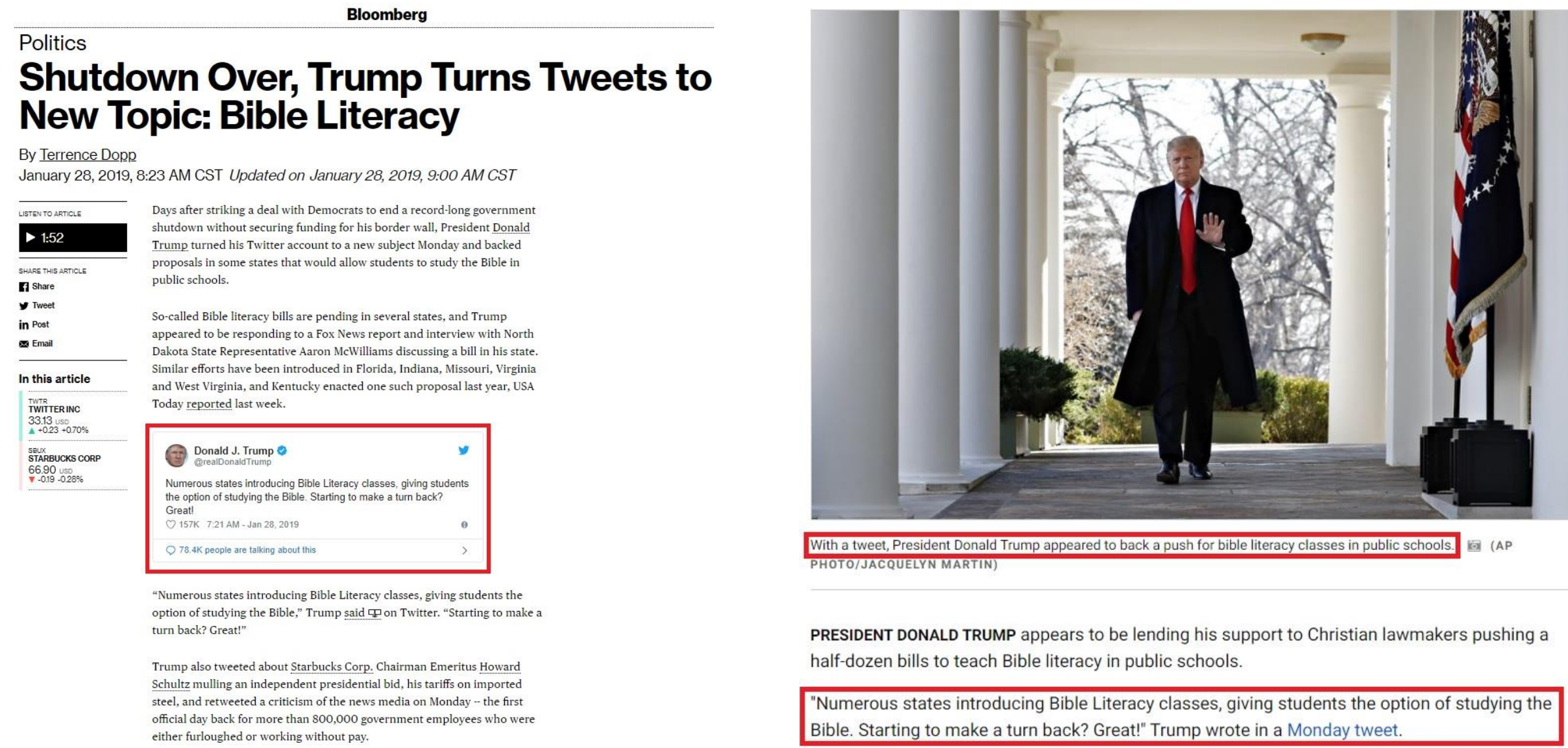


# Uses of social media source in news almost doubled in five years. Unreliable media outlets rely on social media more than the mainstream media.

## “I found this on Facebook/Twitter”: Use of Social Media as Source

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### Motivation



### Widespread use of social media content as source

- Journalists quote and paraphrase contents from social media pages regularly.
- “Convenient, cheap and effective” news source. [Marcel Broersma and Todd Graham. 2013]

### Lack of research on social media sourcing practice

- No large scale analysis on the extent to which news media use social media as news source.
- Experiment on sourcing practice focusing US media is absent.

### Systematic analysis will be beneficial

- To explain how social media becomes a primary source.
- To understand the role of social network used by news media in spreading misinformation.

### Research Questions

- RQ1:** How often do mainstream and unreliable news websites use Facebook and Twitter content in articles?
- RQ2:** To what extent do mainstream and unreliable news media process Facebook and Twitter content used in articles?
- RQ3:** Does the use of social media source vary for different news topics?

### Extraction of Social Media Source

- Curated Facebook posts dated from January 1, 2013 to December 31, 2017 (**Table 1**)
- Extracted news articles from Facebook posts containing links.
- Identified 212 (Facebook 134, Twitter 78) patterns. (**Figure 2**)
- Developed a regex based classifier using the patterns.
- Categorized the source usages into - *Quotation, Paraphrase and Embedding* (**Table 3**)

### Analysis

- 9.15%** of the articles contained at least one social media source.
- Major portion of the articles use Twitter as a source compared to Facebook. (**Table 4**)
- Unreliable media (**3.61** source/article) practice social media sourcing more often than the mainstream media (**2.12** source/article).
- Mainstream media use Facebook sources more often than unreliable media outlets.
- The practice of citing SM is increasing over time. (**Figure 1**)
- A mainstream article uses more direct quotations compared to an unreliable article. (**Table 2**)
- Mainstream media use more Quotation than Paraphrase, but the usage is almost equal for unreliable media. (**Table 4**)
- Both type of media use social media source in **Politics** related news more often than in other news topics. (**Table 5**)
- Unreliable media uses more social media source than mainstream media in the common topics. (**Table 6**)

### Reference

- Broersma, M., & Graham, T. (2013). Twitter as a news source: How Dutch and British newspapers used tweets in their news coverage, 2007–2011. *Journalism practice*, 7(4), 446-464.

**Table 1: Dataset Statistics**

Media Type	# of Organizations	# of Posts	# of Samples
Mainstream	68	29,656	29,656
Unreliable	85	76,997	29,700
<b>Total</b>	<b>153</b>	<b>106,653</b>	<b>59,356</b>

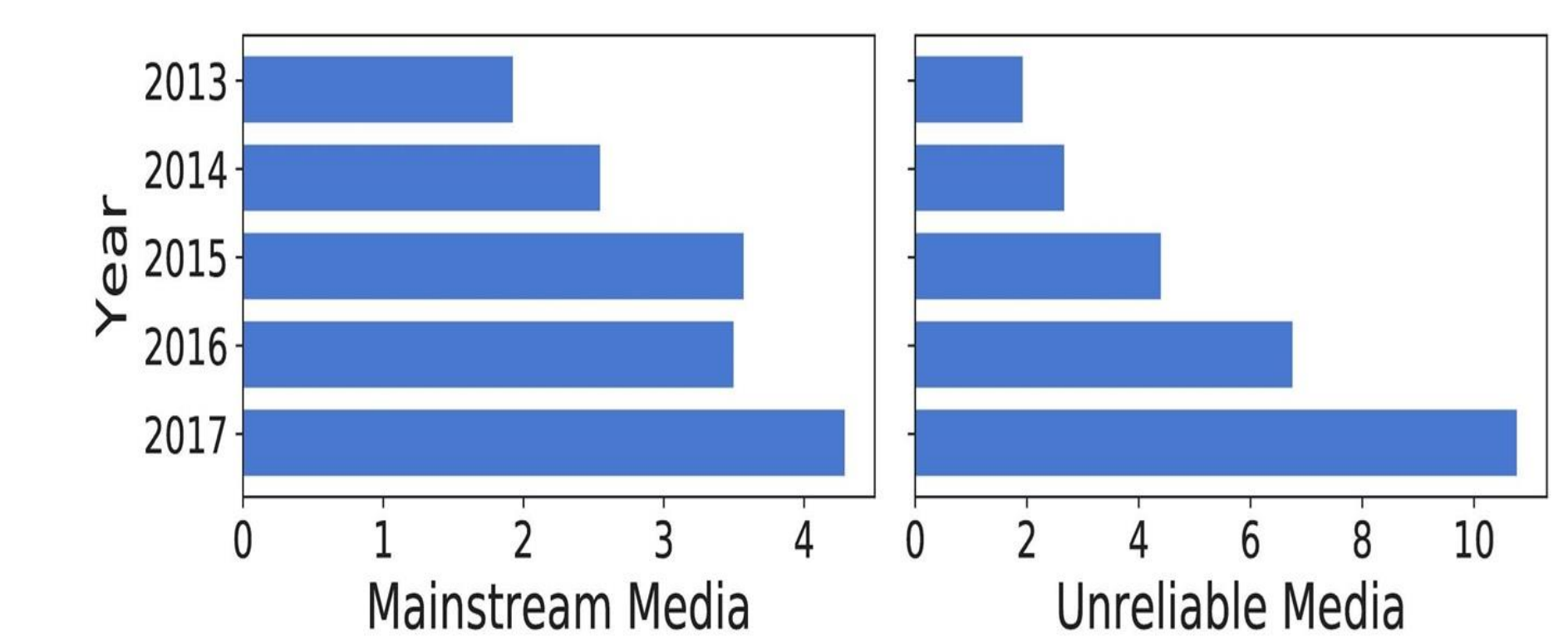
**Table 2: SM Source vs. All Direct Quotations**

Media Type	# Direct Quote (Avg. Per Article)	# SM Source	Ratio
Mainstream	201924 (6.81)	4207	1:48
Unreliable	185182 (6.23)	12436	1:14.89

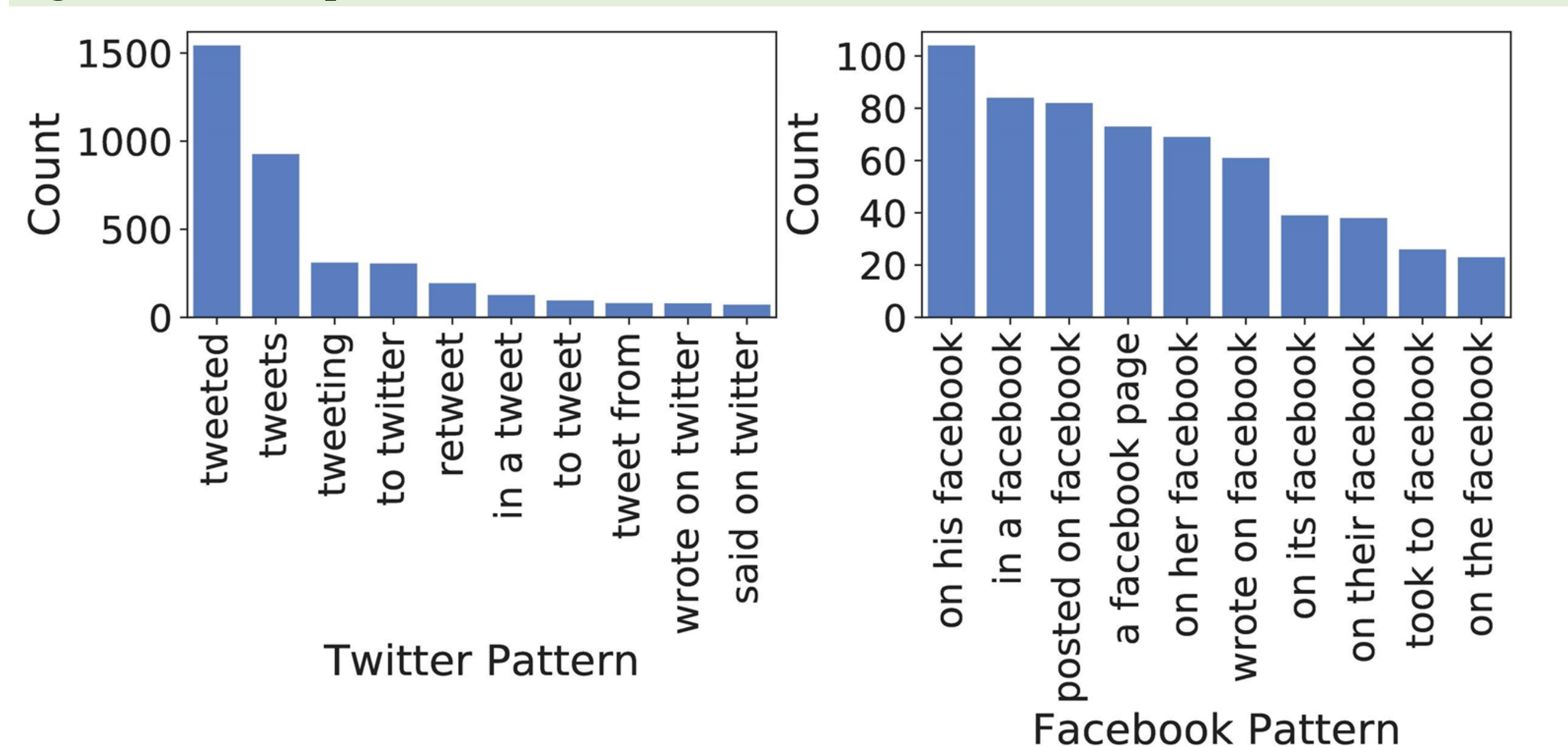
**Table 3: Evaluation of Source Identification**

Category	Precision	Recall	F1
Quotation	89.80%	73.33%	86.21%
Paraphrase	94.34%	79.37%	80.73%
Embedding	100%	100%	100%
<b>Macro-average</b>	<b>94.71%</b>	<b>84.23%</b>	<b>88.98%</b>
<b>Micro-average</b>	<b>97.85%</b>	<b>92.62%</b>	<b>95.16%</b>

**Figure 1: Percentage of SM Sourcing over Time**



**Figure 2: Most Frequent Twitter and Facebook Patterns**



**Table 4: Social Media Source Usage As a Source by Mainstream and Unreliable Media**

Source	Media	# of Articles	Quotation	Paraphrase	Embedding	Total
Twitter	Mainstream	1654	1065 (28.22%)	866 (22.95%)	1843 (48.83%)	3774 (89.71%)
	Unreliable	3170	1137 (9.41%)	1130 (9.35%)	9814 (81.24%)	12081 (97.15%)
	<b>Total</b>	<b>4824</b>	<b>2202</b>	<b>1996</b>	<b>11657</b>	<b>15855</b>
Facebook	Mainstream	377	228 (52.66%)	205 (47.34%)	--	433 (10.29%)
	Unreliable	324	178 (50.14%)	177 (49.86%)	--	355 (2.85%)
	<b>Total</b>	<b>701</b>	<b>406</b>	<b>382</b>		<b>788</b>

**Table 5: Processing of Social Media Sources in Different News Topics**

Topic	Mainstream			Unreliable		
	Quotation	Paraphrase	Embedding	Quotation	Paraphrase	Embedding
Politics	377 (47.7%)	238 (30.1%)	175 (22.2%)	665 (9.8%)	648 (9.5%)	5495 (80.7%)
Entertainment	303 (26.8%)	241 (21.4%)	585 (51.8%)	197 (14.7%)	116 (8.7%)	1026 (76.6%)
Sensitive Subj	187 (32.8%)	165 (29%)	217 (38.1%)	217 (13.8%)	172 (10.9%)	1185 (75.3%)
Law & Govt	69 (34.8%)	73 (36.9%)	56 (28.3%)	75 (11.3%)	74 (11.1%)	516 (77.6%)
Sports	97 (17.1%)	380 (66.8%)	92 (16.2%)	30 (17.1%)	28 (15.9%)	118 (67%)
Society	22 (18.2%)	38 (31.4%)	61 (50.4%)	64 (11.8%)	66 (12.2%)	413 (76.1%)

**Table 6: Social Media Source Usage in the Top-5 News Topics for Each Media**

Media Type	Topic	# Articles	# Articles with Social Media Source
Mainstream	Arts & Entertainment	5943	491 (8.26%)
	Sensitive Subjects	3391	300 (8.85%)
	Law & Government	2793	112 (4.01%)
	Sports	2592	213 (8.22%)
	Politics	2389	369 (15.45%)
Unreliable	Politics	7104	1711 (24.09%)
	Sensitive Subjects	3790	484 (12.77%)
	People & Society	2889	171 (5.92%)
	Law & Government	2835	228 (8.04%)
	Health	2546	51 (2%)

