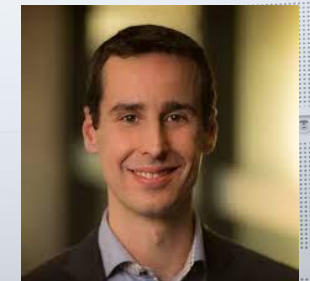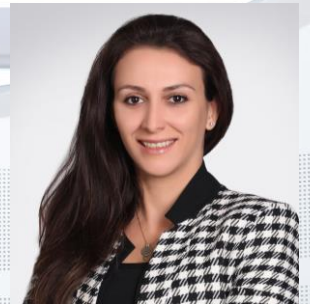# As Time Goes By: Temporal Characteristics of Social Media and Crisis Communications

Deborah Bunker, Maryam Shahbazi, Tania Sorrell and Christian Ehnis
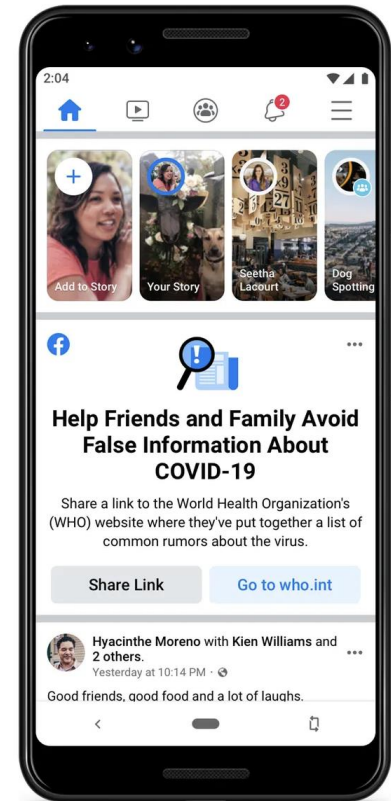
THE UNIVERSITY OF SYDNEY

Social Media Crisis Communication

- Timely and unfiltered information
- Raise concerns and express sentiments
- Determine disaster magnitude
- Check-in with family and friends
- Maintain a sense of community
- Seek and express physical and emotional support
- *Make sense of an event*

Crisis Communication
Overload of Information & Misinformation

The infodemic of COVID-19 misinformation can be classified into four major thematic areas, including; (1) the **cause and source** of the disease and virus; (2) the **symptoms and patterns** of transmission; (3) **existing treatments,** cures, and prophylactics; (4) the **outcome of interventions** by health authorities and organisations – *Coronaviris Disease 2019 (COVID-19) Situation Report-85 WHO (2020)*

Shared Situational Awareness and COVID-19

., "… *There is no need to bulk-buy products at supermarkets, including toilet paper, paracetamol and canned food*" NSW Health posted to Facebook on 5 March 2020, post ID 1239123602953645

Trusted Shared Situational Awareness

Implies that:

– Technology can provide adequate information to enable decision makers in a geographically distributed environment to act as though they were receiving and perceiving the same information

– Common methods are available to integrate, structure, and understand the information and

– Critical decision nodes share institutional, cultural, and experiential bases for imputing meaning to this knowledge.

– Harrald & Jefferson (2007)

Shared Situational Awareness and Aligned Mental Models

- Developed through alignment of "mental models" i.e. shared version of truth and reality on which we can act

- Important basis for effective information sharing and decision making in crisis response and

- Development of an objective stance of information and its underlying assumptions : authenticity; accuracy; timeliness; relevance; and importance of the information communicated and gives: concurrence; weight; and urgency, to decisions and advice.

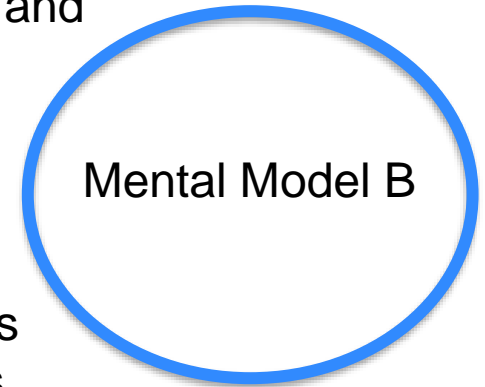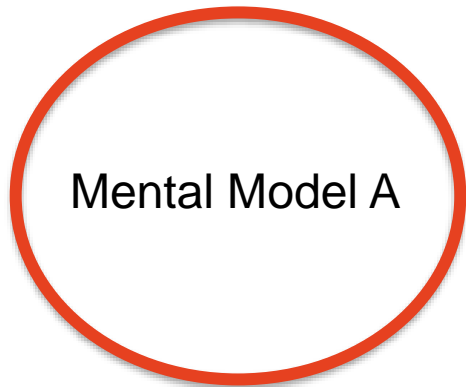Mental Model A
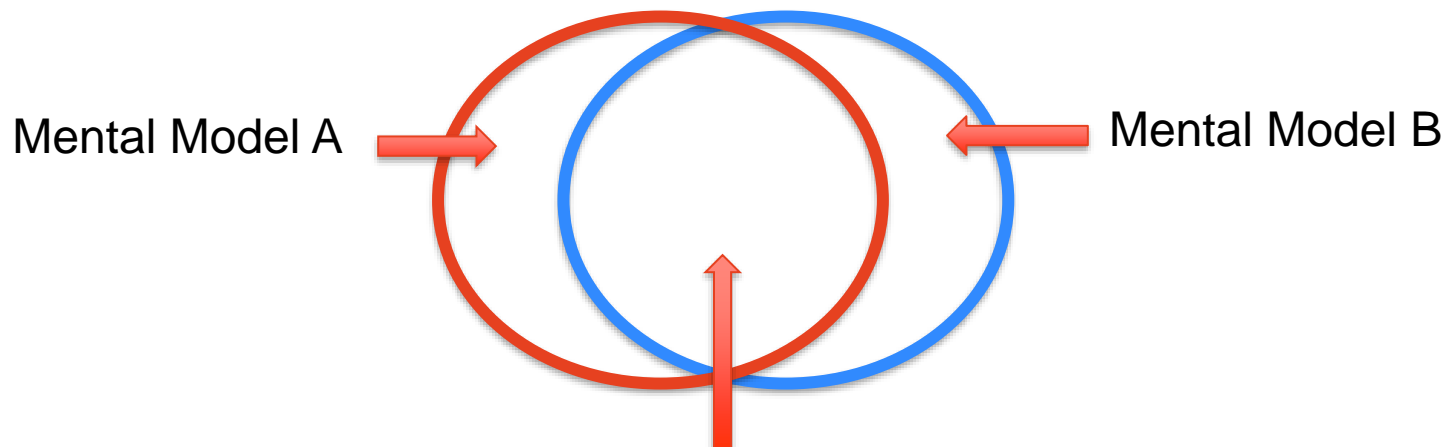
Mental Model B

Shared version of truth and reality

(Bunker, 2020)

"Digital Destruction" of Mental Models

Individual user profiles, AI and data analytics fed by mis-information and rumours

Mental Model A

$$$

Mental Model B

Opaque recommender algorithms
Trusted social media influencers
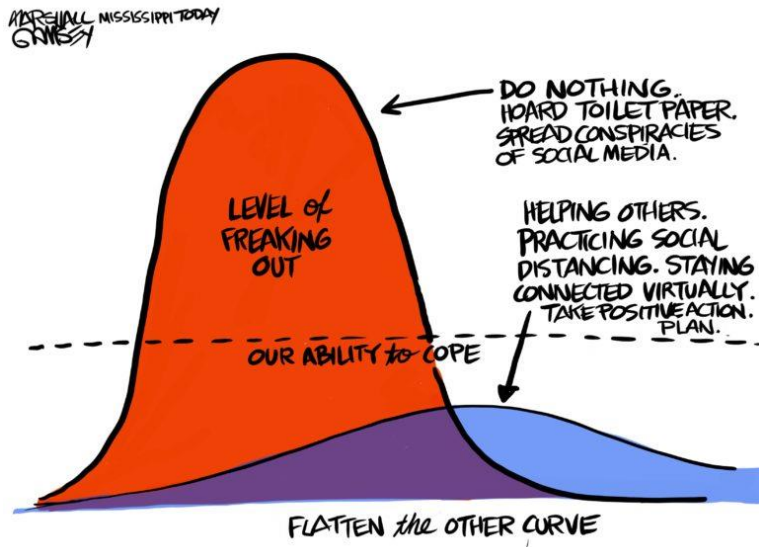
Four Stances of Information

1) Physical, 2) Objective, 3) Subject-centred, 4) Socio-cultural

Each stance is underpinned by assumptions regarding information existence in the world and conditions of that existence.

- Data (definition)
- Knowledge (definition)
- Signs
- Human beings (creators, interpreters, appropriators)
- Social context
- Technology use
- Relevance to IS research

Boell (2017)

Crisis Communications and Trusted Situational Awareness: Essential Conditions

1) Alignment of mental models and

2) Development of an objective information stance (and associated underlying assumptions).

Information and communications solutions in this class of systems must "be researched as an objectively existing artifact, with particular interest in the accuracy of representations enabled or captured by IT artifacts" Boell (2017).

Figure 5. Images of massive crowds at Bondi went viral around the world. (Raper, A. (2020); AAP: John Fotiadis).
Source: Adapted from ABC (2020) ©John Fotiadis.
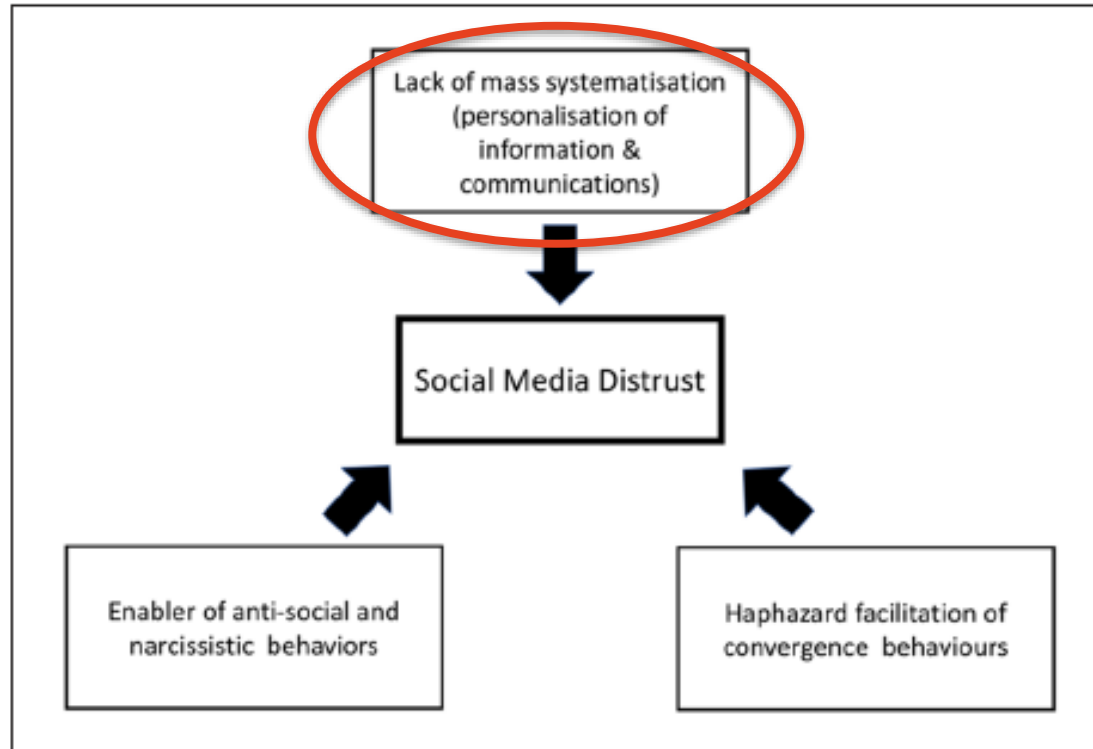
Social Media: A Subject-Centred IS Artifact

Figure 1. Factors contributing to social media distrust. Mirbabaie et al. (2020)

There is a 'stance tension' when social media is used for crisis communications.

Emergency Response Agencies

- Are influential in shaping the human response to crisis situations (reputational and swift trust)

- Have an early mover information advantage and

- Can amplify and intensify communications for event sense-making through influential social media users.
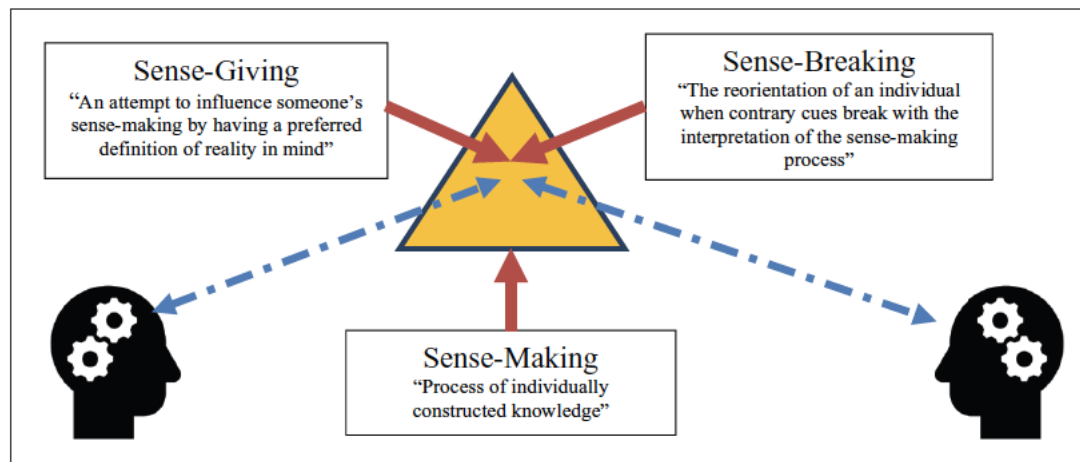
Mirbabaie et al. (2020)

Figure 2. The interplay of sense-giving, sense-breaking and sense-making.

However....

- Agencies have difficulty analyzing high volumes of information i.e. social media messages, due to the inability to authenticate the information source (user) and establish the accuracy, timeliness and relevance of the information itself i.e., trustworthiness of information and its source, but

- Social media is effective for subject-centred personalisation of information and communications.

This presents us with an objective-subjective IS tension in the *condition of existence* where information needs to be both 'a representation of reality' and 'meaningful and relevant to a human being'.

Connection Characteristics of Trusted Shared Situational Awareness in an Actor Network

- **Content -** To bridge the *information* gap through the identification of key information elements;

- **Type -** To understand the fluency of how actors *communicate* through describing this communication in detail; and

- **Quality –** To analyse the role of *trust* on the quality and fluency of information and communication.

Connection characteristics:
Link content: *Information*
Link type: *Communication*
Link quality: *Trust*

Actor

Actor
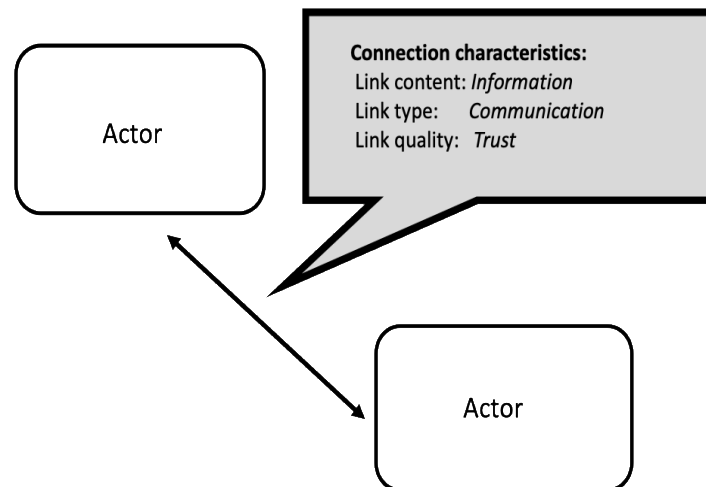
Seppanen et al. (2013)

Trusted Shared Situational Awareness

How the spread of misinformation on social media affects the formation of trusted shared situation awareness.

We investigate
- How local health organisations in Australia, at state levels, use social media (i.e., Facebook), the content (information) and type (communication strategies) to mitigate COVID-19 misinformation propagation, and
- How this knowledge can be used to enhance the development of shared situational awareness.

Research Approach

Dataset of 765 posts and their linked public comments published from 1 January to the end of April 2020 on the NSW and VIC Health Departments Facebook pages (posts for 2020 totalled 3,798).

Four-month window to study information and communication strategies focussed on two major pandemic events;

1) the start of the pandemic in Australia - late January 2020; and

2) the first COVID-19 peak of cases in March/April 2020.

Daily new confirmed COVID-19 cases in Australia in 2020
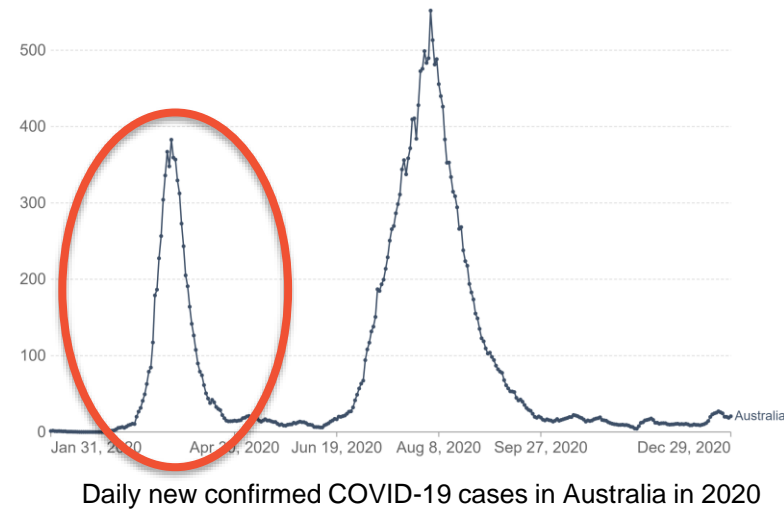
- Close reading of posts
- Removal of 'factual' posts
- Thematic analysis of 29 posts that addressed 4 key misinformation themes (outlined previously – WHO COVID-19 situation report)

Findings – RQ1 (Mitigation of Mis-information Propagation)

Content (information)

(1) contradictory (*infodemic acceleration - changed over time*),

(2) countering fabricated (*infodemic containment - confirmed*), and

(3) myth-busting (*infodemic mitigation - yet to be confirmed*).

Type (communications strategies)

(1) the **containment of misinformation by posting 'counter-information',** or 'corrections' of imprecise posts, as well as

(2) **mitigation of misinformation by posting 'myth-busting' information** related to general rumours and inaccuracies about COVID-19.

# Findings – RQ2 (Improvement of Trusted Situational Awareness)

Agencies should consider:

1) **Development of communications strategies** that deal with objective/subjective tensions by **accommodating variations in advice over time** (knowledge of the virus and its impact, availability and use of RATS, access to services etc.) to develop and enhance trusted situational awareness and

2) **Match these strategies to changing crisis conditions** and **consider 'niche' approaches targeted at specific communities** of interest (cultural, at risk etc.) and **convergence behaviors** (the impacted, influencers, volunteers, experts etc.).

Conclusions

Identification of a new phenomenon i.e., old Facebook posts containing obsolete information contradicted subsequent new 'current' knowledge. These old posts could be considered misinformation or *contradictory information.*

The **temporal characteristics of social media** (information changed over time, currently confirmed, yet to be confirmed) **can undermine the trustworthiness of the information source** which can subsequently 1) accelerate an infodemic and/or 2) erode trusted shared situational awareness over time.

The Future
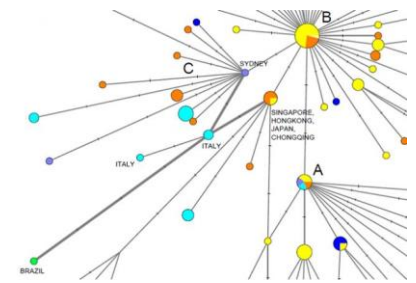
- – Build on the trust in crisis management agencies and other influential actors to provide, revise and amplify information in a time sensitive manner

- – Build frameworks that create algorithmic transparency, information governance and quality assurance for platform and service providers and data aggregators to create and reinforce trust in them

- – Address how all stakeholders e.g. government, media, tech companies, communities etc. can share concepts and contexts to build effective crisis communications systems and

- – Address government failures to provide robust IS services and the impacts on trusted situational awareness in crisis communications.