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The Bezos-Gate: Exploring the Online Content of the Washington Post

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Abstract After Jeff Bezos, the founder and CEO of Amazon acquired the Washington Post in late 2013, the newspaper’s neutrality and independence from Bezos’ agenda has been in question. This paper takes a first step at exploring whether the neutrality of the Washington Post has changed after the acquisition in 2013. By analyzing the content of newspaper articles based on the sentiment and the emotional tone and by comparing results to a baseline consisting of the New York Times and The Guardian, this paper tries to establish if and how the Post’s reporting on Amazon has changed. Albeit results of this study are limited to the scope and the distortion of the analyzed data, we find an increasing number of articles about Amazon in all newspapers after the acquisition. Furthermore it can be shown that the overall positive sentiment of the Washington Post decreases, while the emotional tone intensifies.

1. Introduction

As the British economist William Brian Arthur already discovered in 1994, the economics of the tech sector is different from conventional market dynamics (Arthur, 1994, 2009). Usually economic theory assumes decreasing returns of investment. The first investment has higher returns than the second, and the third one even less. The information sector, however, is based on networks and their power increases proportional to size – or in economic terms: the marginal profit per new member increases (Niels Wischmeyer, 2018). Famous examples would be QWERT, which is the standard order of any computer keyboard. A switch to another system would involve retraining everyone used to the QWERT system and makes it too costly, even though there might be better or more efficient options already in the market.

Therefore, if one asks in the Western World for the most influential companies in people’s personal life, the name of Apple, Google, Facebook, Microsoft and Amazon will certainly show up. With the increasing digitalization and interde-

pendency of society the tech world replaced old power houses like oil companies, grocery stores or car producers. Today it is almost impossible to avoid them in daily life and any attempt of dropping those resembles near end of social life and work (Manjoo, 2017).

The public perception of these technology giants is often tied to the strong personalities of their founders. High-profile individuals like Mark Zuckerberg (Facebook), Bill Gates (Microsoft), Elon Musk (Tesla and SpaceX) or Jack Ma (Alibaba) are almost as famous as their brand and can be found on most Forbes rankings. Along the success of their companies the interest in these personalities increased as well. While it is mostly the job of the tabloid press to cover the newest acquisition of an NBA team (Alibaba co-founder Joe Tsai, Paul Allen Microsoft) or generous philanthropy project (Bill Gates), there is also a more serious aspect, namely the impact and influence of these acquisitions.

Whether it is taxation, information control or as most recent case the influence on public opinion, governments struggle to regulate these companies. The need to limit these actions is evident, especially in the case of shaping public influence (Foroohar, 2017).

One event that raised strong concerns in this regard is the 2013 acquisition of a majority share of the Washington Post by Jeff Bezos, the owner of Amazon. While Bezos, who is since 2017 the richest men alive (Vinton, 2017), explained his action as purely experimental independent from his main business Amazon, the sudden interest of a tech giant into a traditional print media with around half a million daily readers seemed odd. In the social media and conventional media around the globe many questioned the neutrality of the newspaper (Bell, 2013; Haughney, 2013). The print media can serve as marketing tool and filter out negative press. This leads to the assumption of utility maximization where the interest of Bezos is closely linked to the further growth of his company.

Five years later this project work takes a look from a big data perspective to see how much these claims were valid. The research question is: How has the coverage of the Washington Post changed with regards to Amazon after its acquisition in 2013, compared to other media?

Therefore, the study represents a prototype to approach other cases in a fact based systematic way and modern research techniques. Using common big data approaches, it can be shown that the Washington Post coverage of Amazon indeed differs significantly from other equivalent print media. The results are based on 30846 online articles from the Washington Post, the Guardian and the New York Times from 2008 to 2017 that are processed by different network analyzing techniques and logistic regression analyses. To distinguish between the coverage sentiment and emotionality analysis were applied to the articles. Differences then can be compared between the various newspapers, but also of each newspaper between different time periods.

The present paper is divided into five parts. The first section outlines the theoretical considerations. The following part will explain the methodological ap-

proach, its implementation and in addition to that the consolidation of the data base. In the third part the descriptive section of analysis and the logistic regression analyses are presented. In the fourth part a summary of results and hints to future studies are given. In the fifth and final part, the conclusion, a recap about the findings is given.

The reader should follow two narratives throughout the whole paper: First, the difference between the three newspaper coverages compared to each other in each chosen time period and second, the change in the coverage of the Washington Post after its acquisition by Jeff Bezos.

2. Background and Related Work

The introductory chapter has presented the puzzle of the impartiality of media after a commercial take over by large businesses. The focus of this paper is the specific case of the Washington Post being bought by Amazon founder Jeff Bezos 2013. It investigates whether and how the newspaper has changed its coverage after its acquisition. In this section a review of the relevant literature shall further advance the academic discussion. This leads to the hypothesis that is formulated at the end of this section.

All around the globe mass media play a crucial role for society. They are unique due to their ability to accumulate vast amounts of resources that are concentrated on communication, the high impact on the political and economic system, as well as their reciprocal character (Jamieson & Campbell, 1992). Multiple studies have confirmed the influence of mass media on the civil society by informing the public and shaping the debate of society (McCombs & Shaw, 1972; McQuail, 1977).

The public influence appears to be particularly strong with regards to politics and shopping behavior. Chiang and Knight (2011) showed that biased newspapers have an effect on the voting behavior of their readership. King, Schneer, and White (2017) even identify an influence not just in times of elections, but throughout the whole political cycle. While a lot is known about the advertisement power of the classical mass media like television on consumer attitudes (Priya, Kanti Baisya, & Sharma, 2010) the internet raised the magnitude on another level (Boulianne, 2015). The time spend on the internet has worldwide increased; in 2008 75% of the Internet users use online social media every day (Kaplan & Haenlein, 2010). Therefore, firms invest a greater share of their budget to reach out on these platforms through advertisement and research how to improve consumer engagement (Lee, Hosanagar, & Nair, 2018). State authorities are aware of this relation. The Federal Communication Commission of the United States of America states aims to diversify the media landscape and diffuse ownership among media firms to enable the public to have access to different perspectives (Gentzkow & Shapiro, 2010).

This brief review of relevant literature illustrates the significance of today's media/business relations. While the approach of the present project is explorative by nature it can definitely be placed within the current academic and public debate. The influence by mass media is channeled through two pathways:

1. Directly, through the content of an article. This may include writing about current affairs of a company or blaming competitors, but also the absence of negative reports about pressing issues.

2. Indirect, through the advertisement placed around the actual content/article.

It is assumed that the Washington Post has a motive to change its coverage towards the interest of its new owner. This may happen by a better presentation of Amazon in the media landscape and therefore directly or indirect pursue influence on their readers. This paper focusses on the first pathway.

In conclusion the hypothesis is derived:

It is more likely that the Washington Post (online) presents Amazon in a more positive way than other newspaper.

The hypothesis will test the strength of the owner and media relationship. Since we assume a strong tie, we should observe a significant difference in the online content. The Washington Post is assumed to frame stories more positively with regards to Amazon. The Hypothesis is not valid if the published content shows no difference among the newspapers.

3. Methods

Our approach to answer the research question is by explorative quantitative methods. The work process was divided into three steps, namely data aggregation, data preparation and data analysis. As the focus of analysis is on comparing the content of news articles of different news companies, the first step is to gather the content of the news articles. Since the influence of Jeff Bezos on articles from the Washington Post was investigated, all news articles from the Washington Post mentioning the word *Amazon* were collected. Additionally news articles about Amazon from The Guardian and the New York Times were collected to build a general baseline that can be used to compare Washington Post against. As a second step the data set was prepared and variables needed for the analysis were calculated. The data were cleaned up and the key values for each article such as the article's sentiment, the article's emotions and the number of times the word Amazon is mentioned within an article were calculated. In the last step of the approach, values calculated in step two were used to analyze the data set and perform logistic regression.

In order to aggregate the different news articles, a Python based script was used to crawl through news articles on *washingtonpost.com*, *theguardian.com* and *ny-times.com* and scrape the article's information. Article's information included the

title, the content, the news company and the publishing date. All three of the news companies provide an archive that enables it to filter articles based on the keyword 'Amazon'. After the data aggregation the raw data set includes 5.946 articles of the Washington Post, 17.191 articles of The Guardian and 14.027 of the New York Times.

By cleaning the dataset, the news articles were reduced to 5.484 articles of the Washington Post, 17.145 articles of The Guardian and to 8.217 of the New York Times. The huge reduction of articles of the New York Times is due to the fact, that the archive of nytimes.com included deprecated links to the detail page of an article. Since the timespan of publications varies based on the news company, a further compress of the dataset was made. To make the news articles more comparable, the time frame of the investigation was limited. In the analysis part, only articles with a publishing date between 2008 and late 2017 were used.

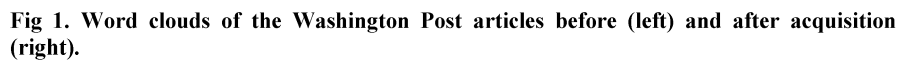
To further prepare the dataset for the analysis the IBM Watson® sentiment analysis tool was used to compute the overall sentiment, the target sentiment and the emotional tone of each news article. The overall sentiment depicts the sentiment of the whole article, whereas the target sentiment specifically focuses on the sentiment of the target keyword 'Amazon'. Both, the target sentiment and the overall sentiment are derived as values between -1 and 1, where -1 describes a very negative article and 1 describes a very positive article. The emotional tone is depicted by five different emotions following Ekman's List of Basic Emotions (Ekman, Friesen, & Ellsworth, 1972), namely fear, joy, sadness, anger and disgust. The emotion surprise, was not supported by IBM Watson®. Each emotional value ranges between 0 and 1, where 0 depicts the absence of the emotion and 1 depicts the absolute presence of an emotion within the article.

4. Results

We started by analyzing the frequency of publications and creating word clouds of prominent occurrences on the frequency chart. Since the word clouds as well as the frequency did not yield any exceptional results, the focus was shifted to sentiment analysis and to an analysis of the emotions. Finally we conducted logistic regression. Every step of analysis is depicted in detail below.

4.1 Word Clouds

As a first step, word clouds were generated for the Washington Post articles containing the keyword 'Amazon'. As depicted in Figure 1 the word cloud on the left shows the words used before the acquisition and the word cloud on the right shows the used words after the acquisition. The color and size of the words have



To get a first overview, the frequency at which each newspaper has published news articles about Amazon was analyzed. Before visualizing the frequency, it is assumed that the influence of Jeff Bezos on the Washington Post would be shown in an unusual behavior on the chart. It is assumed that the frequency either should have dropped or should have increased after the announcement of Jeff Bezos buying the Washington Post in 2013. But as depicted in Figure 2, none of the expected behavior occurs. The graph shows the accumulated publications of news articles about Amazon of the Washington Post, the New York Times and The Guardian. While the publications of the New York Times and The Guardian increase, the publications of the Washington Post start to fluctuate. Even though it seems like the frequency of publications of the Washington Post increases after 2014, the frequency of publication seems to be a poor measurement value. Since end of 2015 the number of publications increases drastically, it is assumed that the dataset or the data source might be influenced by some collection error. For instance it could be that the archives of the news companies include more links to recent news articles and only news articles with a certain degree of popularity are stored in the archive on a long-time basis.

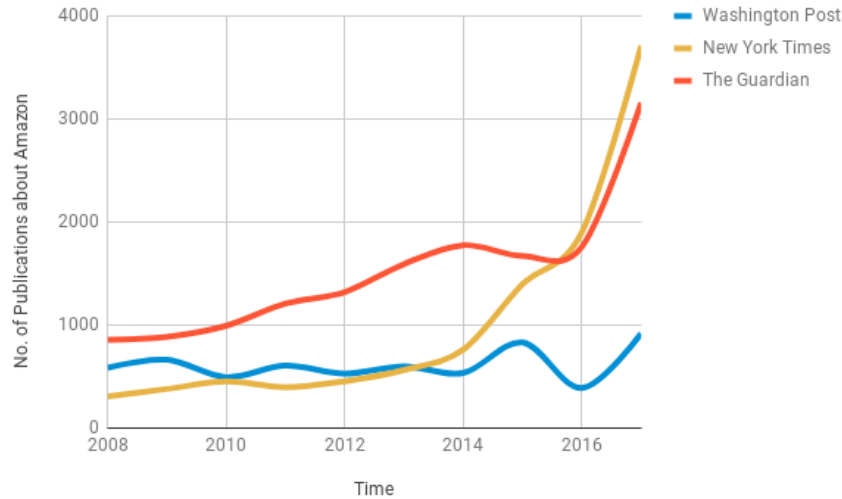


Fig 2. Frequency of articles about Amazon in the three different newspapers.

4.3 Sentiment Analysis

For the sentiment analysis, using IBM Watson® sentiment analyser, only news articles that contain the keyword 'Amazon' within their headline were included, to minimize distortion. This ensures that the sentiment analysis only includes news articles that have Amazon as their main topic, yielding more accurate results. First the values of the target sentiment for each newspaper were plotted and a polynomial function was fit to the dataset. By using the fit function, the best matching curve to the data points is created and it returns a coefficient that minimizes the squared error. Figure 3 a) depicts the polynomial functions of each news company. It shows that on average The Guardian writes most consistently in a positive manner about Amazon. The New York Times is also consistent in reporting, but talks the most negative about Amazon. The sentiment of the Washington Post fluctuates the most, talking very positively about Amazon between 2012 and 2014, but also talking more negatively about Amazon between 2015 and 2017. It is important to mention that the positive peak in the sentiment of the Washington Post occurs exactly around the time frame, when Jeff Bezos announced the acquisition of the Washington Post. Nevertheless those findings have to be considered with a grain of salt, since b), c) and d) in Figure 3 emphasize that all data functions show a very high standard deviation.

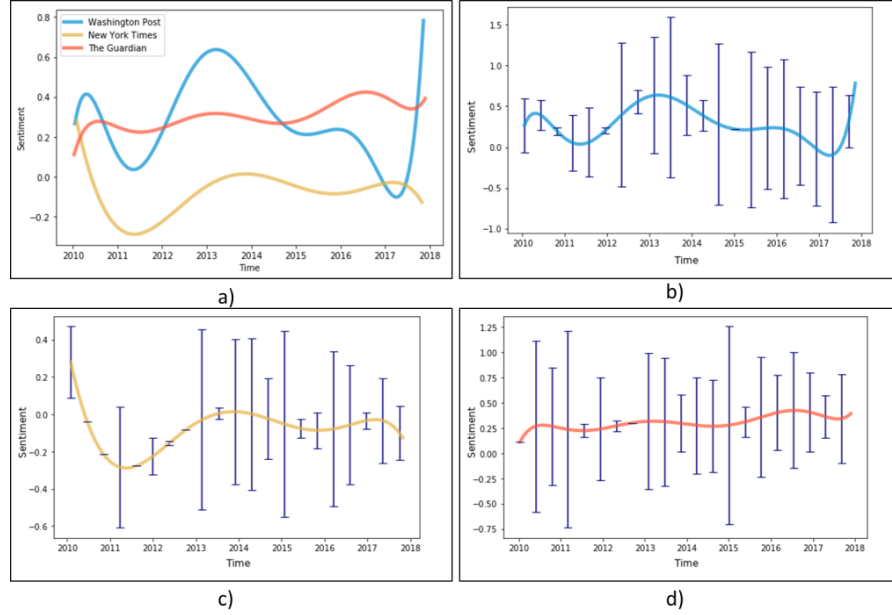


Fig 3. Sentiment values over time for the three newspapers: Washington Post (blue), New York Times (yellow), and The Guardian (red). Intervals represent the standard deviation.

4.4 Emotion Analysis

To further distinguish the differences between the newspapers, emotions such as joy, sadness, fear, anger and disgust were used to calculate the differences of each emotion before and after the acquisition. As depicted in Figure 4 for the New York Times and the Guardian, the emotions disgust, fear and sadness have been reduced after the Washington Post was acquired by Jeff Bezos, while for the Washington Post all emotions, except the sadness increased. Since also the value joy increased by as much as almost 6%, it seems like the Washington Post writes more emotional when talking about Amazon compared to the other two news companies. Furthermore, those findings fit well with the results of the sentiment analysis, because especially negative emotions like anger, disgust and fear increased while the target sentiment decreased.

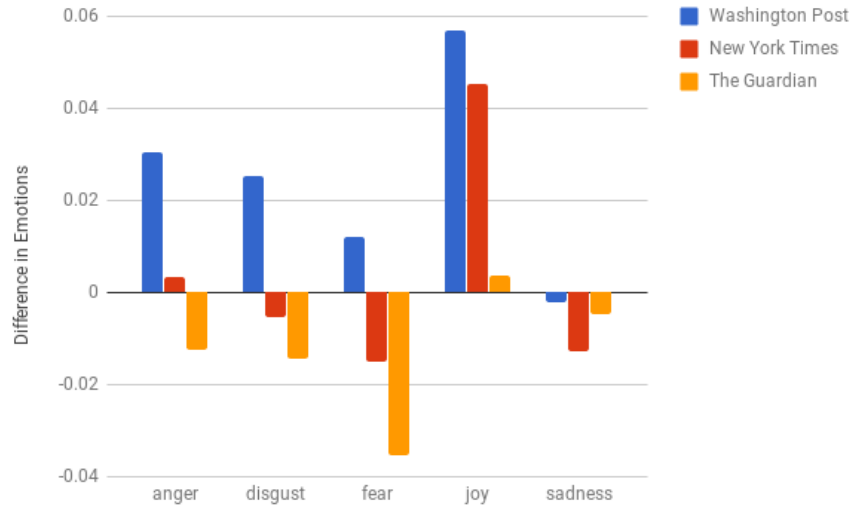


Fig 4. Difference in emotions in Amazon related articles after the acquisition, compared between the three newspapers: Washington Post (blue), New York Times (yellow), and The Guardian (red).

To take a closer look to the changing emotions in Amazon- related articles, IBM SPSS® was used to do statistical analysis. To check whether The Guardian and The New York Times differed in reporting on Amazon before or after the takeover of Jeff Bezos from The Washington Post, we chose logistic regression as the evaluation method.

In the logistic regression the type of newspaper served as a dependent variable, the emotions joy, fear, sadness, anger, and disgust served as independent variables: N

The prerequisites for logistic regression were fulfilled for the calculated models. The predictors were centered on the mean and the values were z-standardized. The Hosmer-Lemeshow-Test showed significant results for the ‘after acquisition’ models, which points to a poor model fitting. Due to the high number of cases, the results are nevertheless shown. The difference in emotions between The Washington Post (coded as 1) and The New York Times and The Guardian (both coded as 0) was compared before and after the acquisition by Jeff Bezos. Therefore, two kinds of models were constructed: one model before the acquisition by Jeff Bezos in the year 2013 and one model after the acquisition (see Table 1).

Table 1. Description of the dataset

Time	Total sample (<i>N</i>)	Used sample (<i>n</i>)	Missings
Before acquisition	941	911	30
After acquisition	1644	1569	75

All five emotion parameters (joy, fear, sadness, disgust, and anger) were included in the calculation.

The logistic regression shows significant results before the acquisition for all emotions, except disgust (see Table 2). The regression model shows overall significance, $\chi^2(5) = 136.136$, $p < .001$ and a respective explanatory power model of 19.2% (Nagelkerke R^2), means that 19.2% of the variance in newspaper differences in reporting emotionally about Amazon before the acquisition by Jeff Bezos. The model correctly classified 72.1% of cases.

The first investigation for the data after acquisition shows that only sadness and anger remain significant (see Table 3). The regression model was statistically significant, $\chi^2(5) = 15.807$, $p < .05$. The model explained 0.19% (Nagelkerke R^2) of the variance in newspaper differences in reporting emotionally about Amazon after the acquisition by Jeff Bezos. The model correctly classified 88.3% of cases.

Table 2. Before acquisition – logistic regression with all emotions as predictors

	B	SE	Wald's χ^2	df	p	Exp(B)	Nagelkerke R^2
Sadness	-0.373	0.077	23.558	1	.000*	0.689	0.192
Fear	-0.450	0.105	18.274	1	.000*	0.637	
Disgust	-0.132	0.094	1.961	1	.161	0.876	
Joy	-0.440	0.077	32.962	1	.000*	0.644	
Anger	-0.554	0.116	22.987	1	.000*	0.574	

* $p < .001$.

Table 3. After acquisition - logistic regression with all emotions as predictors

	B	SE	Wald's χ^2	df	p	Exp(B)	Nagelkerke R^2
Sadness	-0.187	0.081	5.321	1	.021*	0.829	0.019
Fear	-0.057	0.097	0.344	1	.558	0.944	
Disgust	0.010	0.094	0.011	1	.917	1.010	
Joy	-0.071	0.087	0.670	1	.413	0.932	
Anger	-0.285	0.110	6.752	1	.009**	0.752	

* $p < .05$. ** $p < .01$.

Since there were no previous assumptions that all emotions are relevant as predictors for the model, the next step was to construct two stepwise models, one for the articles before the acquisition and one for the articles after the acquisition by Jeff Bezos. Here, the logistic regressions show significant results for the remaining emotions for and after the acquisition (see Table 4 & Table 5).

Before the acquisition, the regression model was statistically significant, $\chi^2(1) = 26.720$, $p < .001$. The model explained 19.0% (Nagelkerke R^2) of the variance in newspaper differences in reporting emotionally about Amazon before the acquisition by Jeff Bezos. The model correctly classified 66.2% of cases.

After the acquisition, the regression model was statistically significant, $\chi^2(1) = 5.256$, $p < .01$. The model explained 0.18% (Nagelkerke R^2) of the variance in newspaper differences in reporting emotionally about Amazon after the acquisition by Jeff Bezos. The model correctly classified 88.3% of cases.

Table 4. Before acquisition – logistic regression after step by step model construction

	B	SE	Wald's χ^2	df	p	Exp(B)	Nagelkerke R^2
Sadness	-0.383	0.076	25.131	1	.000*	0.682	0.190
Fear	-0.472	0.105	20.138	1	.000*	0.624	
Joy	-0.430	0.076	31.941	1	.000*	0.650	
Anger	-0.592	0.114	27.023	1	.000*	0.553	

* $p < .001$.

Table 5. After acquisition – logistic regression after step by step model construction

	B	SE	Wald's χ^2	df	p	Exp(B)	Nagelkerke R^2
Sadness	-0.180	0.077	5.387	1	.020*	0.835	0.018
Anger	-0.270	0.103	6.855	1	.009**	0.763	

* $p < .05$. ** $p < .01$.

5. Discussion

The analysis of the data should answer the hypothesis presented at the beginning. The hypothesis was:

It is more likely that the Washington Post presents Amazon in its online article in a more positive way than other newspaper.

A general finding that the Washington Post reports more positive in news articles about Amazon after the takeover by Jeff Bezos could not be found at first glance. While the overall sentiment has decreased, the emotional degree has increased. It seems that after the takeover by Jeff Bezos, the Washington Post reports more negatively about Amazon, but in a more emotional manner than other newspapers. Furthermore, comparing the results of the logistic regression before and after the acquisition raises the assumption that the decreasing sentiment might be due to the Washington Post getting closer to the New York Times and The Guardian.

5.1 Limitations

Due to its complexity, big data analysis offers many possibilities, but also the danger of misinterpretation of the data (Butts, 2009). Therefore, it is emphasized that the results of this paper should only be seen as the beginning of a comprehensive analysis. Even though the dataset has been cleaned and prepared for analysis purposes, more extensive filtering is required to yield better results and minimize distortion. All filtering of this paper has been done by only applying queries on the database. Results could improve or even completely change by manually reviewing every news article and adjusting the selection based on human judgment. The results of the logistic regression show that even before Jeff Bezos' acquisition of the Washington Post, significant differences between the newspapers need to be examined and analyzed in more detail. It is obvious that findings of this project are limited due to the fact, that newspapers naturally differ. Already Armstrong (2004) noted that articles in newspapers are influenced by the reporters and their personal attitudes. In addition, newspaper-specific differences can also be found in the presentation and reporting of events related to the political orientation of the newspaper (Feldman, Hart, & Milosevic, 2017).

The project work shows an initial trend that reporting about Amazon has increased following the takeover by Jeff Bezos in the Washington Post. However, it remains unclear exactly what the causes are. One simple explanation could be the overall expansion of online content measured in amount of articles per year¹. The newspaper market is experiencing a vast transformation from print to online. A higher number of Amazon articles could correlate with the growth of articles in general. This quasi-hypothesis, however, requires more precise data on the online publications of the newspapers investigated.

Additionally, this initial analysis does not provide any information as to what the increase in articles about Amazon means in terms of advertisement content, for example, what type of advertising is concerned and which products are advertised. For that, a clear definition of what is meant by advertising is needed. Such a clear definition is necessary in order to look specifically for advertising within the articles. Such 'hidden' advertisements could make it possible to advertise products that can be of interest to the reader of the article and can be categorized as 'Ad Type' described by Rodgers and Thorson (2000), where the authors state it as an indicator of possible consumer reactions. In addition, to analyze the text content of the newspaper articles for advertisements, banners or advertisements displayed on the online pages of the newspaper should be taken into account. Furthermore, the analysis of advertising should take place not only at the Washington Post. A detailed analysis of Amazon advertising in the other newspapers need to be done, too. Only then a general trend towards more advertising can be ruled out. Factors such as the attitudes of the article authors also remain hidden. Studies like Arm-

¹ <https://wordpress.com/activity/posting/>

strong (2004) shows that newspaper authors have a clear influence on the content of the articles they have written.

Another aspect that is not considered in this work but is very important is the reaction of users to articles. In theoretical models of advertisements like the Integrating Advertising Model (Rodgers & Thorson, 2000) not only the advertiser but also the consumer is included. It is assumed that the possibilities of the online presentation in the internet allow an interaction between consumer (reader) and advertiser (online newspaper), which again have influence on the authors and the future articles of the newspaper. The social impact on future behavior has already been demonstrated on social media platforms (Berry & Taylor, 2017). Complex models should therefore be used for in-depth analysis, which in addition to the diversity of the newspapers also model the influence and reactions of the readers.

5.2 Future Research

The results of this project work open up exciting future research questions and projects. For example, a detailed Amazon advertising analysis in other newspapers could be done. Possible questions could be: Had the purchase of the Washington Post by Jeff Bezos influenced the advertisements in this newspaper? And has the acquisition influenced the Amazon advertisements in other newspapers? How and how often does Amazon advertise there?

This study looked at the coverage of only three different American newspapers. One could broaden this perspective by either including more national newspapers to the dataset or by extending the scope to an international perspective and analyzing newspapers from other countries. It has already been shown that readers of newspapers differ from country to country (Elvestad & Blekesaune, 2008). Therefore it could be assumed that media coverage differs from country to country, too.

The influence of readers on readers must also be taken into account through the commentary functions on the online pages of the ‘Consumer-Controlled’ side, as each of the newspapers considered in this paper offers the reader the opportunity to communicate with each other and with the authors using the comment function. It also offers advertisers the opportunity to receive active feedback from consumers. For social media platforms, such an influence could already be demonstrated by interaction (Mangold & Faulds, 2009) and for other topics, social influence on newspapers could be shown, too (Golan, 2006).

6. Conclusion

In this paper it could be shown that the takeover of the Washington Post by the managing director of Amazon, Jeff Bezos, not only generated a social debate

about the linking of reporting with advertising, but also shows an increase in articles about Amazon. Reasons for this do not necessarily have to be the takeover, but can also be due to a general increase of online content. This paper lays an important foundation for further research questions, which should focus primarily on the placement of advertising. Furthermore, it is important to include the influence and reaction of users in further studies.

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