

Appendix 1

Correlations

		VAR 00012	VAR 00022	VAR 00023	VAR 00024	VAR 00025	VAR 00026	VAR 00027	VAR 00028
VAR 00012	Pearson Correlation	1	-.261	-.225	-.175	-.198	-.434*	-.393*	-.237
	Sig. (2-tailed)		.114	.181	.308	.254	.010	.024	.192
	N	39	38	37	36	35	34	33	32
VAR 00022	Pearson Correlation	-.261	1	.571**	.340*	-.051	.013	-.014	-.014
	Sig. (2-tailed)	.114		.000	.039	.769	.940	.938	.939
	N	38	39	38	37	36	35	34	33
VAR 00023	Pearson Correlation	-.225	.571**	1	.571**	.340*	-.051	.013	-.014
	Sig. (2-tailed)	.181	.000		.000	.039	.769	.940	.938
	N	37	38	39	38	37	36	35	34
VAR 00024	Pearson Correlation	-.175	.340*	.571**	1	.571**	.340*	-.051	.013
	Sig. (2-tailed)	.308	.039	.000		.000	.039	.769	.940
	N	36	37	38	39	38	37	36	35
VAR 00025	Pearson Correlation	-.198	-.051	.340*	.571**	1	.571**	.340*	-.051
	Sig. (2-tailed)	.254	.769	.039	.000		.000	.039	.769
	N	35	36	37	38	39	38	37	36
VAR 00026	Pearson Correlation	-.434*	.013	-.051	.340*	.571**	1	.571**	.340*
	Sig. (2-tailed)	.010	.940	.769	.039	.000		.000	.039
	N	34	35	36	37	38	39	38	37
VAR 00027	Pearson Correlation	-.393*	-.014	.013	-.051	.340*	.571**	1	.571**
	Sig. (2-tailed)	.024	.938	.940	.769	.039	.000		.000
	N	33	34	35	36	37	38	39	38
VAR 00028	Pearson Correlation	-.237	-.014	-.014	.013	-.051	.340*	.571**	1
	Sig. (2-tailed)	.192	.939	.938	.940	.769	.039	.000	
	N	32	33	34	35	36	37	38	39

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

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or telephone number for press. The only source of information for journalists about the movement and its actions were the social media channels. The context in which social media and traditional media use each other as a source also varies. Whereas traditional media use social media most often to support its coverage, social media would rather use traditional media as a starting point for discussion.

The next step of investigating the application of agenda setting theory to the Occupy Wall Street movement could be examining the level two agenda setting — the attributes within the coverage of both traditional and social media and its comparison with opinion polls run by the Pew Research Center on a regular basis. In order to conduct this study, a more representative amount of time is needed for the events to occur so the researchers could collect necessary data for the analysis.

* * *

The presented study adds to the existing literature on the application of agenda setting theory to social media. The main challenge that the authors foresee considering the research in this field is the choice of methodology which has not been standardized. As the impact of social media on agenda setting theory will grow in importance such methods must be refined.

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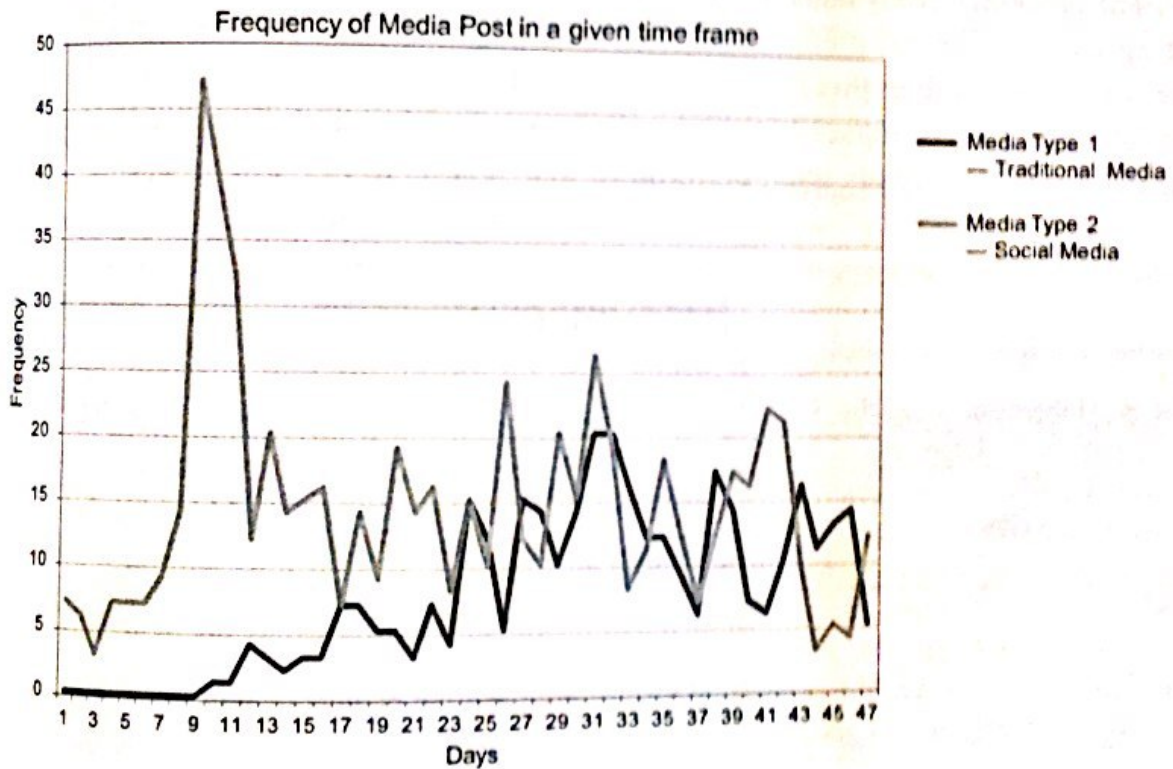
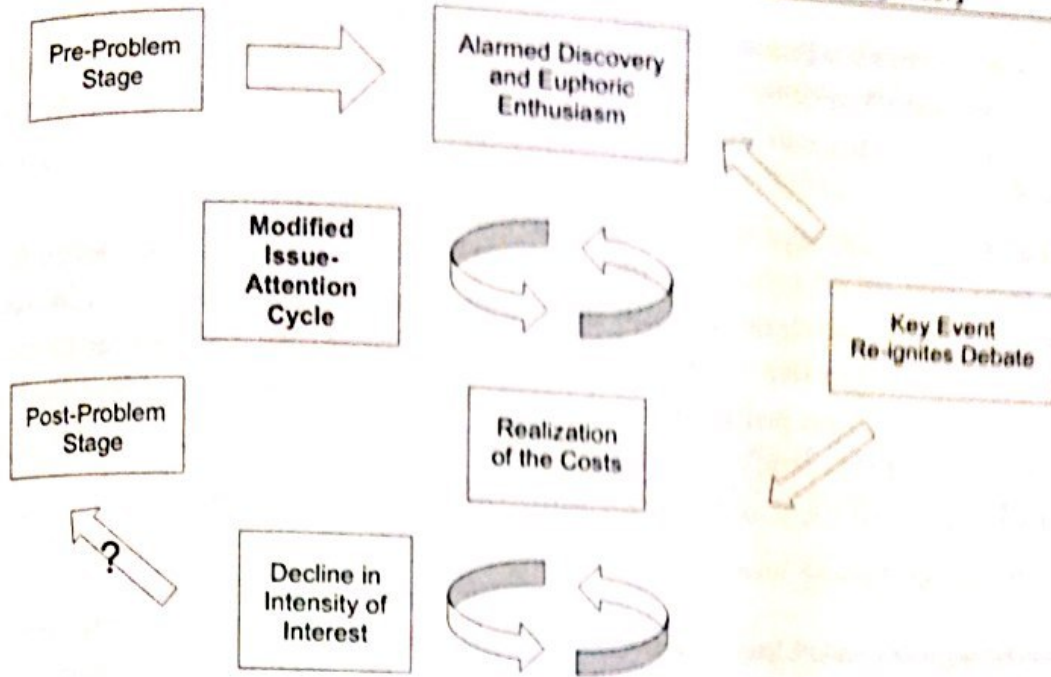


Fig. 5. Peterson's issue-attention cycle and the social and traditional media coverage of Occupy Wall Street

Source: Peterson (2009) and authors.

The use of social media as a source by traditional media and rare references in social media channels to traditional media could be caused by the ideological and organizational assumptions of the movement itself — Occupy Wall Street defines itself as a leaderless grassroots movement and boycotts traditional media — they do not distribute press releases, they do not have a spokesman and for the first month from the original protest in Wall Street they have not had a dedicated e-mail

research. One way to approach a discussion of these opportunities is through the framework of Peterson's proposed modification of the issue-attention cycle.

Similar to classical agenda building theory, the pre-problem and alarmed discovery and euphoric enthusiasm stages of Downs's and Peterson's cycles seem to emerge from the relationship of activity between social and traditional media uncovered. This effect is particularly pronounced in the early days of Occupy Wall Street activity, where a flurry of social media content precedes the first traditional media coverage. Supportive of Peterson's reshaped issue-attention cycle, however, is the way in which a similar pattern does seem to emerge over time regarding, in Peterson's terms "key events" that "re-ignite debate" (Peterson, 2009). The first of these key events, a similar, although less pronounced relationship between social and traditional media occurs on and around September 24 when a social media video showing a New York City police officer pepper spraying several protesters, appeared in the Internet. This event leads to a jump in social media activity followed quickly by an uptick in traditional media coverage. Similar micro-events unfold throughout the process, lending credibility to Peterson's hypothesis that sub-issues can drive issue salience as issue-attention begins to cycle through stages three through five of the cycle.

Another indication for the existence of the relationship between social media and traditional media coverage is the number of references in traditional media to social media channels on particular dates. It can be observed that the first significant peak in the number of references to social media channels in traditional media publications took place on October 2 which was one day after the NYPD arrested 700 people during the protest on Brooklyn Bridge. The peak in mentions is most probably caused by the films made by protesters and posted on YouTube, Facebook and other social media channels which later on were used by journalists as a source of information. The dates of next peaks seem to confirm this observation: on October 10 (the decision of mayor Bloomberg that protesters may stay in Zuccotti Park), October 13 (the communications about gathered donations by Occupy Wall Street movement), October 25 (the visit of Egyptian revolutionaries in NYC to support Occupy Wall Street), October 29 (riots during protests in Oakland). The biggest peak however can be noticed on October 17 — the exact month from the first protest which was treated by the media as an occasion to sum up what the movement is about.

On the days when there is an actual event such as the Brooklyn Bridge arrests or Oakland riots it can be noticed that social media precede traditional media in coverage and may be used as a source for the publication. The following coverage of Brooklyn Bridge arrests from NYT (October 2) provides an example of this observation:

Video widely seen on the Internet of a high-ranking officer, later identified as Deputy Inspector Anthony Bologna, attacking what appeared to be docile protesters with pepper spray prompted public outrage and investigations by the Internal Affairs Bureau of the Police Department and Manhattan prosecutors.

larly pronounced in the context of social media's impact on the issue-attention cycle. Without the capacity to track activity about the entire issue, results are inconclusive about the final two stages in the process, decline in intensity and the post-problem stages. The number of data points might be also the reason for which statistical analysis did not show the correlations between traditional and social agenda. The analysis of time lags by hour or in a longer period of time might have shown the statistically significant relationship between the two agendas.

It should also be acknowledged that although Facebook activity is a significant part of social media activity, it is by no means comprehensive. Significant content regarding "Occupy Wall Street" occurred across the social media spectrum including the blogosphere, micro-blog sites (such as Twitter), and video posting sites (such as YouTube). Facebook was selected over the other sites for several reasons. First, its diverse user base positions it as a social media source that bridges various social groups thus providing direct access between OWS activists and other publics. Second, Facebook also has several data collection benefits over other social media sites including the fact that posts are maintained for extended periods of time (unlike Twitter, where archives are limited to the most recent month of activity), the posts are not as limited as regards length (again unlike Twitter, wherein 140 characters is the maximum length of a "tweet"), and where the content is better organized and independently managed (unlike YouTube, where content is relatively sporadic and where posts tend to be deleted by administrators).

The sampling is also somewhat problematic in regards to randomness. Given the relatively high-volume of general social media activity and the relatively broad time-frame selected for the study, random sampling of the content in question would have been counter-effective due to its expansion of the workload without an attendant expansion of workable data. Because of this, the authors opted to utilize directed searches, focusing on the precise terms discussed earlier or on specific Facebook pages. Although this purposive approach to the sample size renders generalizability problematic, the authors nevertheless stand by the decision as it still presents an accurate analysis of the direct "Occupy Wall Street" references of any given news day. This dynamic is further reflected by our selection of three major traditional print media sources. Although considerable content is also available in myriad smaller publications, *The New York Times*, *The Washington Post*, and *The Los Angeles Times* are significant in that they all have well-developed national news sections, they all generate primary content (thus minimizing the likelihood of repeated stories through a news agency such as the A.P. or Reuters), and they all have national reach. These three components align them more directly with the nature of content in the social media sphere.

Despite these limitations, this study represents an addition to the existing literature investigating social media's role in the agenda setting and issue-attention processes. Although statistical evidence supporting our initial research questions was mixed, the emergent data did reveal several key areas for possible future

A closer look at the variant means is presented in Table 2 which shows how the number of references to either social media or traditional media changes with the particular media type. The results of the statistical analysis show that traditional media used traditional media ($M = .3649$) as a source of reference more often than social media which used it rarely ($M = .0745$). Conversely, social media was more frequently cited by other social media channels ($M = .7511$) whereas traditional media cited it much less often ($M = .2960$).

Table 2. Group statistics

	MEDTYPE	N	Mean	Std. Deviation	Std. Error Mean
TRADMED	1.00	348	.3649	.48211	.02584
	2.00	671	.0745	.26280	.01015
SOCMED	1.00	348	.2960	.45714	.02451
	2.00	671	.7511	.43269	.01670

Source: authors.

A closer look at the variant means is presented above which shows how the number of references to either social media or traditional media changes with the particular media type. The results of the statistical analysis show that traditional media used traditional media ($M = .3649$) as a source of reference more often than social media which used it rarely ($M = .0745$). Conversely, social media was more frequently cited by other social media channels ($M = .7511$) whereas traditional media cited it much less often ($M = .2960$). This analysis leads to two important findings. The first mean indicates that traditional media would rather use social media as a source than vice versa. The second illustrates that in both cases there is a tendency for media channels to keep users "within the fold," with social media linking out to other social media sites and traditional media trending towards discussion of other traditional media sources. That said, this tendency is significantly more pronounced in the social media sphere, where the variation between the means is substantially larger than that of traditional media. This analysis shows that although there is no statistical proof for social media to set the agenda for traditional media, social media do influence the coverage of traditional media.

Discussion

As with any study there are some limitations to this research. It must be considered that the time frame for data collection was limited due to the (as of this writing) still unfolding Occupy Wall Street events. This issue is particu-

event — the same pattern seems to be applicable for social media. Although there is statistical analysis that does not show the significant correlation, Figure 1 discloses tendencies at certain times. This leads to addressing research question 3 which posed the problem of the impact of social media on issue-attention cycle (see Discussion).

The self-influence of agendas was partially confirmed by the analysis of references. It stands to reason that if either media is operating on the heels of reports from the other, it will need to take into account these alternative reports. Therefore, research question 2 was reformulated as a hypothesis, based on pre-existing data on agenda setting. The null hypothesis (H0) thus formulated proposed that both social media and traditional media cite themselves and each other in roughly equivalent proportions. Since the independent variable (media type) had only two dependent scores (references to social media and references to traditional media), a t-test for dependent samples was applied to the data. In Table 1, the dependent t-test values are presented for the traditional media references and social media references in traditional and social media were 12.45 and -15.62 with actual probabilities of occurrence at 0.00 in both cases. Given a rejection region at $p > .05$, the null hypothesis of no variations in references between traditional and social media was not accepted.

Table 1. Independent samples test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	<i>t</i>	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
TRAD-MED	Equal variances assumed	627.146	.000	12.445	1017	.000	.29043	.02334	.24463	.33622
	Equal variances not assumed			10.461	456.578	.000	.29043	.02776	.23587	.34499
SOC-MED	Equal variances assumed	9.798	.002	-15.617	1017	.000	-.45514	.02914	-.51233	-.39795
	Equal variances not assumed			-15.347	669.511	.000	-.45514	.02966	-.51337	-.39691

Source: authors.

agenda building for the traditional media. Scheufele proposed that as the initial stage in the issue-salience cycle, agenda building is frequently the result of media coverage of a natural event or of the voice of a community opinion leader (2000). In this, analysis of the collected evidence suggests that social media can serve as the site for initial agenda building. Below, Figure 4 illustrates the leap of activity within the social media sphere during days five (9/19) through nine (9/23), before traditional media coverage follows on day ten (9/24).

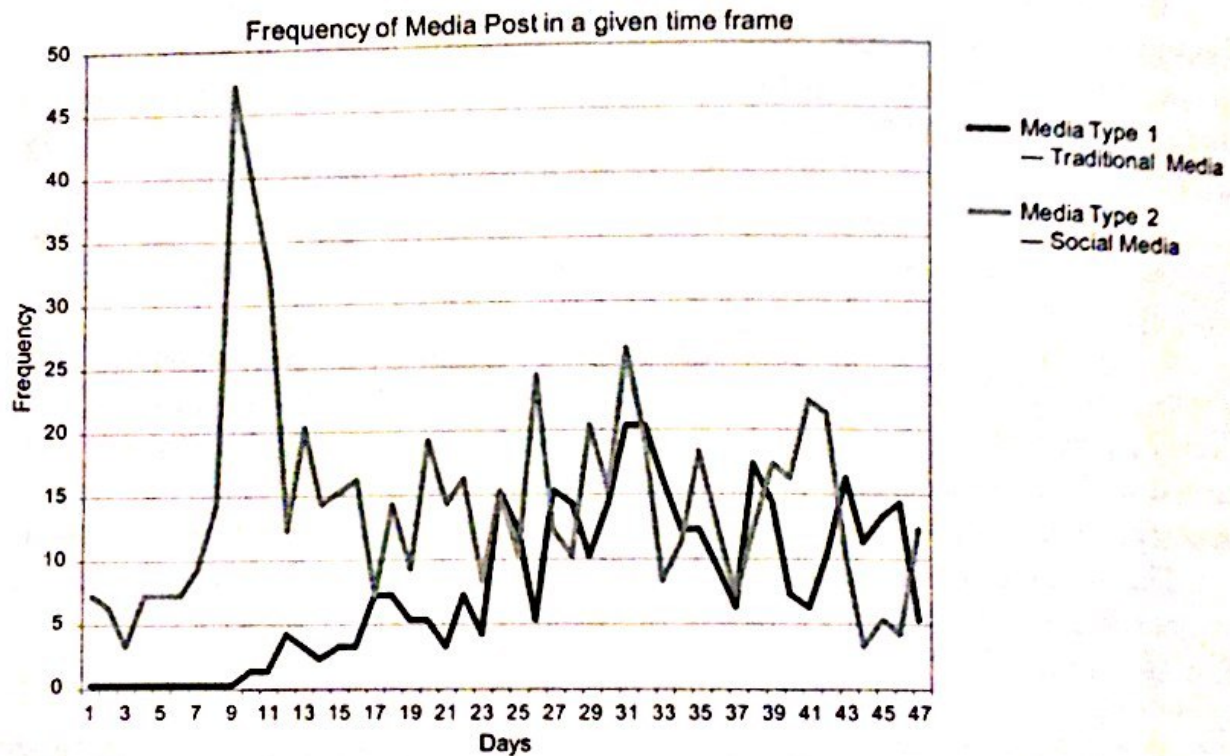


Fig. 4. The social media and traditional media coverage between 9/15 and 10/31

Source: authors.

This suggests that social media content did serve to build the story that was later picked up by the traditional media.

Research question 2 asked if social media could generate issue salience for the traditional media. In order to verify potential correlations between the two media, artificial time manipulations were conducted on the data, with an attempt of discovering correlative relationships between the two (see Appendix 1). The statistical analysis indicated that there was no discernible pattern in the data. Therefore there is no statistical proof ($p > .05$) to support the notion that social media served to drive media coverage over time or that traditional media set the agenda for social media. What is more, the analysis shows that social agenda is highly correlated with other agendas even with time lags as long as seven days. Similarly, the traditional agenda is highly correlated with other traditional media agendas. The changes in media agendas occur slowly unless there is a significant newsworthy

- b. Type of publication — Data was divided into two categories, traditional media (newspapers) and social media (Facebook).
- c. Name of the medium — *The New York Times*, *The Washington Post*, *The Los Angeles Times*, Occupy Wall St., and Occupy Together.
- d. Article or posting type — Determined as “Informational” (emphasizing raw facts), “Op-Ed” (emphasizing attitudes or opinions), and “Human Interest” (emphasizing personal stories and emotional narratives).

The second section explored the nature of the posts and the positioning of the Occupy Wall Street phrasing within the piece itself. Variables of interest included:

- a. Does the headline mention “Occupy Wall Street?” — Although self-explanatory for newspaper articles, headlines on Facebook were considered to be either the first sentence of the posting, or the headline of the posted link.
- b. Does the body mention “Occupy Wall Street?” — For Facebook postings, the body was considered to be anything following the initial sentence, or the presence of the phrase in the text of a post or link.

c. Is the reference substantive? — To be “substantive” was understood as whether the article or posting focused on the Occupy Wall Street movement or events connected to it, such as the protests themselves or incidents directly connected with the protests (such as police actions against protestors) or if the article or posting merely mentioned “Occupy Wall Street” but focused on another subject.

The third part of the coding guide examined the relationship of the two media within the content itself. Specifically the authors explored whether the article or posting referred readers to content within the media type or across to the other media type.

a. Does the object refer to social media? — References to social media were understood to be a mention of social media sources or a link to social media content away from the original page.

b. Does the object refer to traditional media? — Traditional media references were considered to be either the citation of a traditional media source, the mention of a traditional media source, or a link to a traditional media website.

In all, 1019 individual media objects were analyzed. Intercoder reliability was determined via the application of Krippendorff’s Alpha to a sample of 102 objects, resulting in an intercoder reliability estimate of .86 utilizing the program ReCal2 0.1 (see www.dfreelon.org).

Findings

In the first stage of coverage there was no traditional media for the initial eight data points. Therefore, the only coverage of the issue within this time period was that of the social media. Intriguingly however, despite the dearth of traditional media coverage, this time period does show a significant jump in social media content. Research question 1 asked if social media could initiate the process of

“Occupy Wall St.” boasts the largest number of likes (345,044), the most activity (256,800), and the largest number of users (44,894). Emphasizing the events in the New York City area, “Occupy Wall St.” interacts with national OWS movements, but focuses on the original protest site. The second page, “Occupy Together” serves as a coordinator of various “occupy” movements around the country, seeking to activate and integrate the various occupations into one cohesive movement. Begun on September 23, 2011, the site has 199,274 likes, 57,079 “activities,” and 19,021 users.

For the sample period, the authors focused on the period between September 15, 2011 and October 31, 2011 for several key reasons. The first data point was chosen as it precedes the first major event of the OWS movement, on September 17. This creates a contrast period where no major activity was occurring outside of online planning and preparation as well as encompassing the time earlier described as the “media blackout” (between the 17th and 25th of September). Although Occupy Wall St. had content dating back to August 8, the activity was insignificant and engagement with publics beyond those actively planning to protest was minimal. October 31, 2011 was the last full date for data as collection began on November 1. These dates created a data collection space encompassing 47 days.

Data Collection

Utilizing the search engine LexisNexis, the authors conducted a comprehensive investigation of all content of the three traditional media sources. The search was targeted at the particular phrase “Occupy Wall Street” as not only does this phrase explicitly refer to the protest movement itself but it also excludes overlapping terms such as “Wall Street” or “occupy.” This search yielded 348 individual articles on LexisNexis that were selected for closer analysis ($n = 348$, mean = 7.4 articles per day).

Data selection on Facebook was determined by the aforementioned dates, although it should be observed that the authors only took into account posts authored by the administrators of the respective pages. This is to say that external activities and user postings (“wall comments”) were not taken into consideration as part of the data set. The final data set included 671 individual “posts” from the two Facebook pages ($n = 671$, mean = 14.28 posts per day).

Drawing from the pre-existing trends in the field of agenda setting analysis, the authors opted to utilize content analysis of the articles and posts in question as the optimum methodological approach to the subject. A coding guide was developed to examine factors key to the research questions proposed. The first section examined the nature of the content itself including the following categories:

- a. Date of publication — Dating was based on the 47 date points bracketed by the selected time-frame.