Psychological factors in rumor propagation after the Great East Japan Earthquake

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Summary of Rumor Psychology

- **Prasad (1935) in *British Journal of Psychology***
  - found that in the past 1,000 years the same types of rumors related to earthquakes appear again and again in different locations.

- **Rumor studies have revealed psychological factors that affect rumor spreading behavior**
  - Anxiety, Accuracy, Importance (Anthony, 1973; DiFonzo & Bordia, 2000; Rosnow, 1991; Walker & Beckele, 1987)

- **Nevertheless, false rumors still circulate**
  - 2008: Sichuan earthquake – the Internet (Sun, Jin, & Gao, 2009)
  - 2010: Haiti and Chile earthquakes – social media (Mendora & Poblete, 2010; Oh, Kwon, & Rao, 2010)
  - 2011: Great East Japan Earthquake
Mechanism of Rumor Occurrence

**Mikami (1986)**

- Rumors occur and spread, because people try to interpret ambiguous situations in an emergent situation
  - When an earthquake occurs…
    - shaking is perceived
    - peacetime definition of “situation” collapses
    - ambiguous situations occur
    - additional info is sought to understand the situation
  - Information shortages creates a gap between supply and demand
  - Rumors occur to fill the gap
The number of social media users in Japan
(http://www.netratings.co.jp/nielsen_wire/jp/2011/06/28/sns_201105.pdf)

- The number of social media users increased after the earthquake.
  - Social media played an important role in sharing information and coordinating disaster response.
Order matters...

Many people tried to stop the spread of false rumors by criticizing the rumor tweets.

- Not only the government officials and experts but also many laypeople posted criticism tweets.

Where is the evidence? Without it, this tweet is just a rumor.

RT@kobayashiasao: A big earthquake warning has been announced. The earthquake will hit within 48 hours. It will be over M7.
Exposure to criticisms increased the proportion of rumor-stopping responses
Practical Implication

**Rumor will never disappear...**
- To understand ambiguous situations
- Rumors look accurate, important, and rise anxiety

**However, we can minimize the negative impacts...**
- Design a social-technological environment has the potential to inactivate false information.
  - Exposure to criticisms increased the proportion of rumor-stopping responses
- Design attentions based on understanding psychological reasons.

Check evidence before the click
Distinguish GUESS from FACT

Attention by AC
References