

Science and the Social Media

A Computational Social Science Perspective

A/Prof Robert Ackland
Australian Demographic & Social Research Institute,
The Australian National University
and
Uberlink Corporation

robert.ackland@anu.edu.au, rob@uberlink.com

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- PhD in economics from ANU
- Working since 2002 on approaches/tools for empirical social science research into the Web (4 related ARC grants).
- Current research interests: Diffusion of information in social media, revealed preference in networks, sampling of social networks
- Established Virtual Observatory for the Study of Online Networks (VOSON) project in 2005
- Established Social Science of the Internet stream in ANU's Master of Social Research in 2008
- *Web Social Science* book (SAGE) due out April 2013
- CEO/Co-founder of Uberlink Corp (provider of web analytics software/services) - operating since 2010

Reconfiguring access to scientific information and expertise?

- Minor political actors leap-frogging major parties
 - But, evidence of 'normalisation' of politics on the Web i.e. major parties (more resources) have caught up
- NGOs and activists operating on a level playing field with government and big business
 - NGO offline resources (e.g. number of paid staff) and offline visibility (e.g. LexisNexus) explain large % of online visibility
- More **equal distribution of scientific expertise** ('democratising' access) [is this even desirable?]
 - Power laws on the Web could in fact contribute to '**superstar scientists**'

Deliberative science or cyberbalkanization?

- Some political scientists have argued that the Web promotes **participatory/deliberative democracy**, others predict **cyberbalkanization**
 - Empirical evidence is mixed
- Similar questions re. impact of social media on science?
 - Hard sciences are perhaps more immune to the 'cult of the amateur' (but citizen science exists)
 - Relates to public understanding (and acceptance) of science
 - Obvious example: climate change science. Social media may affect levels of 'bridging' social capital (hence exposure to different/competing viewpoints). 'Echo chamber effect'

Increasing scientific impact through social media?

- **Scientific impact** is obviously not the same as **social media influence** (proxied by e.g. numbers of retweets/followers, Klout/Kred scores???)
 - Can social media influence have real-world effects?
- What real-world outcomes are scientists interested in?
 - Science disciplines: influence funders, policy makers
 - Individual scientists: influence peers (promotions, etc). Can social media impact traditional citation metrics? "<http://arxiv.org/pdf/xxxx.xxxx>. Please RT! I want this paper to go viral!"
 - Universities/funding agencies: find emerging research areas, trends. Social media may provide **leading indicators** of scientific activity

Using Twitter to map science

- Netbadges (<http://netbadges.com>) was used to collect Twitter networks (follower graph) for users who tweeted on following topics in past week:
 - life science, climate science, computer science, #genomics, #physics, data science, #genetics, #bioinformatics, #nanotech, astronomy
- Visualisation of entire network does reveal structure, but...
 - data cleaning required
 - network sampling
 - Skymapper for social media

