

Jungherr, Andreas. (2016). Twitter Use in Election Campaigns: A Systematic Literature Review. *Journal of Information Technology & Politics*. (Forthcoming).

Technical Appendix

Coding Process

1. Keyword Selection

In the first step of this systematic literature review, I had to decide on which search terms could sensibly be expected to identify literature relevant to political uses of Twitter during election campaigns. I decided on the term "Twitter" to identify papers addressing the use of the service and the word stems "politic*", "elect*", "campaign*" and "candidat*". These word stems cover terms like politics, politician, politicians, election, elections, electorate, campaign, campaigns, campaigning, candidate, and candidates. It is to be expected that papers addressing political uses of Twitter in election campaigns are using these terms in titles, abstracts, or keywords.

2. Source Selection

The aim of this systematic literature review is the collection and discussion of findings on the uses of Twitter during election campaigns. As this topic is addressed by political, communication, and computer researchers it is important to account for the presence of relevant studies in research published in these divergent fields. To do this, I selected three dedicated scientific databases as main sources. These are:

- *Social Science Citation Index (SSCI)* to capture relevant literature published in peer-reviewed social science journals;
- *IEEE Xplore Digital Library (IEEE)* and

2 TWITTER USE IN ELECTION CAMPAIGNS: TECHNICAL APPENDIX

- *ACM Digital Library (ACM)* to systematically cover peer-reviewed conference proceedings and journals in computer science.

To account for other potentially relevant titles not covered by these databases, I also decided to search *Google Scholar*. The combination of these four sources promises to cover relevant research irrespective whether published by social or computer scientists. Also, the combination of results in dedicated scientific databases and the catch-all approach of *Google Scholar* promises to account for biases connected with any one source. The focus on research available in scientific databases is generally very promising for identifying high-quality research but might neglect research published in venues of lesser scientific prominence. Since research on the use of Twitter in election campaigns is still an emerging topic, it is sensible to assume that relevant findings might be published in venues not covered by the databases used above. To account for this, I also searched *Google Scholar* for relevant papers.

3. Search Methods

For the identification of relevant studies, I used a systematic keyword search as well as a snowball search in the sources of articles identified by the systematic procedure. The combination of both approaches promises to account for biases connected with them if used in isolation.

3.1 Keyword-Based Search

In the three dedicated scientific databases (*SSCI*, *IEEE*, and *ACM*), I used a Boolean search for the combination of my preselected search terms in titles, abstracts and keywords of papers included in the databases:

Twitter AND (politic* OR elect* OR campaign* OR candidat*)

3 TWITTER USE IN ELECTION CAMPAIGNS: TECHNICAL APPENDIX

As *Google Scholar* at the time of this writing does not support searches for word stems, I performed a Boolean search for the following term:

Twitter AND (politics OR politician OR politicians OR election OR elections OR campaign OR campaigns OR candidate OR candidates).

Table TA1 shows the total counts provided by searches for these terms.

	SSCI	IEEE	ACM	Google Scholar	Snowball	Total
Twitter AND (politic* OR elect* OR campaign* OR candidat*)	352	576	474	-	-	-
Twitter AND (politics OR politician OR politicians OR election OR elections OR campaign OR campaigns OR candidate OR candidates)	-	-	-	665.000	-	-
Relevant	69	7	11	71 (in the top 1000 most relevant results)	20	127

Table TA1: Results of Search and Selection Procedures

3.2 Non-Systematic Search

To avoid an exclusive reliance on results provided either by scientific databases or the keywords used as selectors, I decided to add a non-systematic search component to my identification process of relevant literature. In addition to the systematic keyword-based search, I checked the literature sections of each topically relevant paper identified by the keyword-based search for further potentially relevant articles, not identified by the systematic search. Relying exclusively on snowball searches to identify relevant papers might bias article selection towards older and well-cited papers. Still, its use here as an additional step to

4 TWITTER USE IN ELECTION CAMPAIGNS: TECHNICAL APPENDIX

identify potentially relevant texts missed by a systematic keyword-based search seems unproblematic and well suited to account for potential biases of the first search strategy.

4. Selection Criteria for Relevance

Keyword-based searches tend to significantly overshoot the actual number of relevant reviews. To account for this, I manually checked each paper returned by the search steps described for its topical and formal relevance for this review. In the case of the *Google Scholar* search, I only checked the top 1000 papers identified by the keyword search sorted by relevance.

4.1 Topical

Topically, this review focuses on research documenting the uses of Twitter during election campaigns. Given this, I only included papers identified by the search steps describe above which reported findings on:

- The use of Twitter by candidates in election campaigns;
- The use of Twitter by publics during election campaigns;
- The use of Twitter by candidates or publics in accompaniment to campaign-related media events such as televised leaders' debates or election night coverage.

I determined the topical relevance of articles based on reading their abstracts or full texts.

4.2 Formal

This literature review only included articles published in peer-reviewed journals and peer-reviewed conferences (peer-review based on full paper submissions). This is due to the different publication cultures in social science and computer science. While one can consider articles published in peer-reviewed journals as gold standard in the social sciences, in

5 TWITTER USE IN ELECTION CAMPAIGNS: TECHNICAL APPENDIX

computer science one has to also account for papers published in conference proceedings. In this review, I only included conference papers that were published in proceedings submitting full papers to peer-review. To determine this, I checked in the respective calls for papers for each conference paper identified by the search steps described above whether the respective conference required a full-paper peer-review prior to publication. Table TA2 lists the respective conferences and their peer-review procedures.

Conference	Review Procedure
ASONAM: International Conference on Advances in Social Networks Analysis and Mining	Peer-Review: Full Paper Submission
CHI: Computer Human Interaction	Peer-Review: Full Paper Submission
CSCS: International Conference on Control Systems and Computer Science	Peer-Review: Full Paper Submission
CSCW: Computer-Supported Cooperative Work and Social Computing	Peer-Review: Full Paper Submission
GROUP: The International ACM Conference on Supporting Group Work	Peer-Review: Full Paper Submission
HICSS: Hawaii International Conference on System Sciences	Peer-Review: Full Paper Submission
ICAC SIS: International Conference on Advanced Computer Science and Information Systems	Peer-Review: Full Paper Submission
ICEGOV: International Conference on Theory and Practice of Electronic Governance	Peer-Review: Full Paper Submission
ICTD: International Conference on Information and Communication Technologies and Development	Peer-Review: Full Paper Submission
ICWSM: The International AAAI Conference on Web and Social Media	Peer-Review: Full Paper Submission
d.go: International Conference on Digital Government Research	Peer-Review: Full Paper Submission
PLEAD: Politics, Elections and Data	Peer-Review: Full Paper Submission
SocialCom: IEEE International Conference on Social Computing and Networking	Peer-Review: Full Paper Submission
ACM Web Science	Peer-Review: Full Paper Submission
WSDM: Web Search and Data Mining	Peer-Review: Full Paper Submission
WSM: World Social Marketing Conference	Peer-Review: Full Paper Submission

Table TA2: Conferences included in the review

5. Coding Process

In coding the papers identified as relevant, I checked in the papers' full-texts whether they corresponded with specific characteristics identified below. I then coded them accordingly. I performed this coding process myself.

5.1 Topical Coding

In a first step, I coded whether a paper's findings referred to either:

- Candidates' uses of Twitter during election campaigns;
- Publics' uses of Twitter during election campaigns;
- Twitter's uses during campaign related mediated events.

These categories were developed a priori based on the topical interests of the literature review.

5.2 Topical Coding: Findings

In a next step, I coded whether a paper confirmed or contradicted a list of specific observations. I developed this list inductively based on the observations I extracted from the full-texts of the papers included in the review and checked whether they were supported or contradicted by other works. In the end this resulted in a list of 107 observations. Based on this list, I developed the narrative account presented in the paper.

5.3 Year

I also recorded the year or years on which a paper's findings were based.

5.4 Country

I also recorded the country or countries on which a paper's findings were based.

5.5 Methodological Approach

I then coded whether the paper used one or more of the following methodological approaches.

7 TWITTER USE IN ELECTION CAMPAIGNS: TECHNICAL APPENDIX

- Case Study
- Digital Trace Data
- Experiments
- Interviews
- Surveys

5.6 Data Collection

In a next step, I recorded the specifics of how authors, who were using data collected on Twitter in their work, collected the data from the microblogging service.

5.7 Data Selection Criteria

Finally, I coded for the selection criteria used by authors who were using data collected on Twitter in their work. The different approaches were:

- @Mentions of politicians
- Hashtags
- Keywords
- Users (accounts followed)
- Users (hashtags used)
- Users (official function)