Harnessing Altmetric Data for Translational Research & Community Development: A Case Study

Open Repositories Conference 2018
Montana State University, Bozeman Montana
#OR2018

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Agenda

- Introductions
- Altmetrics: understanding diverse engagement with scholarship and research
- Land Grant universities, extension agents, and knowledge exchange
- Altmetrics at Virginia Tech
- Boyer and the Scholarship of Engagement
- Developing altmetrics User Personas: a new framework for engagement scholarship
- Mediating IRB
- Next steps!
- Questions/Discussion

ALTMETRICS

★ *Indicators of online engagement with digitally-published research outputs*

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What does that mean?

"Alternative" metrics
(vs article-level metrics)

Altmetrics can track attention related to any digital research output or object -- not just scholarly articles!

Illustrations by Jean Liu, jean-liu.com

Different buckets of data . . .

Citation metrics

- Journal or author-level
- Can be slow to accumulate
- Most relevant to journal articles
- Never intended as a quality indicator
- Only reflect influence among other researchers who read/cite journals articles

Web analytics

- Web traffic/funnel analysis
- Dark data
- Page hits/downloads
- Readership statistics
- Reference managers (*Mendeley, Cituelike)*
- Social networks (*Researchgate, Academia.edu)*

Who is sharing and discussing research online?

- Practitioners
- Policy-makers
- Funders
- Unaffiliated researchers
- Special interest groups
- Educators and students
- Corporations
- Artists
- Community groups
- General public

Where is this happening?

- Mainstream news and media
- Curated blogs
- Policy documents and recommendations
- Patent references
- Social media platforms
- Post-publication peer review
- Wikipedia
- Open syllabi

A typical timeline of attention

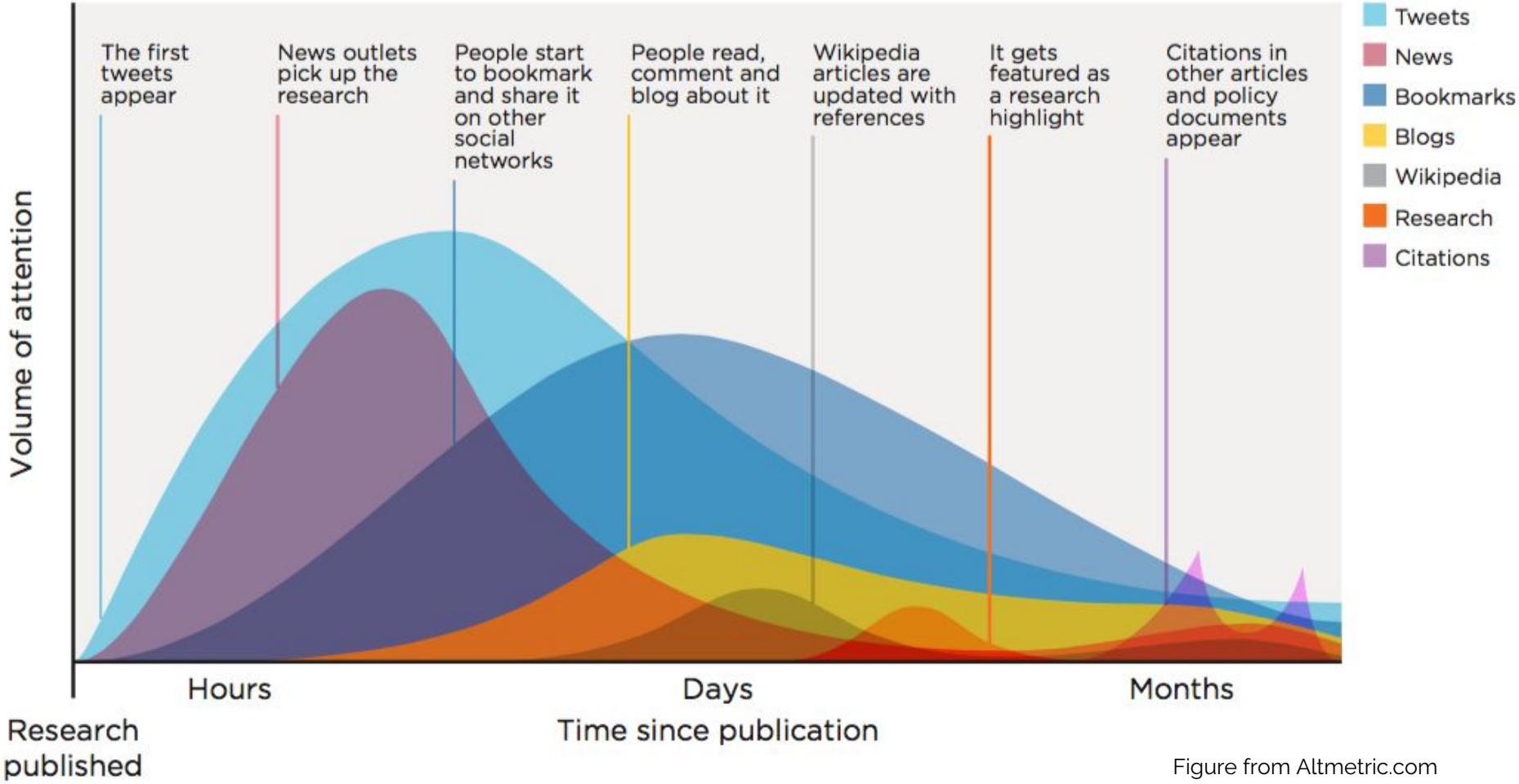
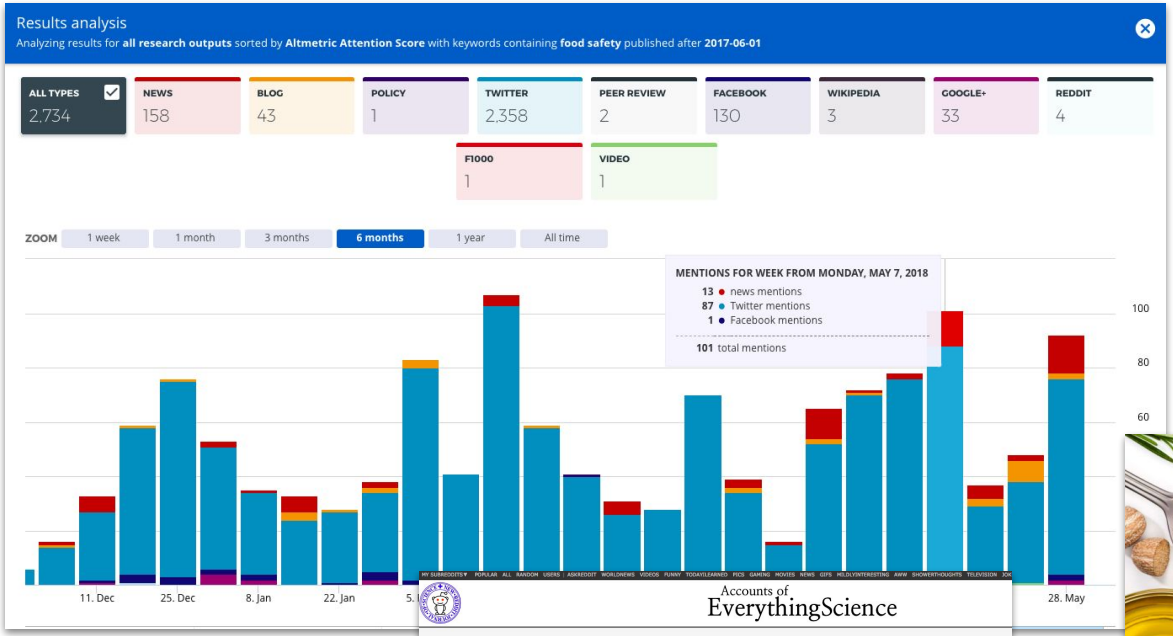
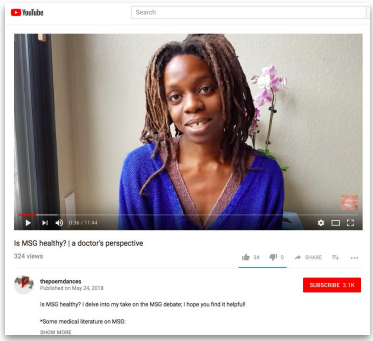


Figure from Altmetric.com


Results analysis
Analyzing results for all research outputs sorted by Altmetric Attention Score with keywords containing food safety published after 2017-06-01
ALL TYPES 2,734
NEWS 158
BLOG 43
POLICY 1
TWITTER 2,358
PEER REVIEW 2
FACEBOOK 130
WIKIPEDIA 3
GOOGLE+ 33
REDDIT 4
F1000 1
VIDEO 1
ZOOM 1 week 1 month 3 months 6 months 1 year All time
MENTIONS FOR WEEK FROM MONDAY, MAY 7, 2018
13 news mentions
87 Twitter mentions
1 Facebook mentions
101 total mentions
11. Dec
25. Dec
8. Jan
22. Jan
28. May

F1000Prime
Poultry hatcheries as potential reservoirs for antimicrobial-resistant Escherichia coli: A risk to public health and food safety.
Osman KM, Kappell AD, Elhadidy M, ElMougy F, El-Ghany WAA, Orabi A, Mubarak AS, Dawoud TM, Hemeg HA, Moussa IMI, Hossain AM, Yousef HMY
Sci Rep. 2018 Apr 11; 8(1):5859
Very Good
18 Apr 2018
Niyaz Ahmed
Muhammad Asaduzzaman
F1000 Microbiology
International Centre For Diarrhoeal Disease Research, Dhaka, Bangladesh.
DOI: 10.3410/f.733035959.793544910


YouTube
Is MSG healthy? | a doctor's perspective
324 views
thepoemdances
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Is MSG healthy? I delve into my take on the MSG debate; I hope you find it helpful!
*Some medical literature on MSG:
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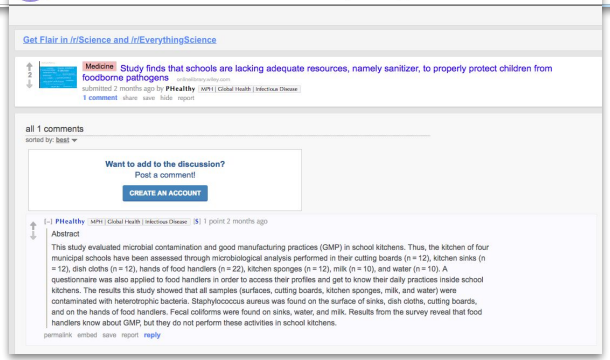
Accounts of EverythingScience
Get Flair in /r/Science and /r/EverythingScience
Medicine Study finds that schools are lacking adequate resources, namely sanitizer, to properly protect children from foodborne pathogens
all 1 comments
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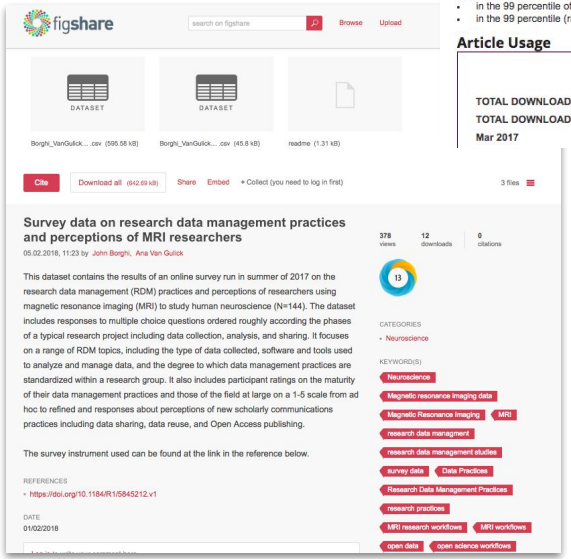
CREATE AN ACCOUNT
PHealthy MPH | Global Health | Infectious Disease 5 1 point 2 months ago
Abstract
This study evaluated microbial contamination and good manufacturing practices (GMP) in school kitchens. Thus, the kitchen of four municipal schools have been assessed through microbiological analysis performed in their cutting boards (n = 12), kitchen sinks (n = 12), dish cloths (n = 12), hands of food handlers (n = 22), kitchen sponges (n = 12), milk (n = 10), and water (n = 10). A questionnaire was also applied to food handlers in order to access their profiles and get to know their daily practices inside school kitchens. The results this study showed that all samples (surfaces, cutting boards, kitchen sponges, milk, and water) were contaminated with heterotrophic bacteria. Staphylococcus aureus was found on the surface of sinks, dish cloths, cutting boards, and on the hands of food handlers. Fecal coliforms were found on sinks, water, and milk. Results from the survey reveal that food handlers know about GMP, but they do not perform these activities in school kitchens.

Food and feed law:
Compendium of UK food and feed legislation with associated context and changes during October – December 2017
Government Chemist Programme Report

Altmetrics and open repositories

- Altmetric data seen alongside citation and usage metrics
- Understand reach and impact of ALL digital outputs
- Pre-prints and altmetrics
- Push by open movement to only share open content



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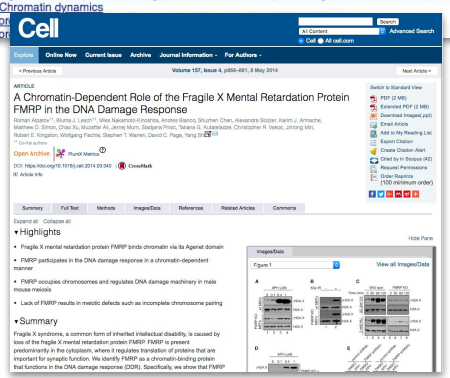
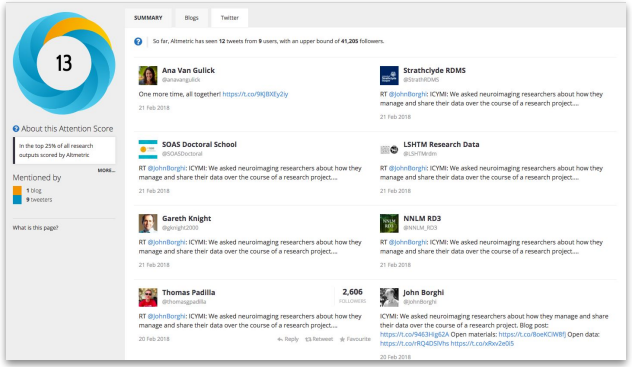
A Chromatin-Dependent Role of the Fragile X Mental Retardation Protein FMRP in the DNA Damage Response
Alpatov, R., Lesch, B. J., Nakamoto-Kinoshita, M., Blanco, A., Chen, S., Stutzer, A., Armache, K. J., Simon, M. D., Xu, C., Ali, M., Murn, J., Prisic, S., Kutateladze, T. G., Vakoc, C. R., Min, J., Kingston, R. E., Fischle, W., Warren, S. T., Page, D. C., Shi, Y. (2014) A Chromatin-Dependent Role of the Fragile X Mental Retardation Protein FMRP in the DNA Damage Response. Cell, 157 (4). pp. 869-81. ISSN 0092-8674
URL: http://www.ncbi.nlm.nih.gov/pubmed/24813610
DOI: 10.1016/j.cell.2014.03.040
Abstract
Fragile X syndrome, a common form of inherited intellectual disability, is caused by loss of the fragile X mental retardation protein FMRP. FMRP is present predominantly in the cytoplasm, where it regulates translation of proteins that are important for synaptic function. We identify FMRP as a chromatin-binding protein that functions in the DNA damage response (DDR). Specifically, we show that FMRP binds chromatin through its tandem Tudor (Agenet) domain in vitro and associates with chromatin in vivo. We also demonstrate that FMRP participates in the DDR in a chromatin-binding-dependent manner. The DDR machinery is known to play important roles in developmental processes such as gametogenesis. We show that FMRP occupies meiotic chromosomes and regulates the dynamics of the DDR machinery during mouse spermatogenesis. These findings suggest that nuclear FMRP regulates genomic stability at the chromatin interface and may impact gametogenesis and some developmental aspects of fragile X syndrome.
Item Type: Paper
Subjects: bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification
bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification > Chromatin dynamics
diseases & disor
diseases & disor
Altmetric
5
Tweeted by 3
128 readers on Mendeley
0 readers on Connotea
1 readers on CiteULike
View details on Altmetric's website

Avinash ಅವಿನಾಶ್
@avinashtn
'Hobo' scientist. ದಂಡಪಿಂಡ.
Joined October 2008


Cell
A Chromatin-Dependent Role of the Fragile X Mental Retardation Protein FMRP in the DNA Damage Response
Highlights
Summary


13
About this Attention Score
Mentioned by
1 blog
9 tweeters
SUMMARY
Blogs
Twitter
Ana Van Gulick
Strathclyde RDMS
SOAS Doctoral School
LSHTM Research Data
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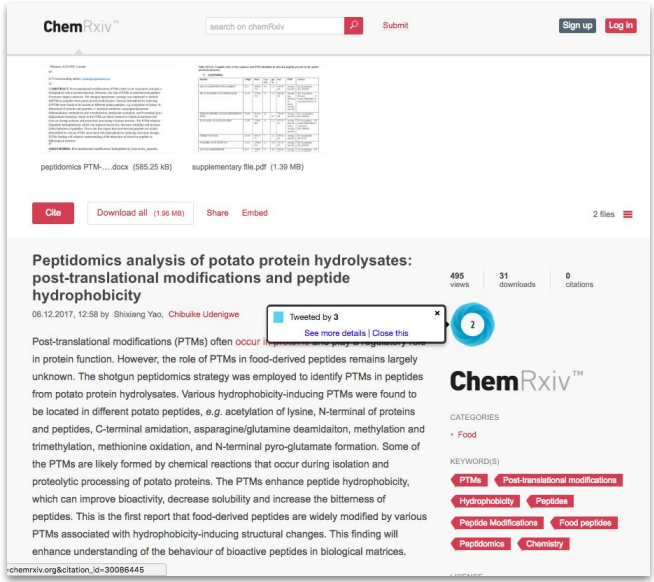
John Borghi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06.12.2017, 12:58 by Shixiang Yao, Chibuike Udenigwe
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0 citations
Post-translational modifications (PTMs) often occur
in protein function. However, the role of PTMs in food-derived peptides remains largely unknown. The shotgun peptidomics strategy was employed to identify PTMs in peptides from potato protein hydrolysates. Various hydrophobicity-inducing PTMs were found to be located in different potato peptides, e.g. acetylation of lysine, N-terminal of proteins and peptides, C-terminal amidation, asparagine/glutamine deamidaiton, methylation and trimethylation, methionine oxidation, and N-terminal pyro-glutamate formation. Some of the PTMs are likely formed by chemical reactions that occur during isolation and proteolytic processing of potato proteins. The PTMs enhance peptide hydrophobicity, which can improve bioactivity, decrease solubility and increase the bitterness of peptides. This is the first report that food-derived peptides are widely modified by various PTMs associated with hydrophobicity-inducing structural changes. This finding will enhance understanding of the behaviour of bioactive peptides in biological matrices.
ChemRxiv
CATEGORIES
Food
KEYWORD(S)
PTMs
Post-translational modifications
Hydrophobicity
Peptides
Peptide Modifications
Food peptides
Peptidomics
Chemistry
chemrxiv.org&citation_id=30086445

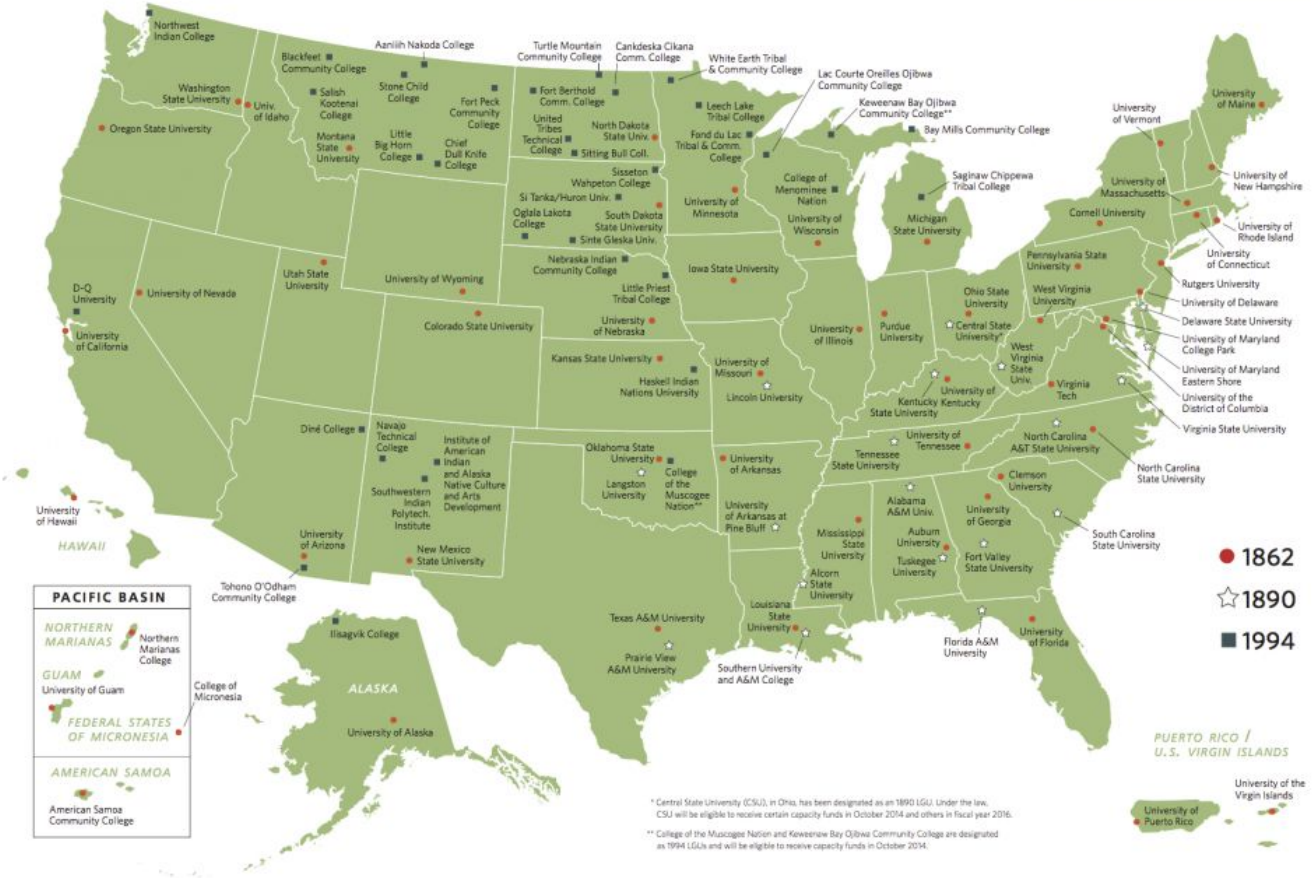
Extension agents and knowledge exchange:

Land grant colleges and the New Scholarship

"...extension will collaborate with partners, on campus and off—to align systems (including recruitment, professional development, accountability, and undoing systems) to support engaged work that cuts across the spectrum of teaching, research, and service."

-- Fear, F., & L. (2016). The "New" Scholarship: Implications for Engagement and Extension

Land Grants, Research Stations, and Cooperative Extension



Virginia Tech

- 1860 land-grant in VA
- Virginia State University, 1890 land grant, HBCU
- Support the researcher by tracking research impact
- Support the publications
- Understand how things are being found and used to suggest strategies “juice worth the squeeze”

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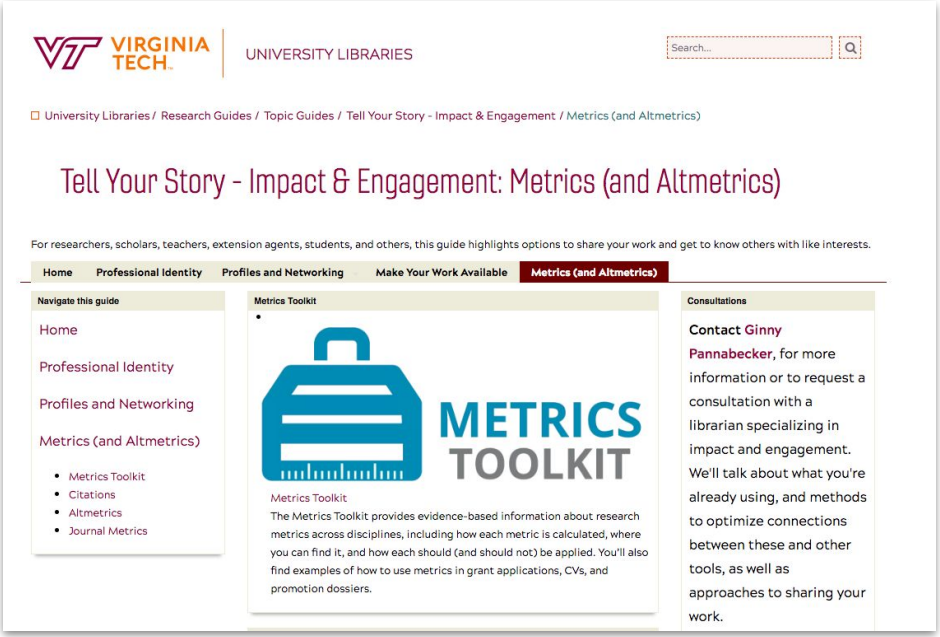
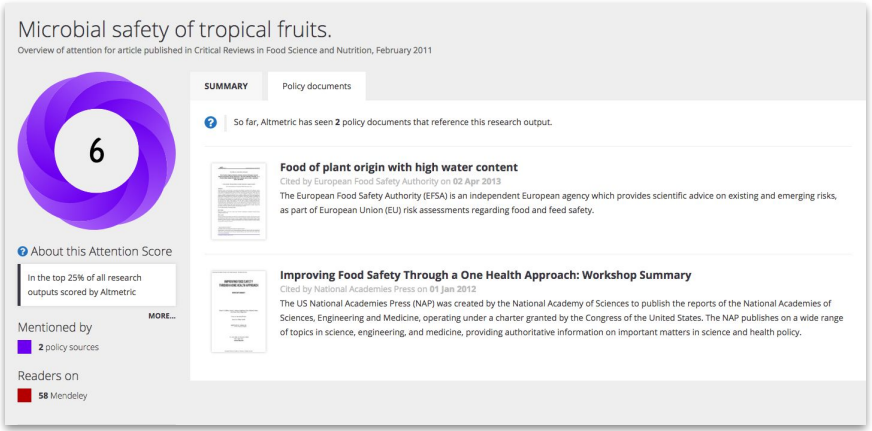
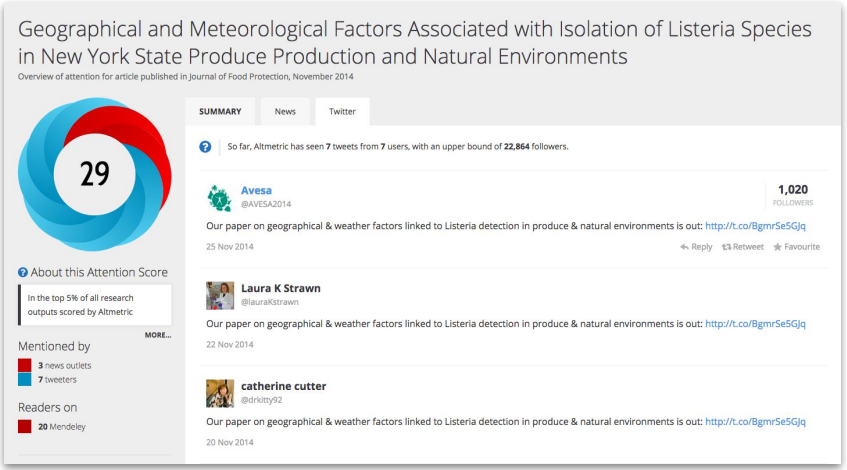
Altmetrics at VT

- Viewed as important element to research impact assessment
- Vital to evidencing reach and influence of scholarship that extends beyond the academy
- Partnered with Digital Science tools like Elements and Altmetric Explorer
- Collaboration with Altmetric and VT librarians to ensure robust, responsible altmetrics education and usage



Examples



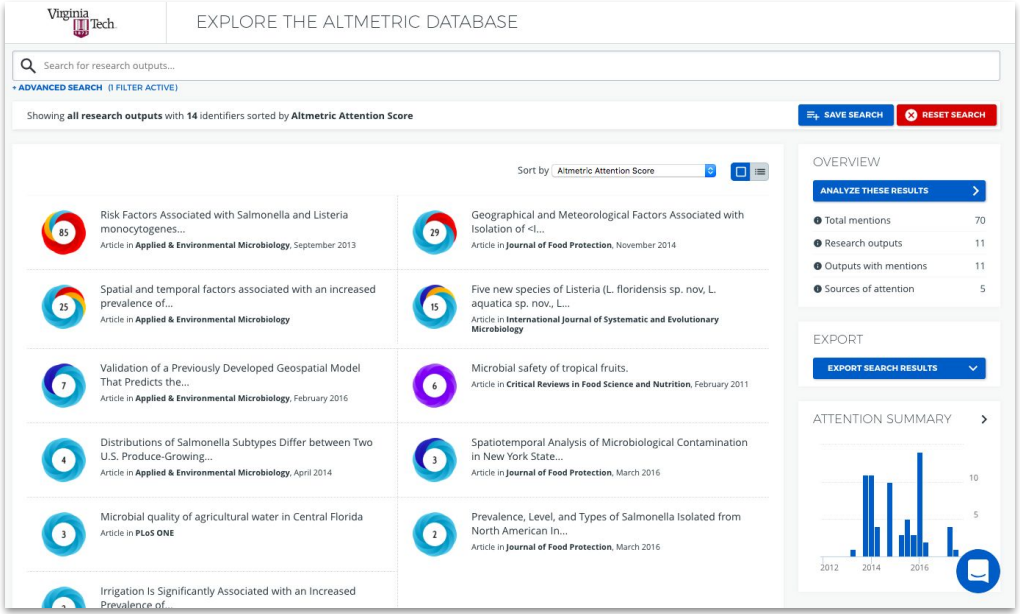


- ★ Global policy mentions targeting community outreach
- ★ Researchers, institutions, and publishers using social media to share information more broadly

Virginia Tech and the Altmetric Explorer

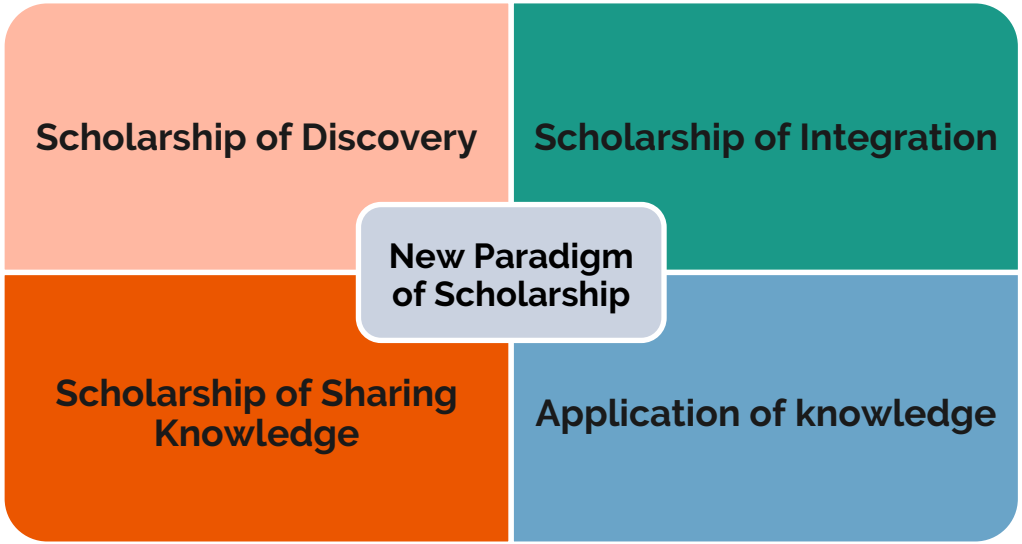
Uncovering attention patterns and timelines

- ★ Real-time data tracking and reporting
- ★ Institutional publication data integration
- ★ Longitudinal and landscape analysis



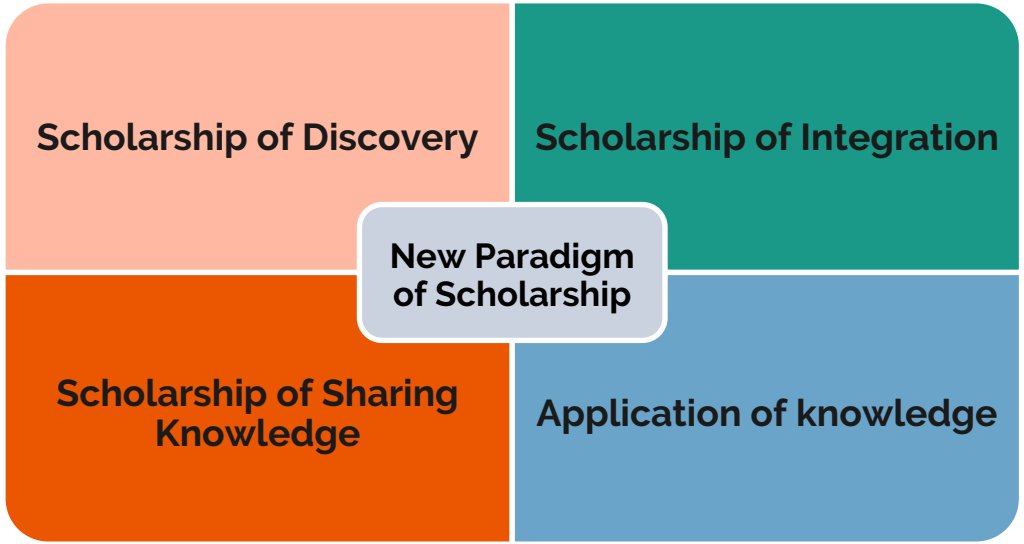
Scholarship of Engagement

Boyer's model: four interlocking components to scholarship



Boyer's model: four interlocking components to scholarship

*Research is essential, but **not** sufficient*



Context and interdisciplinarity

Communication must extend beyond the academy

Scholars as reflective practitioners

The Scholarship of Engagement today

*"Scholarship is not an **it**."*

- Fear, F., & L. (2016)

- Current framework in academia is at odds with engaged scholarship
- Prevailing methodology is that of ***technical rationality***, i.e., "scientific approach," systematic applied procedures
- Scholarship is not static nor a planning process
- New paradigm must challenge traditional construct
- Engaged scholarship must embrace critique and be a dialogue amongst all stakeholders
- Align with the norms of engagement
- Engagement **with whom** and **to what end?**

Alternative frameworks?

https://www.luc.edu/experiential/engaged_scholars.shtml

Alternative frameworks?

A Scholarship of Engagement must keep values and mindfulness at the center.

Habermas's Three Forms of Knowledge

1. Instrumental knowledge (technical rationality)
2. **Communicative knowledge**
3. **Emancipatory knowledge**

Alternative frameworks?

- ★ Facilitator versus expert model
- ★ Reflective practice
- ★ Qualitative and participatory processes
- ★ Expressive forms of scholarship (eg, storytelling)
- ★ Service learning - curricular and faculty function
- ★ Scholarship **IN** engagement
- ★ Engagement in teaching, research, and service
- ★ Engaged forms of inquiry, discovery, and change:
- ★ Participatory and action research

Developing altmetrics user personas

What are user personas?

What are they?

- Hypothetical “user” profiles meant to improve functionality and quality of service
- Originally emerged out of tech development/web design and user experience work
- Involves rigorous qualitative and quantitative data collection and analysis
- Proposed for library site/space design in 2003 by Alison J. Head

What do they do?

- Develops understanding of workflow and behavioral patterns
- Identifies key technical skills unique to each persona
- Determines universal features and functionality
- Evokes empathy; audits and eradicates stereotypes
- Iterative and collaborative -- two way exchange between researchers and communities

User personas for altmetrics

- What primary data is available?
- Secondary?
- What are our assumptions around user categories?
- What attributes align with each?
- What are each user-types' potential frustrations? Motivations?

Extension program personas: reflexive collaboration

Goals:

1. Approach process with a critical lens, keeping mission and values at center
2. Meet needs of extension program workflows and behavioral patterns
3. Develop in the context of engagement scholarship/non-traditional research outputs
4. Identify and align with communication methods and associated with each user
5. Treat personas be living, iterative documents
6. Ensure personas are openly available, shared broadly, and repurposable

Extension program personas: reflexive collaboration

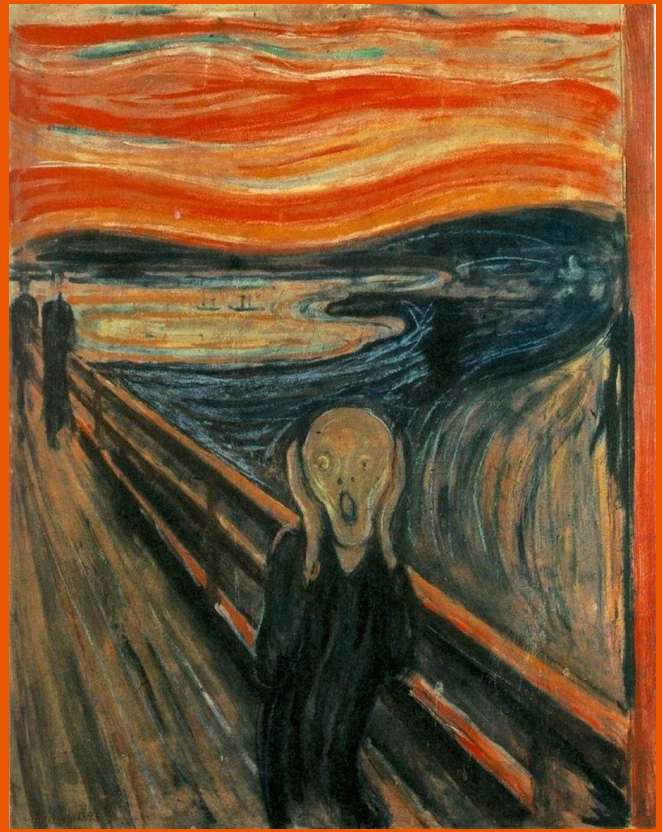
Initial survey questions:

1. How do you define impact with respect to your research/work?
2. Can you describe your professional role/relationship with non-academic communities?
3. How do you distribute/share information with these communities?
4. How many different communities do you feel you serve/work with?
5. What other pathways/forums do you use to share research information and communicate with different audiences? Online or otherwise?

Initial Proto-Personas

	AREC	Extension Agent	Research	Teaching
Attributes / outputs	Field days	Extension pubs	Protocols	Open syllabi
Frustrations	Internet	Need for real-time data	Mediating policies and processes	Large class sizes; costs
Motivations	Support producers	Improve communication efficiency	Obtain and sustain funding	Connect science to practice
Goals	Diffuse risk	Relay time-sensitive, accurate info	Knowledge discovery and innovation	Inspire practical intellectualism

Mediating the IRB process



Next steps

Personas as an iterative, continuous project

1. Conduct qualitative survey
2. Compile results
3. Develop in-depth interview format
4. Interview four Ag and Life Sciences faculty
5. Analyze results
6. Develop personas with feedback from agents
7. Evaluate process
8. Share personas openly!
9. White paper?

Questions? Comments?

Open Repositories Conference 2018
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Lily Troia, MLIS, Engagement Manager, Altmetric | lily@altmetric.com | @lilytroia

thank you
danke
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teşekkür ederim
gracias
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obrigado
dziękuję
bedankt
go raibh maith agat
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