Study examines how news spreads on Twitter

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Nearly every major news organization has a Twitter account these days, but just how effective is the microblogging website at spreading news? That's the question University of Arizona professor Sudha Ram set out to answer in a recent study of a dozen major news organizations that use the social media website as one tool for sharing their content.

The answer, according to Ram's research, varies widely by news agency, and there may not be one universally applicable strategy for maximizing Twitter effectiveness. However, news agencies can learn a lot by looking at how their news diffuses once it is posted on Twitter, said Ram, McClelland Professor of Management Information Systems in the UA's Eller College of Management.

Ram, who recently presented her findings at the International Workshop on Business Applications of Social Network Analysis in Istanbul, examined, over a six-month period, the Twitter activity of 12 major news organizations focused on U.S. news, global news, technology news or financial news.

All of the agencies selected – The New York Times, Washington Post, BBC, NPR, Reuters, Guardian, Forbes, Financial Times, Mashable, Arstechnica, Wired and Bloomberg – regularly share news articles on Twitter, which allows users to post 140-character messages as well as links to online content.

Ram, working with Devi Bhattacharya, an MIS doctoral student at the UA, tracked what happened to a news article after it was tweeted by a

news organization. Together, they looked at how many people retweeted, or reposted, the article on their own Twitter feeds, then how many times it was subsequently retweeted from those accounts and so forth.

They were then able to evaluate the volume and extend of spread of an article on Twitter, as well as its overall lifespan.

"The goal for a news agency is to have a lot of people reading and following your articles," said Ram, who is also a professor of computer science at the UA. "What we've done is use network analysis, which is quite different from just looking at the total number of tweets or total number of retweets. You're starting to see, over time, how information is spreading."

Ram and Bhattacharya rendered the data they collected from each organization visually as images showing how the news is diffused. The network visualizations appear something like fireworks, with dots representing individual twitter users and cascade streams from those dots depicting retweets. The images reveal different diffusion patterns for the different agencies, which can provide clues to those organizations about how their news is spreading and what they might want to focus on to be successful, Ram said.

"This gives them good feedback, and it's kind of a performance report for them," Bhattacharya said. "It gives them an idea about the reading habits of people online and how they like to consume news."

Of the organizations analyzed, BBC had the maximum reach in terms of affected users and retweet levels. BBC articles also had the highest chance of survival on Twitter, with 0.1 percent of articles surviving, through continual retweets, for three or more days. The BBC's high numbers were likely due in large part to the fact that the main "bbcnews" Twitter account also is supported by two other agency accounts –

"bbcbreaking" and "bbcworld," Ram said. The New York Times and Mashable had the second highest reach. Articles from Forbes, Wired and Bloomberg had the shortest Twitter lifespans.

Overall, Ram said the data showed that articles on Twitter dissipate fairly quickly, with retweeting typically ending between 10 and 72 hours after an article is originally shared.

The Twitter study is a jumping off point for further research into how news is disseminated through various social media platforms, Ram said. In December, Ram will present a follow-up paper at the Workshop on Information Technologies and Systems in Florida on the importance of Twitter-follower engagement for news organizations, as opposed to volume of followers.

"The term 'social media' refers to a lot of things. The first thing people think about is Facebook and then Twitter, but it's so much more than that," Ram said. "It's really all the various forums – the blogs, photo sharing sites, video sharing sites, microblogging, social bookmarking like Digg, Delicious and Reddit and so on."

Ram's research is part of the ongoing work being done by the UA's INSITE: Center for Business Intelligence and Analytics. The center – which Ram co-directs with Paulo Goes, head of the UA's MIS department – mines data from social media sources to find patterns that can help businesses and organizations identify ways to improve their operations.

Ram says she hopes to do more extensive research on news sharing and develop partnerships with news agencies to help them answer specific questions about their social media practices and performance.

"The idea is really to see if we can make some predictions," Ram said.

"What are some attributes of these networks that will help us make predictions? Is it number of followers? Is it engagement of followers? Is it what time you tweet? Is it who else is tweeting at the same time? Which are the more useful attributes that will help us predict, and therefore will help us give organizations suggestions on how to be more effective in spreading their news? Because ultimately their goal is more people reading their articles and talking about them."

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