



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*

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!

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*)



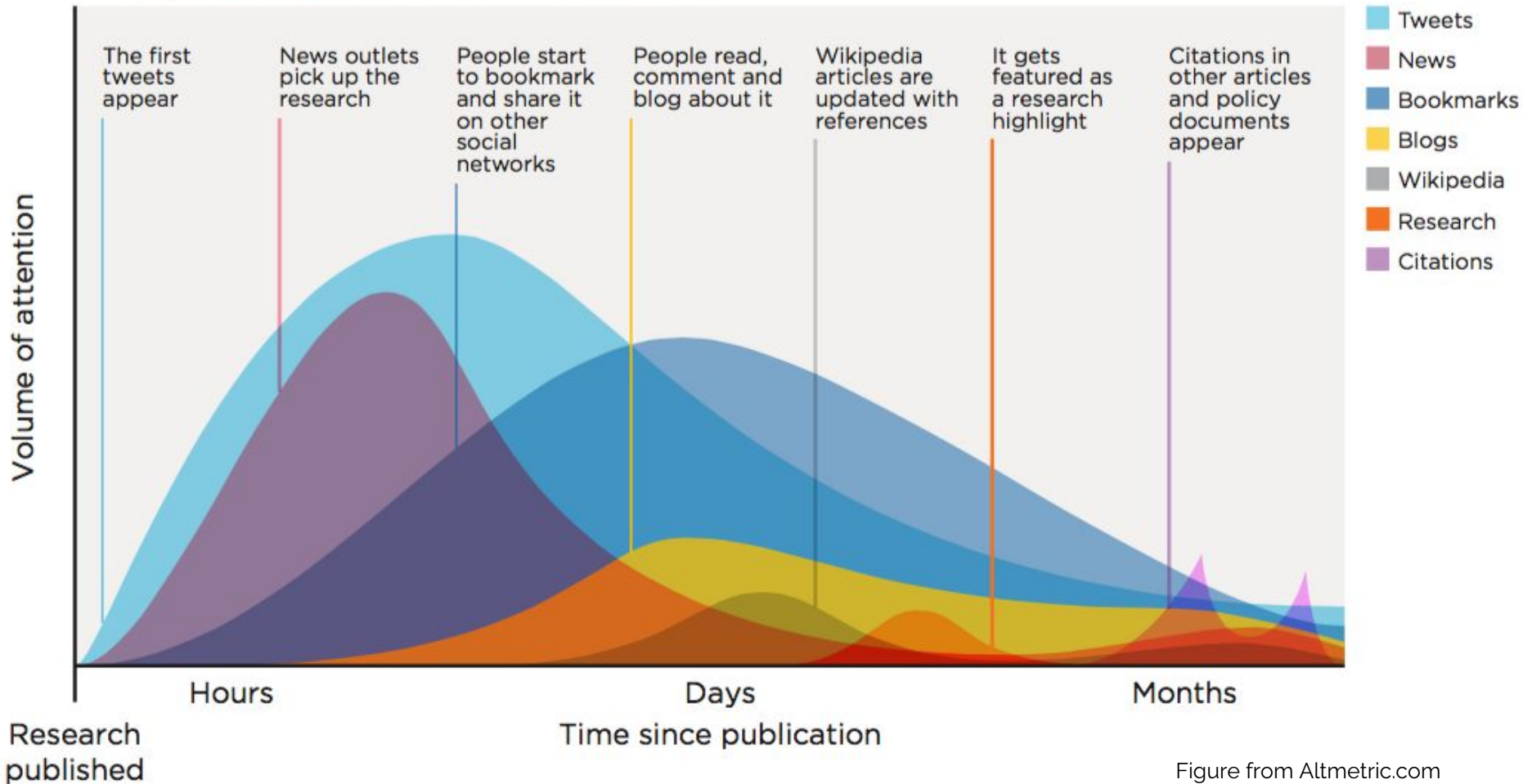
Who is sharing and discussing research online?

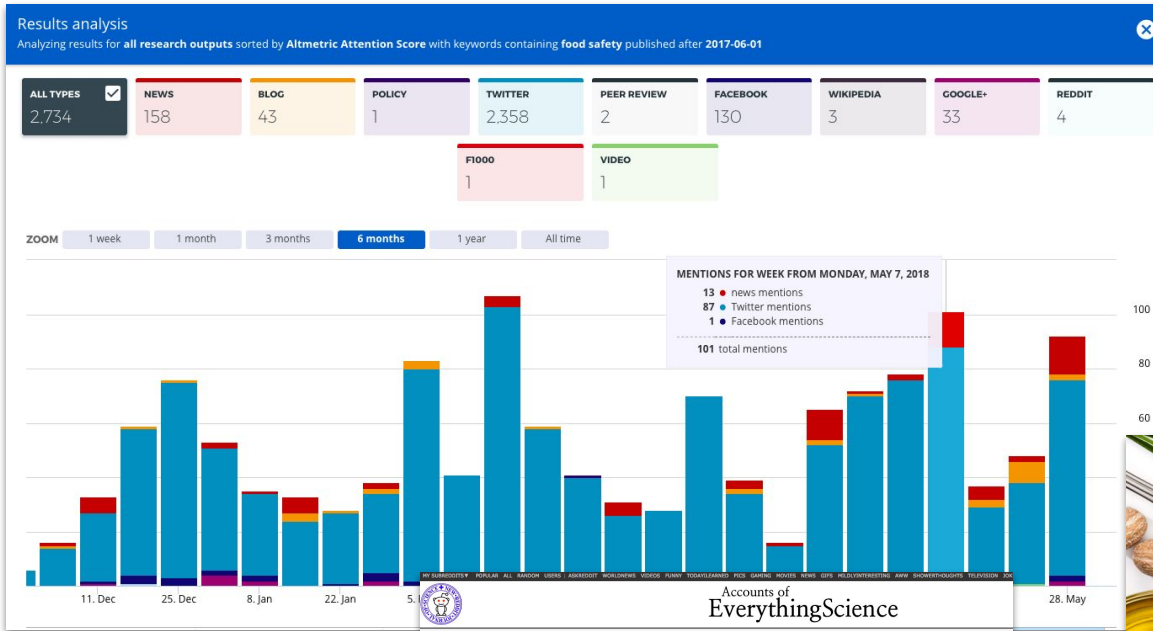
- Practitioners
- Policy-makers
- Funders
- Unaffiliated researchers
- Special interest groups
- Educators and students
- Corporations
- Artists
- Community groups
- General public

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





F1000Prime

ARTICLE RECOMMENDATIONS | REVIEWS | F1000Prime REPORTS | F1000 FACILITY | BLOG

F1000Prime > Article Recommendations

2 Poultry hatcheries as potential reservoirs for antimicrobial-resistant Escherichia coli: A risk to public health and food safety.

Caran RM, Koppell AD, Elshady M, Elkrop F, El-Ghany WA, Ombi A, Mabrouk AS, Dawoud TM, Henrig HA, Mousa IM, Hossain AM, Yousef HMY
show author affiliations
Sci Rep. 2018 Apr 11; 8(1):5659

Save/Follow | Report | Get Article | Call Us

INTERESTING ARTICLE! GET MORE LIKE IT | SMARTSEARCH

RECOMMENDATIONS | ABSTRACT | COMMENTS expand all

★ Very Good 18 Apr 2018

PH Niyaz Ahmed
F1000 Microbiology
International Centre For Diarrhoeal Disease Research, Dhaka, 1212 (BD), Bangladesh.

AFM Muhammad Asaduzzaman
F1000 Microbiology
International Centre For Diarrhoeal Disease Research, Dhaka, Bangladesh.

INTERESTING HYPOTHESES | NEW FINDINGS

DOI: 10.34101/23030999.793544910

We consider this article's finding as a new threat for food safety and new insight into the development of antimicrobial resistance (AMR) in the food chain. Poultry hatcheries are thought to maintain strict biosecurity, and no or very little published information is available for the presence of resistant *E. coli* and genes in the hatchery samples. In the current study, 7 out of 10 sampled Egyptian hatcheries in various locations were found to be harbored with resistant organisms both in the hatchery microclimate and hatchery environment. A total of 63.3% of the hatchery isolates were found to be multiple drug resistant (MDR), whereas 38.7% were extremely drug resistant (EDR). bla_{TEM} resistance gene profiling was also important and detected bla_{TEM} as the most common one along with bla_{CTX-M-1}, bla_{NDM}-like bla_{SHV}-like bla_{SHV} and bla_{CTX}. However, the phenotypic and genotypic analyses of obtained serotypes from hatcheries and the hatchery environments suggest a large variation in producing biofilms, susceptibility patterns and gene expression. This is a clear indication of the potential and distinct role of poultry hatcheries to act as a major reservoir of drug resistant *E. coli* and other pathogens, which has a widespread impact on the spread of AMR in the whole poultry value chain.

YouTube

Search

Is MSG healthy? | a doctor's perspective

324 views

Subscribe 1.1k

More medical literature on MSG

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

submitted 2 months ago by **PHHealthy** · MHI | Global Health | Infectious Disease

3 comments · Share · Save · Reply · Report

all 1 comments sorted by: best

Want to add to the discussion?
Post a comment!

[CREATE AN ACCOUNT](#)

[-] **PHHealthy** · MHI | Global Health | Infectious Disease | S | 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.

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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

Abstract Full Text Authors & Info Figures Metrics Related Content PDF

Online Impact



See more details

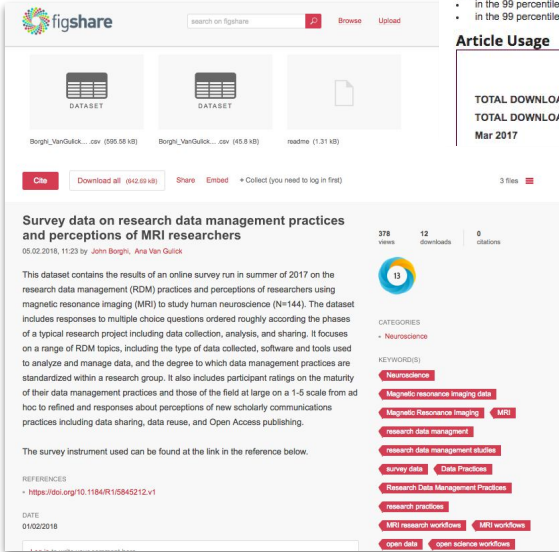
- Picked up by 225 news outlets
- Blogged by 126
- Tweeted by 3833
- Mentioned by 1 peer review sites
- Mentioned by 4 weibo users
- On 437 Facebook pages
- Referenced in 7 Wikipedia pages
- Mentioned in 150 Google+ posts
- Reddited by 14
- Highlighted by 1 platforms
- Mentioned in 2 Q&A threads
- On 4 videos
- 1 readers on Mendeley
- 14 readers on CiteULike

This Altmetric score means that the article is:

- in the 99 percentile of a sample of 173387 of the 173388 tracked articles of a similar age in all journals
- in the 99 percentile (ranked 1) of the 928 tracked articles of a similar age in PNAS

Article Usage

	Abstract/Extract	Full-Text	PDF
TOTAL DOWNLOADS	280626	699324	219429
TOTAL DOWNLOADS 2017	12742	34894	9112
Mar 2017	4307	10359	2529



The screenshot shows a Figshare dataset page. At the top, there's a search bar and navigation links. Below, three dataset thumbnails are visible. The main content area features the dataset title, a description of the survey data, and a list of keywords including 'Neuroscience', 'Magnetic resonance imaging data', 'MRI', 'research data management', 'survey data', and 'open data'. A sidebar on the right displays usage statistics: 378 views, 12 downloads, and 0 citations. It also shows a category 'Neuroscience' and a list of related keywords.

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., Priscic, S., Kutateladze, T. G., Vakoc, C. R., Min, J., Kingston, R. E., Fieshle, 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](https://doi.org/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

[bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification](#)

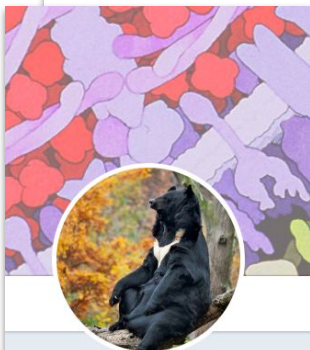
Subjects: [bioinformatics > genomics and proteomics > genetics & nucleic acid processing > DNA, RNA structure, function, modification > Chromatin dynamics](#)
[diseases & disorders > diseases & disorders](#)

Altmetric

Tweeted by 3

128 readers on Mendeley
0 readers on Connotea
1 reader on CiteULike

[View details on Altmetric's website](#)



Avinash ಅವಿನಾಶ್
@avinashn

'Hobo' scientist. ದಂಪತಿ.

Joined October 2008

Cell
Online News Current Issue Archive Journal Information For Authors

Volume 157, Issue 4, pp869-881, 4 May 2014

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., Priscic, S., Kutateladze, T. G., Vakoc, C. R., Min, J., Kingston, R. E., Fieshle, 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

Open Access [Full Text](#) [PDF](#) [Download](#)

Summary Full Text Methods ImagesData References Related Articles Comments

Expanded as Citations

Highlights

- Fragile X mental retardation protein FMRP binds chromatin via its Agenet domain
- FMRP participates in the DNA damage response in a chromatin-dependent manner
- FMRP occupies chromosomes and regulates DNA damage machinery in male mouse meiosis
- Lack of FMRP results in meiotic defects such as irreparable chromosome pairing

Summary

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

SUMMARY Blog Twitter

13

So far, Altmetric has seen 12 tweets from @users, with an upper bound of 41,266 followers.

Ana Van Gulck @anavangulck
One more time, all together! <https://doi.org/10.1016/j.cell.2014.03.040>
21 Feb 2018

SOAS Doctoral School @SOASDoctoral
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
21 Feb 2018

Gareth Knight @garethknight
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
21 Feb 2018

Thomas Padilla @thomaspadilla
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
20 Feb 2018

Strathclyde RDMs @strathclyderdm
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
21 Feb 2018

LSHTM Research Data @LSHTMResData
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
21 Feb 2018

NNLM RDS @NNLMRDS
RT @johnboghil: ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project...
21 Feb 2018

John Boghil @johnboghil
ICMV: We asked neuroimaging researchers about how they manage and share their data over the course of a research project. Blog post: <https://doi.org/10.1016/j.cell.2014.03.040> Open materials report: <https://doi.org/10.1016/j.cell.2014.03.040> Open data: <https://doi.org/10.1016/j.cell.2014.03.040>
21 Feb 2018

ChemRxiv

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peptidomics PTMs....docx (585.25 KB) supplementary file.pdf (1.39 MB)

Cite Download all (1.96 MB) Share Embed 2 files

Peptidomics analysis of potato protein hydrolysates: post-translational modifications and peptide hydrophobicity

06.12.2017, 12:58 by Shiaoqing Yao, Chibuke Uderigwe

495 views 31 downloads 0 citations

Tweeted by 3

See more details | Close this

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 deamidation, 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
- Peptide
- Peptide Modifications
- Food peptide
- Peptidomics
- Chemistry

chemrxiv.org/doi/10.26434/chemrxiv-2018-03-0008645



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



United States Department of Agriculture

National Institute of Agriculture

NIFA LAND-GRANT COLLEGES AND UNIVERSITIES



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”

[Creative Commons Attribution 3.0](#)

[Unported](#) By: Eric T Gunther



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

The screenshot shows the Virginia Tech University Libraries website. At the top left is the VT logo and 'VIRGINIA TECH.' text. To the right is 'UNIVERSITY LIBRARIES' and a search bar. Below the header is a breadcrumb trail: 'University Libraries / Research Guides / Topic Guides / Tell Your Story - Impact & Engagement / Metrics (and Altmetrics)'. The main title is 'Tell Your Story - Impact & Engagement: Metrics (and Altmetrics)'. Below the title is a paragraph: 'For researchers, scholars, teachers, extension agents, students, and others, this guide highlights options to share your work and get to know others with like interests.' A navigation bar has five items: 'Home', 'Professional Identity', 'Profiles and Networking', 'Make Your Work Available', and 'Metrics (and Altmetrics)' (which is highlighted in red). The page content is divided into three columns. The first column, 'Navigate this guide', lists: 'Home', 'Professional Identity', 'Profiles and Networking', and 'Metrics (and Altmetrics)' with sub-items: 'Metrics Toolkit', 'Citations', 'Altmetrics', and 'Journal Metrics'. The second column, 'Metrics Toolkit', features a blue icon of a toolbox and the text 'METRICS TOOLKIT'. Below the icon is the text: 'Metrics Toolkit. The Metrics Toolkit provides evidence-based information about research metrics across disciplines, including how each metric is calculated, where you can find it, and how each should (and should not) be applied. You'll also find examples of how to use metrics in grant applications, CVs, and promotion dossiers.' The third column, 'Consultations', has the heading 'Contact Ginny Pannabecker, for more information or to request a consultation with a librarian specializing in impact and engagement. We'll talk about what you're already using, and methods to optimize connections between these and other tools, as well as approaches to sharing your work.'

Examples

Microbial safety of tropical fruits.

Overview of attention for article published in Critical Reviews in Food Science and Nutrition, February 2011



About this Attention Score

In the top 25% of all research outputs scored by Altmetric

Mentioned by

2 policy sources

Readers on

58 Mendeley

SUMMARY

Policy documents

So far, Altmetric has seen 2 policy documents that reference this research output.



Food of plant origin with high water content

Cited by European Food Safety Authority on 02 Apr 2013

The European Food Safety Authority (EFSA) is an independent European agency which provides scientific advice on existing and emerging risks, as part of European Union (EU) risk assessments regarding food and feed safety.



Improving Food Safety Through a One Health Approach: Workshop Summary

Cited by National Academies Press on 01 Jan 2012

The US National Academies Press (NAP) was created by the National Academy of Sciences to publish the reports of the National Academies of Sciences, Engineering and Medicine, operating under a charter granted by the Congress of the United States. The NAP publishes on a wide range of topics in science, engineering, and medicine, providing authoritative information on important matters in science and health policy.

Geographical and Meteorological Factors Associated with Isolation of Listeria Species in New York State Produce Production and Natural Environments

Overview of attention for article published in Journal of Food Protection, November 2014



About this Attention Score

In the top 5% of all research outputs scored by Altmetric

Mentioned by

3 news outlets
7 tweeters

Readers on

20 Mendeley

SUMMARY

News

Twitter

So far, Altmetric has seen 7 tweets from 7 users, with an upper bound of 22,864 followers.



Avesa
@AVESA2014

1,020
FOLLOWERS

Our paper on geographical & weather factors linked to Listeria detection in produce & natural environments is out: <http://t.co/Bgmr5e5GjQ>
25 Nov 2014



Laura K Strawn
@laurakstrawn

Our paper on geographical & weather factors linked to Listeria detection in produce & natural environments is out: <http://t.co/Bgmr5e5GjQ>
22 Nov 2014



catherine cutter
@crickey92

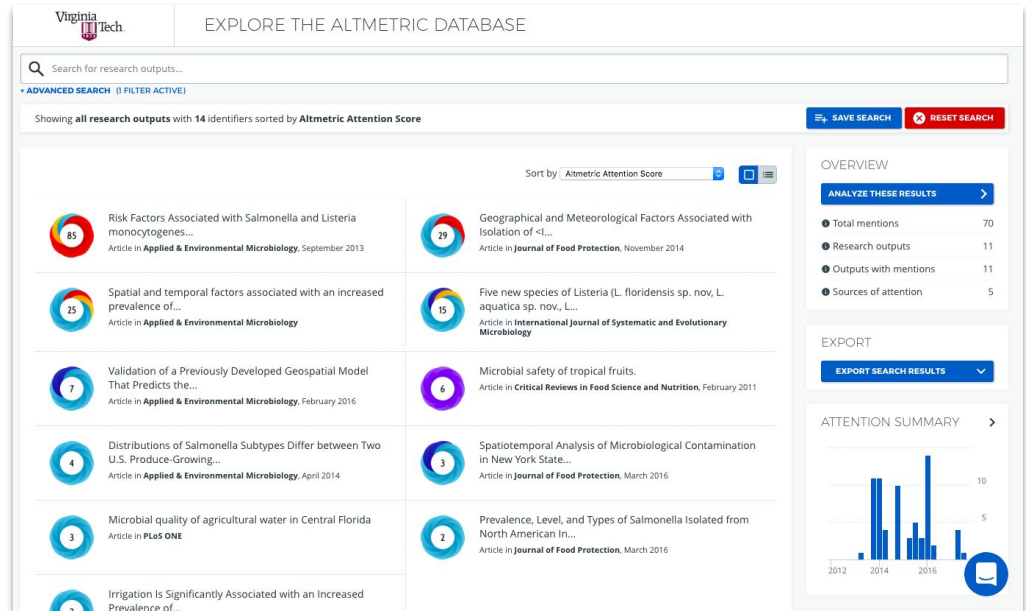
Our paper on geographical & weather factors linked to Listeria detection in produce & natural environments is out: <http://t.co/Bgmr5e5GjQ>
20 Nov 2014

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

Uncovering attention patterns and timelines

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

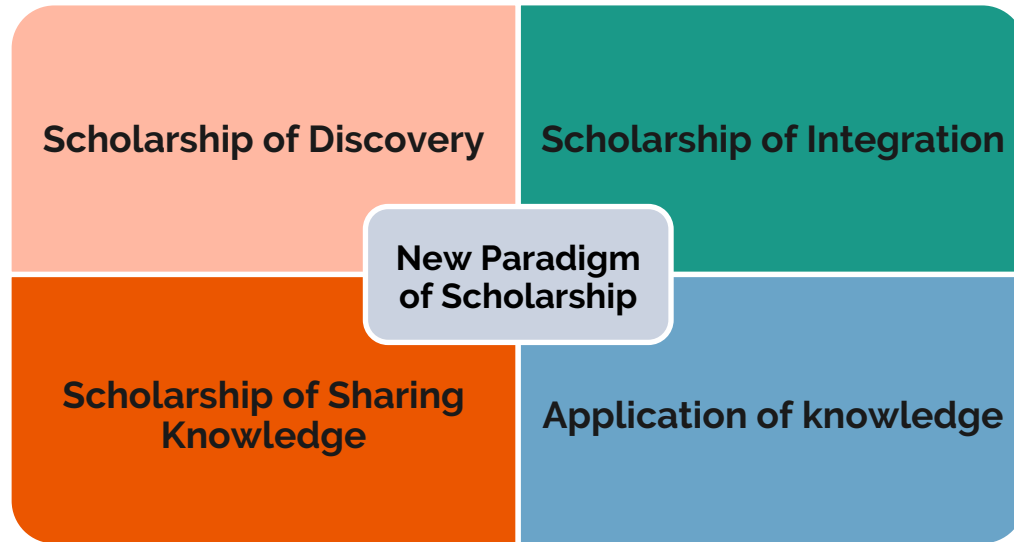
Virginia Tech and the Altmetric Explorer



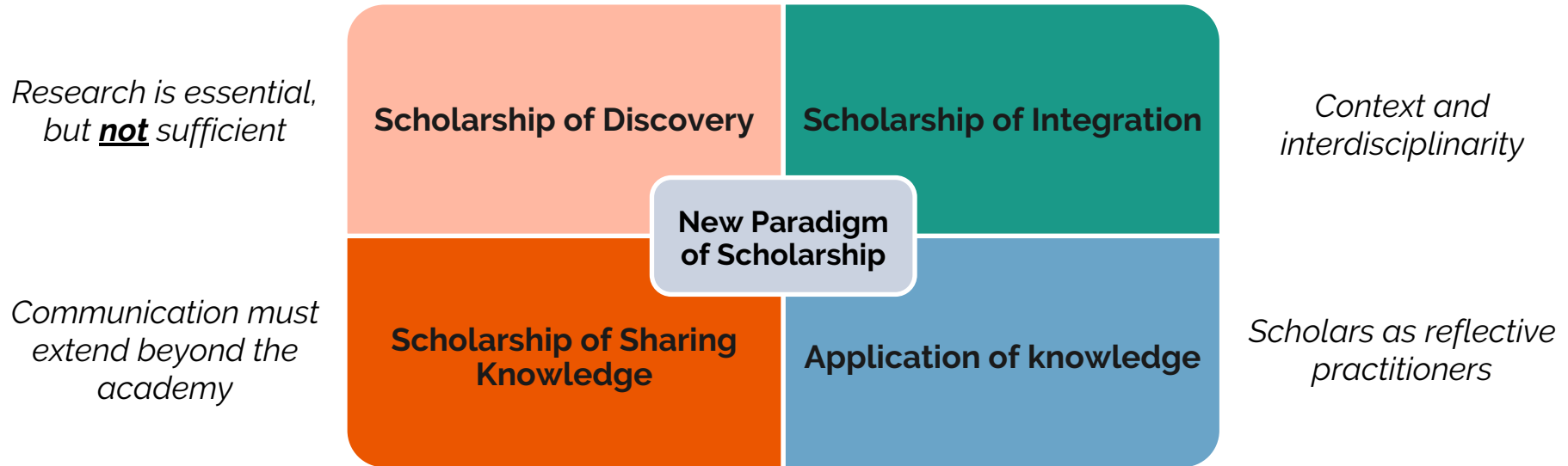
Scholarship of Engagement



Boyer's model: four interlocking components to scholarship



Boyer's model: four interlocking components to scholarship





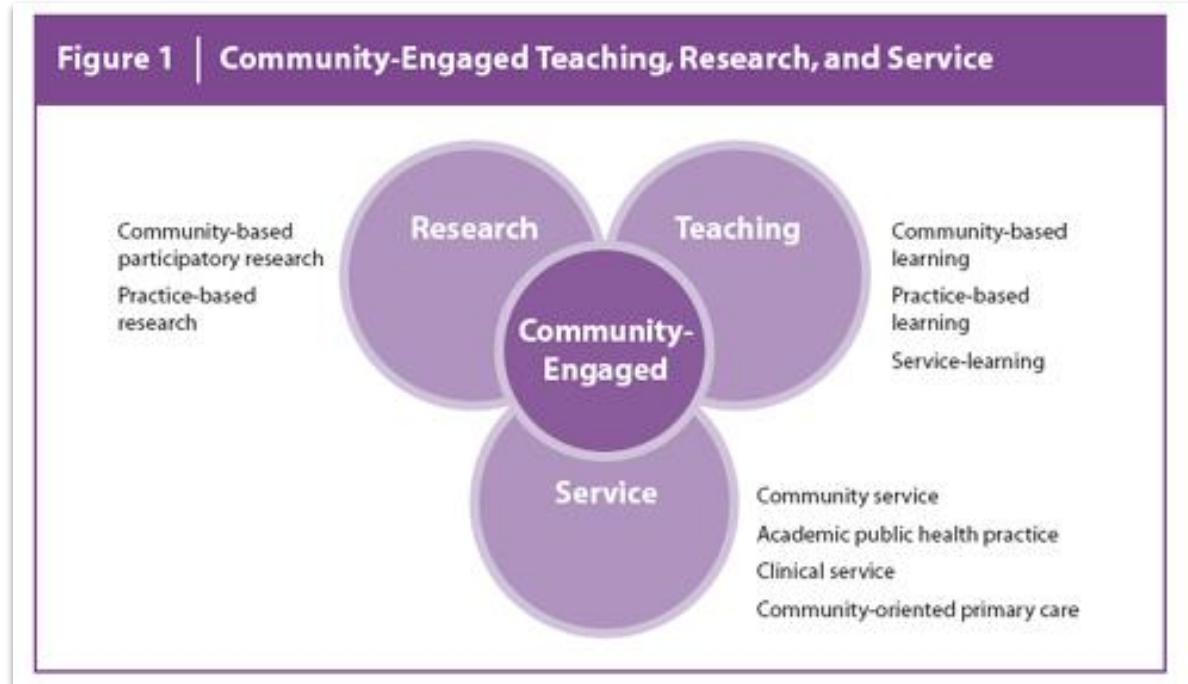
The Scholarship of Engagement today

“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?



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
Montana State University, Bozeman Montana
#OR2018

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Lily Troia, MLIS, Engagement Manager, Altmetric |
lily@altmetric.com | @lilytroia



Additional References

Boyer, Ph.D., E. L. The Scholarship of Engagement. *Journal of Higher Education Outreach and Engagement* **20**, 15 (2016).

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