Tweets

Caroline Black  @caroKblack
College Students’ perceptions of foodborne illness related tweet credibility based on features and sources #NACTA13
@Background

• Twitter
  # Created: 2006
  # Active users: 140 million
  # Tweets per day: 340 million
  (Moscaritolo, 2012; Pring, 2012; Roberts, 2012; Twitter, 2012a).

• Top users
  # 18 to 26 years old
  (Allen et al., 2010; Mitchell et. al, 2012)

• Accessible media
  # Breaking news
http://twitpic.com/135xa - There's a plane in the Hudson. I'm on the ferry going to pick up the people. Crazy.

@keithurbahn
Keith Urbahn

So I'm told by a reputable source that there have killed Osama Bin Laden.

Retweeted by katiematus and others
Previous Study

• Morris et al. (2012)
  # Identified Twitter Features
  # Impact of Features on Credibility
Problem

• Credible messages are vital to food safety communication
  # Impacts human life

• If college aged students are the largest users of Twitter, what features would lend credibility to them during a food safety situation?
@Objectives

1. Describe students Twitter use
2. Determine if tweet credibility is impacted by the source, i.e. student organization ($X_1$), student ($X_2$), professor ($X_3$)

# Hypothesis: There will be no difference among the credibility ratings by source.

$$H_0: \bar{X}_1 = \bar{X}_2 = \bar{X}_3$$
@Objectives

3. Identify what Twitter credibility features are attributed to each source, i.e. student organization ($\bar{X}_1$), student ($\bar{X}_2$), professor ($\bar{X}_3$)

# Hypothesis: There will be no difference among the credibility features by source.

$$H_0: \bar{X}_1 = \bar{X}_2 = \bar{X}_3$$
@Conceptual_Framework

• Definition of Credibility (2 & 3)
  # Trustworthiness
  # Expertise

• Prominence-Interpretation theory

Prominence \times Interpretation = Credibility Impact

Prominence: An element's likelihood of being noticed when people evaluate credibility.
Interpretation: What value or meaning people assign to element, good or bad.
Credibility Impact: The impact that element has on credibility assessment.

(Fogg, 2003)
Methods

- Quantitative study
  # COALS U3, social science-based majors ($N = 687$)
  # Electronic survey covered three main constructs (Dillman, 2006)
    # Students’ Twitter use
    # Source credibility factors
    # Tweet credibility factors

# Validity and Reliability
  # Panel of experts
  # Pilot test: $\alpha = .84$
  # Study: $\alpha = .88$
@Rank_Biographies

Dr. John White
@DrWhite_TAMU
Former Department Head, professor of food safety, Texas A&M University #FoodSafety
College Station, TX

Sara Smith
@SaraSmith92
I'm currently a student worker at Texas A&M University, Food Science major & E. Coli 0157:H7 guru. #FoodSafety
College Station, TX

Aggie Foodies
@AggieFoodies
A group of students passionate about sustaining the world’s safe food supply. #TAMU #FoodSafety
College Station, TX
@Rate&Identify

- Rate 8 tweets
  # One feature per tweet
  # Likert-type scale
  # Not credible to highly credible
  # E. coli O157:H7 content

- Identify source
- Identify feature
@Findings

- Participants

  # $N = 687$
  
  # $n = 200$; 29% response rate
  
  # Typical response for college students with online surveys
  
  # Food industry experience: 41%
  
  # $E. \ coli$ O157:H7 encounter: 0.08%
  
  # Other foodborne illnesses encounter: 21.3%
- **Objective 1**

  - Twitter users: **69.5%**

  # User-type information collapsed into categories

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tweet</strong></td>
<td>Less than once a month</td>
<td>1-5 days a week</td>
<td>Once to multiple times a day</td>
</tr>
<tr>
<td><strong>Followers</strong></td>
<td>Less than 50 followers</td>
<td>Maximum of 200</td>
<td>Minimum of 300</td>
</tr>
<tr>
<td><strong>Followed</strong></td>
<td>Less than 50</td>
<td>Maximum of 100</td>
<td>Minimum of 200</td>
</tr>
</tbody>
</table>
@Objective_1

- Non-Twitter users: **30%**
  
  # I do not see a purpose in using Twitter: **39%**
  
  # I do not know how to use Twitter: **8.5%**
  
  # I have other SM accounts I’d rather use: **32.2%**
  
  # I do not want to use Twitter: **20.3%**
@Objective_2

- In order to determine source credibility factors:

- Participants ranked the three biographies

  # Reverse weighted rankings
  #   3.0 – Most likely
  #   2.0 – Second most likely
  #   1.0 – Least likely

  # Summed for overall ranking
@Objective_2

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College Station, TX
@Objective_2

- Professor or student > student organization
- Additionally participants:
- Rated 8 tweets
  # One feature per tweet
  # Likert-type scale
  # Not credible to highly credible
  # *E. coli* O157:H7 content

- Identify source
- Identify feature
@Objective_2

- Results were analyzed
- One-way ANOVA
  # Reject the null hypothesis
  # PostHoc test
  # Bonferroni adjustments ($p < .05$)
- One significant difference between sources
- **Objective_2**

- One statistically significant difference between sources

<table>
<thead>
<tr>
<th>Tweet feature credibility factors by author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Features</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Tweet contains spelling mistakes</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

*Note.* The numbers in parentheses in column heads refer to the numbers used for illustrating significant differences in the “Post hoc” column.

- Users do view this feature to impact credibility differently depending on the source
4. Identify what Twitter credibility features are attributed to each source, i.e. student organization ($X_1$), student ($X_2$), professor ($X_3$)

# Hypothesis: There will be no difference among the credibility features by source.

$H_0: \bar{X}_1 = \bar{X}_2 = \bar{X}_3$
- Identify features within tweets

<table>
<thead>
<tr>
<th><strong>Twitter Feature</strong></th>
<th><strong>Total percent correct</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tweet contains spelling mistakes</td>
<td>57.5%</td>
</tr>
<tr>
<td>Tweet contains short URL</td>
<td>51%</td>
</tr>
<tr>
<td>Tweet contains hashtag (#)</td>
<td>66.7%</td>
</tr>
<tr>
<td>Tweet contains punctuation mistake</td>
<td>30.1%</td>
</tr>
<tr>
<td>Tweet contains long URL</td>
<td>74.5%</td>
</tr>
<tr>
<td>Tweet is a reply to another Twitter user</td>
<td>49.7%</td>
</tr>
<tr>
<td>Author is retweeted (RT) by others</td>
<td>35.3%</td>
</tr>
<tr>
<td>Tweet is a retweet</td>
<td>41.8%</td>
</tr>
</tbody>
</table>
@Objective_3

- Survey
  # Match the feature to the source perceived to use each feature the most

- Chi Square test
  # Observed difference between the credibility features attributed to the source
    # All were statistically significant
    # Reject the null hypothesis
@Objective_3

- Student Organization: @AggieFoodies
  - # Author is retweeted by other users
  - # Author has many followers
  - # Tweet contains short URL
@Objective_3

- Student: @SaraSmith92
  
  # Author is following many users
  # Tweet contains spelling mistake
  # Tweet contains punctuation mistake
  # Tweet contains hashtag
  # Tweet is a reply to another user
  # Tweet is a retweet
@Objective_3

- Professor: @DrWhite_TAMU
  # Author’s biography suggests topic expertise
  # Tweet contains long URL
@Conclusions

- Moderate user profile = Average Twitter user accounts
  
  (Beevolve, 2012).

- Non-users:
  
  # Did not want to use it
  # Saw no purpose
  # Other social media accounts

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@Conclusions

- Tweet credibility *is* impacted by the source
  
  # Professor or student to tweet about foodborne illness
  (Objective 2)

- Different features *are* perceived to be used by
  *different* Twitter users (Objective 3)
@Implications

- Twitter is ever changing
@Implications

#Inauguration
Tweets referencing the Inauguration of Barack Obama and related terms — January 20, 2009 and January 21, 2012
Follow @gov for more about government & politics on Twitter.

- 12:06 pm - 27,795 TPM
  President Obama: "We cannot mistake demonstration for principle, name calling as a substitute for debate."

- 11:53 am - 24,760 TPM
  President Obama begins Inaugural Address following ceremonial Oath of Office

- 2013
- 1.1 Million Tweets
during the Inauguration Ceremony
(11:27 am to 12:34 pm)

- 11:21 am - 14,062 TPM
  President Obama announced and seated

- 12:06 pm - 1/20/2009
  3,210 TPM
  Barack Obama sworn in as the 44th President of the United States

- 2009
- 82,392 Tweets
during the Inauguration Ceremony
(5:10 pm to 6:10 pm)
@Implications

- Study should be replicated
  - Determine what other features are used

- Create Twitter Instrument
  - Credibility of tweet content; test-retest

- Research to look at how Twitter features are used
  - Reasons people retweet
  - Crossover to other social media platforms
  - Apps
@Implications

- How do Apps and events incorporate features from Twitter?
- Research to look at how Twitter platforms are used
@Implications_4Ag

- Conduct Twitter research on target audience
  # What are the conversations by
    # Twitter users during foodborne illnesses?
    # Students, scientists, government organizations?

- Understand the audience – who is reading your tweets?

- Be aware of what features are used on Twitter to communicate to the public
  # Apply features that will increase credibility
Tweets

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NACTA 2013 | Texas A&M University