "Any content or feature within a website that "baits" a viewer to click. "Anything interesting enough to catch a person's attention". More often than not, click bait uses "highly alternative text/phrasing", "controversial slogans/ideas" or "culturally inspirational descriptions/events". CLICK BAIT is similar to LINK BAIT but is generally seen as less effective, more shortsighted and more short lived."

There are also several more recent definitions of the term. According to the Oxford Dictionary, "Clickbait - material put on the internet in order to attract attention and encourage visitors to click on a link to a particular web page"[5]. Cambridge Dictionary defines it as "articles, photographs, etc. on the internet that are intended to attract attention and encourage people to click on links to particular websites" [6].

The authors of these two dictionaries used a neutral wording. However, other dictionary compilers, researchers, and media audience have given the term a strongly negative connotation.

For example, the Merriam-Webster dictionary defines clickbait as “something (such as a headline) designed to make readers want to click on a hyperlink especially when the link leads to content of dubious value or interest” [7].

Attempts to give the most precise definition of clickbait are still ongoing, but many researchers agree with the Oxford Dictionary definition and will often refer to it. Based on an analysis of previous studies, another definition can be highlighted: “the term “clickbait” is usually used to describe online content that is specifically designed to entice a reader to click on a link but which offers very little reward for doing so” [8].

As a persuasive tool, clickbait frequently uses linguistic strategies to influence the reader, when a headline arouses “enough curiosity in readers that they become compelled to click the link to fill the knowledge gap” [9]. This cognitive phenomenon, known as the “curiosity gap,” refers to the state in which a person needs to fill an information gap, that is, to obtain information that is beyond their understanding or knowledge at the moment. When the reader encounters such a problem, they will do whatever is necessary to meet this need. In relation to headlines in the online media, the reader will of course immediately read the article to fill the knowledge gap. Despite all the seeming simplicity, it is difficult to achieve the curiosity gap effect.

J. N. Blom and K. R. Hansen show that decoy headlines can cause both curiosity and irritation [10]. According to research by K. H. Ecker et al. the inconsistency of the headline with the information presented in the article affects comprehension and memory, but only to the extent that readers do not feel that they have been misled [11].

Clickbait is most pronounced in article headlines. This technique can be presented in several ways. M. D. Molina and colleagues distinguish the following types of clickbait: questions, list, wh-words, demonstrative adjectives, positive superlatives, negative, modals [1]. Chen et al. identify other characteristics that include lexical/semantic cues (“unresolved pronouns, affective language & action words, suspenseful language, overuse of numerals”) and syntactic/pragmatic cues (“forward reference, reverse narrative”) [12]. J. N. Blom and K. R. Hansen [4] identify the following eight manifestations of direct reference: demonstrative pronouns, personal pronouns, adverbs, definite articles, ellipsis, imperatives, interrogatives, and general nouns with implicit discourse deictic reference. The difference in characteristics may be due to various factors.

In Western academia, not only journalists and linguists, but also mathematicians and programmers are engaged in clickbait research. They focus on creating mechanisms that automatically distinguish clickbait from non-clickbait headlines, and attempt to find the most popular methods of composing them. J. N. Blom and K. R. Hansen [4] investigated linguistic resources that can be used in creating information gap analyzing headlines on Danish news sites and studied the role that redirection techniques play in “creating anticipation and getting the reader to click.” Their main goal was to develop an application to weed out clickbait headlines in order to create a more honest media space.

M. Skovsgaard [13] presents a study of the tabloidization of news and its potential threat to democracy. His paper investigates the influence of media manipulation on the readers’ mind, with a focus on clickbait.

R. B. Adhikari and P. Kansakar examine the role of clickbait in the media space during the Covid-19 pandemic. During the pandemic, it was the number of clicks that determined the “right” truth, that is, the authority of an opinion was not determined by the factual, scientific data that supported the opinion, but merely by its popularity. The paper also raises the question of the role of clickbait as a lever for controlling the opinion of the masses at the political level during the pandemic [14].

The widespread use of clickbait is confirmed by G. Lockwood, who analyzes the frequency of clickbait use in academia by authors of scholarly articles. The article discusses the importance of the title of an academic article and the extent to which non-scientific

articles with clickbait titles pollute the academic space. A computer program Altmetric was used, whose main task is to sift out non-scientific material on the basis of headings. The study was based on data produced by this program [15].

3 Results

Our study focuses on the analysis of headlines in the Sport and Business sections in the online versions of two influential American newspapers – the New York Times and the Washington Post. The sections in the respective editions for 2021 were analyzed. A total of 15,010 newspaper headlines were processed. The two sections were deliberately chosen as ones that do not directly relate to politics, and as such could provide more reliable data on the use of clickbait techniques under study.

The main goal was to identify the number of headlines in the articles of the corresponding sections where the clickbait technique was used, and to determine the frequency of its use in the studied sections in particular.

The most frequently used types of clickbait techniques were further identified. On the basis of statistical data, we have put forward a classification of the headlines containing clickbait, depending on the type of used technique.

The following types of clickbait techniques were singled out:

- 1. cataphora;
- 2. quoting;
- 3. question;
- 4. appeal;
- 5. clickbait feature (why, here, what, how);
- 6. individual features of newspaper style.

Table 1 contains examples of the clickbait headlines techniques identified.

Table 1. Examples of the clickbait headlines techniques.

Technique	Example	Publication
Cataphora	She celebrated as if she had won a gold. Except she hadn't. Printed version: Sprinting for the Gold After the Race Was Won	New York Times, Sport, 07/25/21
Quoting	'Looking Back, I Am Glad We Played' Printed version: At a Time of Grief and Trauma, They Just Needed to Play	New York Times, Sport, 09/11/21
Question	Is it time to believe in Shohei Ohtani and the Angels?	Washington Post, Sport, 03/18/21
Appeal	Yes, debt collectors can now contact you on social media. No, they can't post that you owe money.	Washington Post, Business, 12/08/21
Clickbait feature (why, here, what, how)	What You Need to Know About Today's College Football Playoff Semifinals Printed version: The Climax of the Chaos	New York Times, Sport, 01/01/21
Individual features of newspaper style	Boys' basketball Top 20: A light week as local programs move into wait-and-see period	Washington Post, Sport, 12/20/21

First, the proportion of clickbait headlines in the New York Times and Washington Post in general was found. The analysis showed that the Washington Post had 444 articles out of 7,776 with clickbait in the headline (5.7%). The New York Times had 1,889 articles out of 7,234 that contained clickbait in its headlines, or 26.11%. The results are shown in Figure 1.

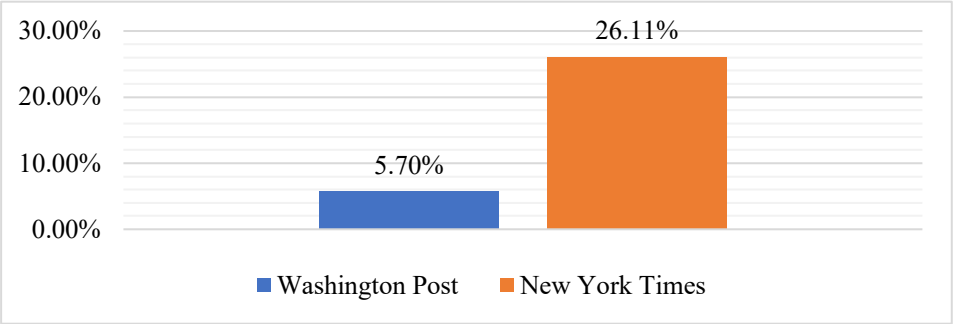


Fig. 1. The proportion of clickbait headlines in the New York Times and Washington Post.

The next step was to analyze each selected section of these newspapers, respectively. As a result of the section study, it was found that in the online edition of the Washington Post, in the Sport section 263 articles out of 6,189 contain clickbait in the headline (4.25%); in the Business section 181 articles out of 1,587 contain clickbait in the headline, which was 11.4%.

A study of headlines in the online edition of the New York Times yielded the following results: in the Sport section, 915 articles out of 3,424 contain clickbait in the headline, which is 26.72%; and in the Business section, 974 articles out of 3,810 contained clickbait in the headline (25.56%). The results are presented in Figure 2.

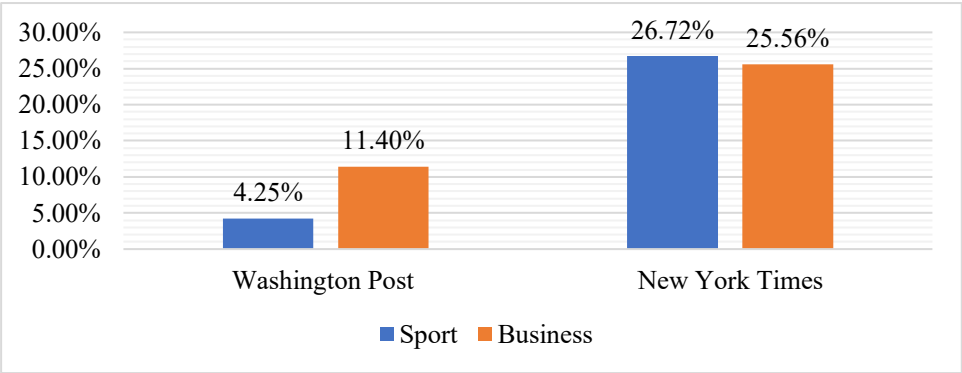


Fig. 2. The proportion of clickbait headlines.

Finally, we considered the proportion of the use of clickbait techniques in the sections of the respective newspapers. The ratio of the usage of the techniques mentioned earlier is presented in Figure 3 and Figure 4 for each of the newspapers, respectively.

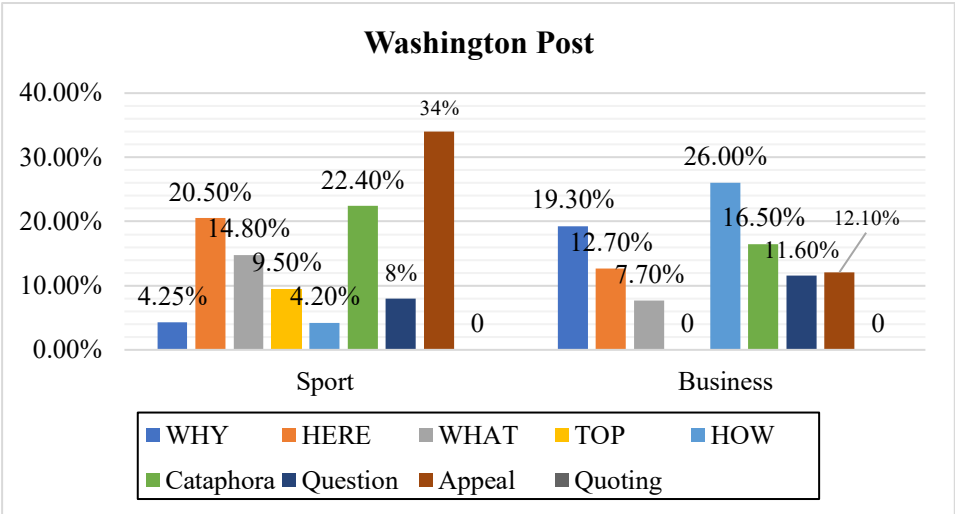


Fig. 3. The proportion of the use of clickbait techniques in Washington Post.

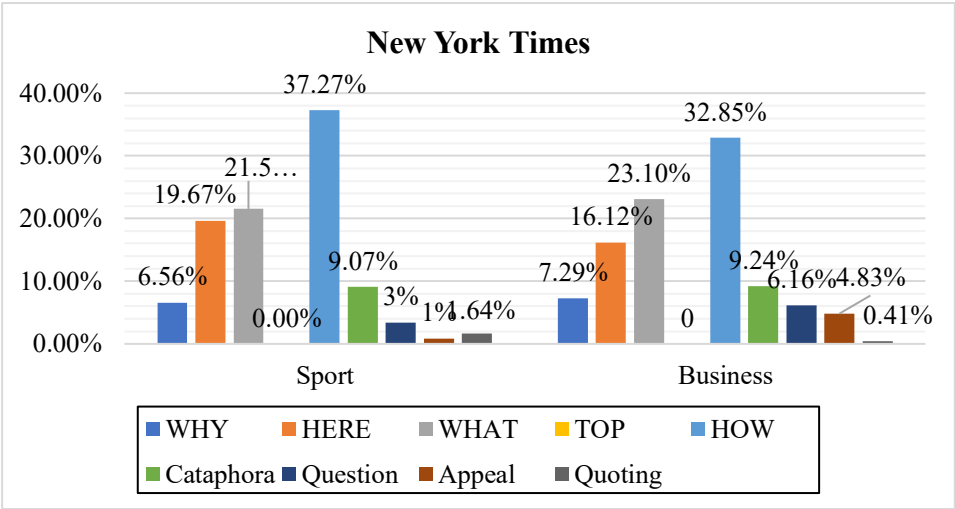


Fig. 4. The percentage ratio of the usage of the clickbait techniques in New York Times.

Further a summary table with the results of all components of the complete analysis is given in Table 2.

Table 2. Number of clickbait headlines in New York Times and Washington Post in Business and Sport sections for the year 2021.

Technique	New York Times				Washington Post			
	Sport		Business		Sport		Business	
	qty	%	qty	%	qty	%	qty	%
WHY	60	6,56	71	7,29	12	4,5	35	19,3
HERE	180	19,67	157	16,12	39	20,5	23	12,7
WHAT	197	21,53	225	23,1	54	14,8	14	7,7
TOP					25	9,5	-	-
HOW	341	37,27	320	32,85	11	4,2	47	26
Cataphora	83	9,07	90	9,24	59	22,4	30	16,5
Question	31	3,39	60	6,16	21	8	21	11,6
Appeal	8	0,87	47	4,83	9	34	22	12,1
Appeal	15	1,64	4	0,41	-	-	-	-
Total	915		974	7,29	263	4,25	181	11,4
Total number	1889		26,11%		444		5,7%	

4 Summary and discussion

The results presented in Figure 1 show that journalists of the New York Times resort to clickbait in their headlines more often than journalists of the Washington Post. This may indicate a difference in the policies of these news sources. For example, the slogan of the Washington Post is “Democracy Dies in Darkness”. The New York Times, on the other hand, has been faithful to its slogan “All the News That’s Fit to Print” for most of its long history. Several years ago, however, after the introduction of the online version of the publication, the New York Times changed its slogan, now reading “All the News That’s Fit to Click”. Considering this, we can conclude that the Washington Post focuses on publishing information that would help bring clarity in reporting events, while the New York Times focuses on attracting the largest number of readers. This can explain the preponderance of clickbait headlines by a factor of almost five in this newspaper, compared to the Washington Post.

The biggest difference in the results of the analysis between the Sport & Business sections in the respective publications was found in the Washington Post. In the Business section, clickbait in the headlines is almost 3 times more common. Several reasons can account for it. Firstly, the Business section in the Washington Post is broader than the Sport section, thus more people read news in that section. Secondly, the Washington Post does not have a separate section for political news. Thus, we can assume that some articles containing political news can be published in the Business section. As for the online edition of the New York Times, the content of clickbait in the headlines of both sections is about the same - just over 25% - which is a quarter of the entire array of news articles. This high incidence of clickbait in the headlines of this section can be explained by similarly high content of clickbait in this newspaper’s headlines in general.

The next step was to explain the content of individual techniques in each of the newspapers (Figures 3 and 4). The data in Figure 3 to be analyzed is the one reflecting information about the Washington Post newspaper. The most popular technique in the Sport section is direct Appeal. The second most popular was Cataphora. Additionally, in the top five techniques are the so-called Clickbait features, which employ question words and

adverbs in the title. In the business section, these are the most popular techniques, together with cataphora, accounting for more than 50% of all techniques. This is due to the variety of microthemes in this section and the ease of using questioning adverbs. It is also worth noting that the Washington Post does not use the citation technique in the headline in either section.

The most popular techniques in the Sports section in the New York Times are Clickbait features (Figure 4). Collectively, they account for 85% of all clickbait headlines. This proves the effectiveness of this technique, as well as journalists' attempts to use unsophisticated ways of attracting the readers' attention. In the Business section of the New York Times, the picture is virtually the same. Clickbait features account for 79% of the total number of clickbait techniques. It is worth noting that the New York Times uses questions in headlines much more often to create a clickbait effect. On the other hand, Appeal is almost never used in this newspaper in both section. We can conclude that newspapers have different policies regarding the communication of journalists with the reader through news articles.

The final step was to consider a general summary table with all the results of the study combined (Table 2). First, it should be noted the presence of newspaper style in the online newspaper Washington Post, namely the presence of articles with the word TOP. This technique is most frequently used in the Sport section. Hence, it can be concluded that this method is effective, because by the TOP marker the reader immediately understands that the article presents condensed information. This technique is used to create a clickbait effect only in the Washington Post in the Sport section.

Further, Table 2 shows that the most used techniques are the Clickbait feature with cataphora coming second which confirms the popularity and effectiveness of these techniques.

It is also worth mentioning that the majority of the clickbait headlines in the electronic versions of the newspapers (77.41%) do not coincide with their printed versions. This fact illustrates the difference in the approach to writing headlines for the online and printed versions of the newspapers. We buy the printed editions in their entirety, thus it is not necessary to attract our attention to each individual article. Accordingly, there is less clickbait in the headlines of the printed newspapers.

5 Conclusion

As a result of the study, it was found that even most respected independent news sources use clickbait techniques to attract readership. The primary ways in which American journalists use clickbait have been identified. It was also found that in the New York Times clickbait occurs almost 5 times more often than in the Washington Post.

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