



Scientists' Perceptions of Infrastructure-related Barriers: Insights From The Social Sciences

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*Sustainable Infrastructures for Life Sciences Communication: A Workshop
National Academy of Sciences' Roundtable on Public Interfaces of the Life
Sciences, December 9–10, 2013*

The logo of R1 University is located in the top-left corner. It features a stylized white 'W' on a red background, enclosed within a circular emblem with decorative flourishes.

This Talk: An Overview

- Science-media interactions: a cross-cultural snapshot
- Why engage with traditional media? Intrinsic rewards vs. extrinsic rewards
- A case study: Engaging through social media at a R1 University
- Online buzz and academic impact



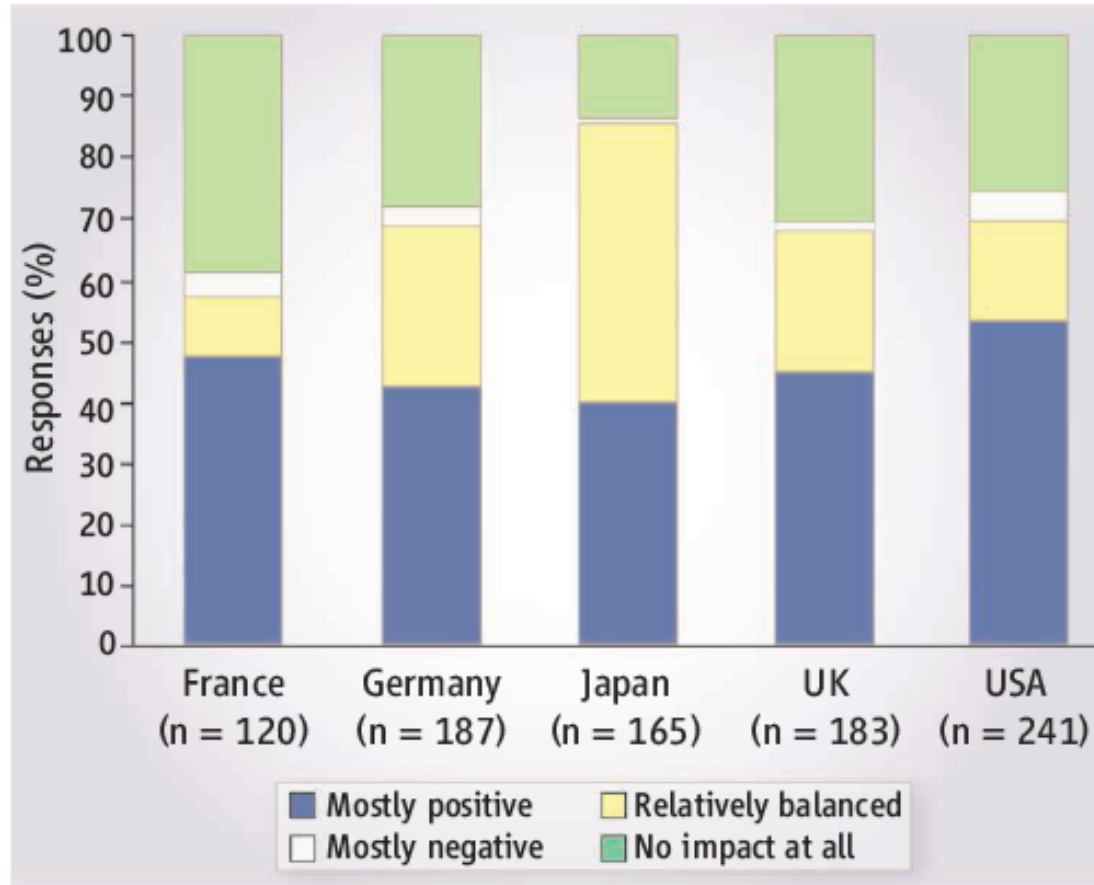
Interactions Between Scientists and Journalists Are More Frequent Than Previously Thought

Peters, H. P., Brossard, D., de Cheveigné, S., Dunwoody, S., Kalfass, M., Miller, S., & Tsuchida, S. (2008). Science communication: Interactions with the mass media. *Science*, 321(5886), 204-205.

- 2005-2006 study of 1,200 biomedical scientists in 5 top R&D countries
- Journalistic engagement of scientists over time is greater and more stable than persistent, anecdotal tales would suggest
 - 30% said they had been engaged in more than five media contacts in the past 3 years
 - 39% reported one to five contacts.
 - No statistical significant differences between countries



Interactions Between Scientists and Journalists Are Perceived Positively



Perceived impact of media contacts on career by country. Distribution of answers to the question: "Consider the totality of your media contacts over your career. How great has their positive or negative impact been on you professionally?" Only respondents reporting media contact(s) in the past 3 years are included in the graph.

From:
Peters, H. P., Brossard, D.,
de Cheveigne, S.,
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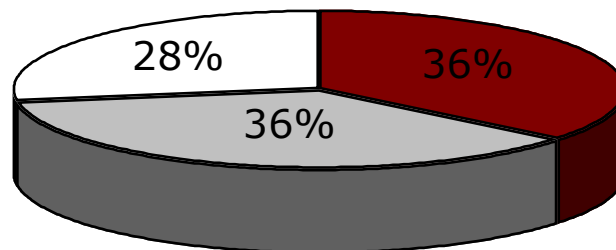
- Science-media interactions: a cross-cultural snapshot
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Explaining American Scientists' Interactions with Traditional Media

Dunwoody, S. Brossard, D., & Dudo, A. (2009). Socialization or rewards? Predicting American scientists-media interactions. *Journalism and Mass Communication Quarterly*, 86(2), 299-313.

Multi-wave mail survey of U.S. biomedical scientists

- stem cell researchers and epidemiologists
- $N = 1200$; Response Rate = 34.5%



- No contact
- 1-5 contacts
- >5 contacts



International Survey on the Relationship Between Science and the Media

This mail survey of scientists is part of an international project to study the relationships between science and the media in five countries: the United States, France, Germany, Japan, and the United Kingdom. A multinational team of researchers from these countries has compiled the questionnaire. It includes items eliciting your opinions on and experiences with media and journalists. Results of this survey will help to improve global understanding of how science interacts with the media and how scientific information reaches the public.

Please complete this questionnaire and return it in the enclosed, stamped envelope to:

Science and the Media
School of Journalism and Mass Communication
University of Wisconsin-Madison
515 Vilas Hall
821 University Ave.
Madison, WI 53706

Thank you in advance for your participation.



Explaining American Scientists' Interactions with Traditional Media

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Status: career level (junior/mid/senior) & number of publications (5 levels)

Intrinsic Rewards: scientists' amount of personal enjoyment (e.g., explain research to public, contribute to public debate. ...)

Extrinsic Negative Rewards: concerns that increase reluctance to have media contact (e.g., critical reaction from peers, negative publicity)

Extrinsic Positive Rewards: outcomes that make scientists positive about media contacts (e.g., more visibility for funders, enhanced public reputation)

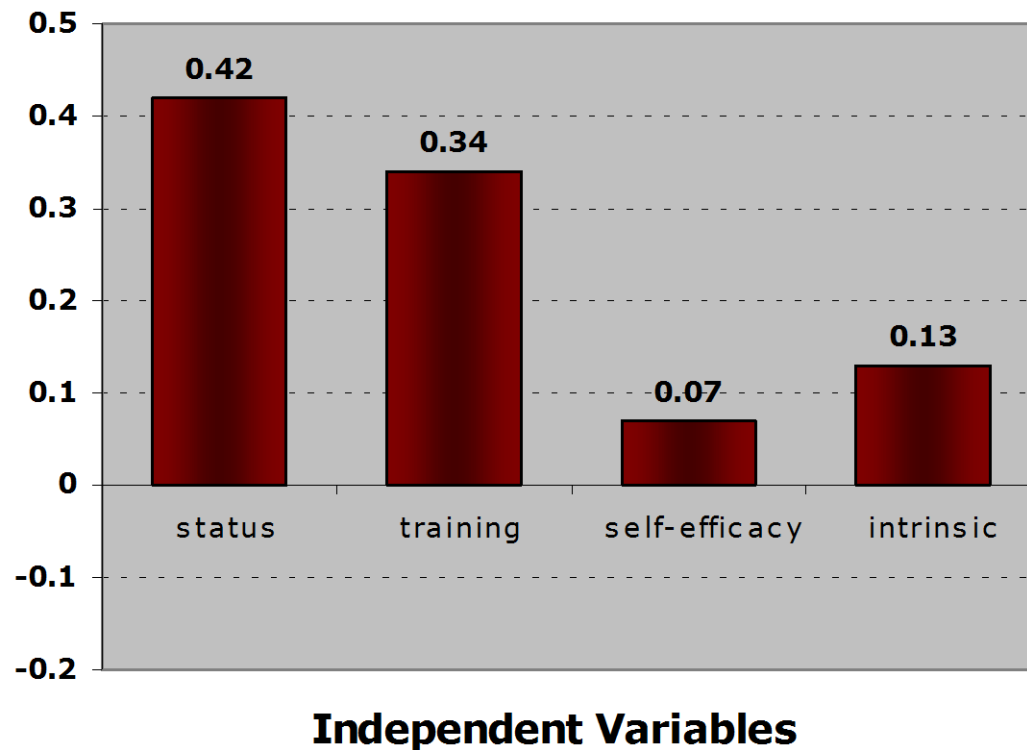
Media Familiarity: exposure and attention to general and science news for three media channels

Formal Communication Training: received formal communication training & number of distinct audiences the training skills addressed (e.g., public, media)

Communication Self Efficacy: scientists' perception of how easily they can engage in 5 public communication activities (e.g., adjust to different audiences, deal with objections)

Predicting Scientists' Interactions with Traditional Media

Dunwoody, S. Brossard, D., & Dudo, A. (2009). Socialization or rewards? Predicting American scientists-media interactions. *Journalism and Mass Communication Quarterly*, 86(2), 299-313.



=> No statistically significant evidence that frequency of media interactions is related to extrinsic rewards



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The Rise of Science Blogging/Tweeting

“it’s not possible to talk about science blogging without talking about scientists blogging, or more broadly about scientists writing.”

Franci, M. (2011). *Nature Chemistry* 3, 183-184



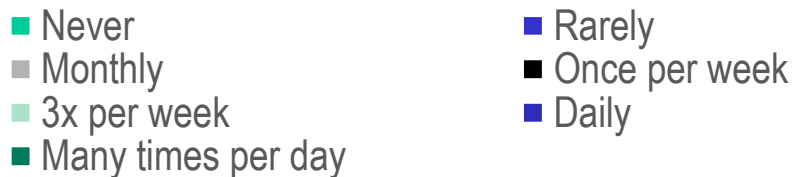
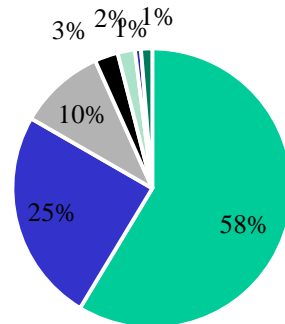
...The rise of a new type of scientists?

Explaining Scientists' Engagement Through Social Media

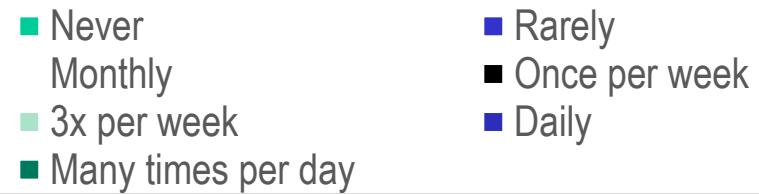
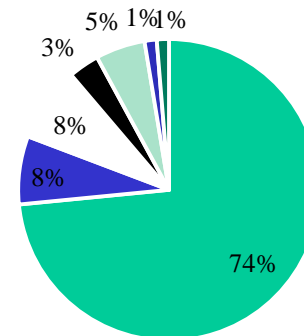
Yeo, S.K., Cacciatore, M.A., Brossard, D., Schefeule, D.A. & Xenos, M. (2014). Twitter as the social media of choice for sharing science. Paper to be presented at the 2014 PCST Convention, Salvador, Brazil.

- Survey of STEM tenured track scientists at a large R1 university
- Dillman's TDM method; 20.5% response rate; final N=254

blog about topics related to your research



tweet about topics related to your research



Frequency of Facebook and Twitter Use For Science Related Purposes

	Facebook (N = 143)		Twitter (N = 143)	
	Zero-order	β	Zero-order	β
Block 1: Individual characteristics				
Gender (female)	.06	.03	.00	-.02
Age	-.03	-.01	-.21***	-.12
Discipline (biological sciences)	-.02	.06	-.16**	-.04
Discipline (physical sciences)	-.06	.04	.03	.09
Political ideology (conservative)	-.22***	-.17*	-.17**	-.12
<i>Incremental R² (%)</i>	—	5.2		9.0**
Block 2: Traditional science media use				
Newspapers	-.22***	.14	.13*	-.01
Television	.08	.07	.00	.03
<i>Incremental R² (%)</i>	—	4.0*		1.5
Block 3: Attitudes toward personal social media use				
Active use of social media	.29***	.18	.46***	.25**
Passive use of social media	-.16**	-.10	-.29***	-.14*
<i>Incremental R² (%)</i>	—	5.5**		18.4***
Block 4: Attitudes toward sharing science on social media				
Positive perception of public interest in one's research	.11*	-.05	.31***	.12
Actively seeking new ways to share research	.23***	.09	.42***	.17*
<i>Incremental R² (%)</i>		0.5		3.2**
Total R ² (%)		15.2		32.0

* $p \leq .10$, ** $p \leq .05$, *** $p \leq .01$.

Difficult to Generalize These Results ...



NEWS VIDEO EVENTS

CAMPUS NEWS UW-Madison participates in UW Flexible Option program Dec. 6
UW IN THE NEWS The next civil rights fight: Gloria Ladson-Billings believes African
BADGER ATHLETICS

KLOUT Search [] PERKS [] DOMINIQUE []
Home Profile Friends Pulse Help

Heinz Klug: Reflection on Mandela's legacy De
Study reveals gene ex changes with medita
More news »

61 The Nelson Institute for Environmental
Campuswide unit of the University of Wisconsin-Madison focused on interdisciplinary education and collaboration around critical environmental issues.
Follow @NelsonInstitute

The Nelson Institute for Environmental Studies, UW-Madison's Influencers See More

85 University of Wisconsin-Madison

59 Nicole Miller

#uwmadison
@UWMadison on Tw
I am in lov
http://t.co
@CORINNES

The Nelson Institute for En... 's Moments
These are The Nelson Institute for Environmental Studies, UW-Madison's influential moments from the past 90 days.

46 Paul Robbins tweeted @PaulRobbins15
Well done Nelson students! Presentations to Lakes/Watershed Commish cogent; super-smart. MT @NelsonInstitute #wisidea
http://t.co/Y8MchPsIHK
07:00pm • 06 May 2013

10 Dadit Hidayat tweeted @DaditHidayat
feeding reporters for a story about our cbr project, hope they can come to our last class of cesp @NelsonInstitute @UWMadison on may 9 #fb
03:01pm • 07 May 2013

I seriously can't get over how pretty you are tonight, @UWMadison!
http://t.co/RLTvfm58S4
@OWLBEAMILY | DEC 08 9:06PM



IN FOCUS

- Administrative Excellence
- Animals in Research: A Lifesaver
- Chancellor Rebecca Blank
- Discovery to Product (D2P)
- Diversity Plan 2013
- Educational Innovation
- Email and Calendar Transition
- Go Big Read
- HR Design Project
- More »

ABOUT UW-MADISON



- Leadership
- Employment
- Diversity
- Facts

HAVE A QUESTION?

The logo of R1 University is located in the top-left corner. It features a circular emblem with a red shield in the center containing a white letter 'W'. The shield is surrounded by a grey border with some text, and the entire emblem is set against a light grey background.

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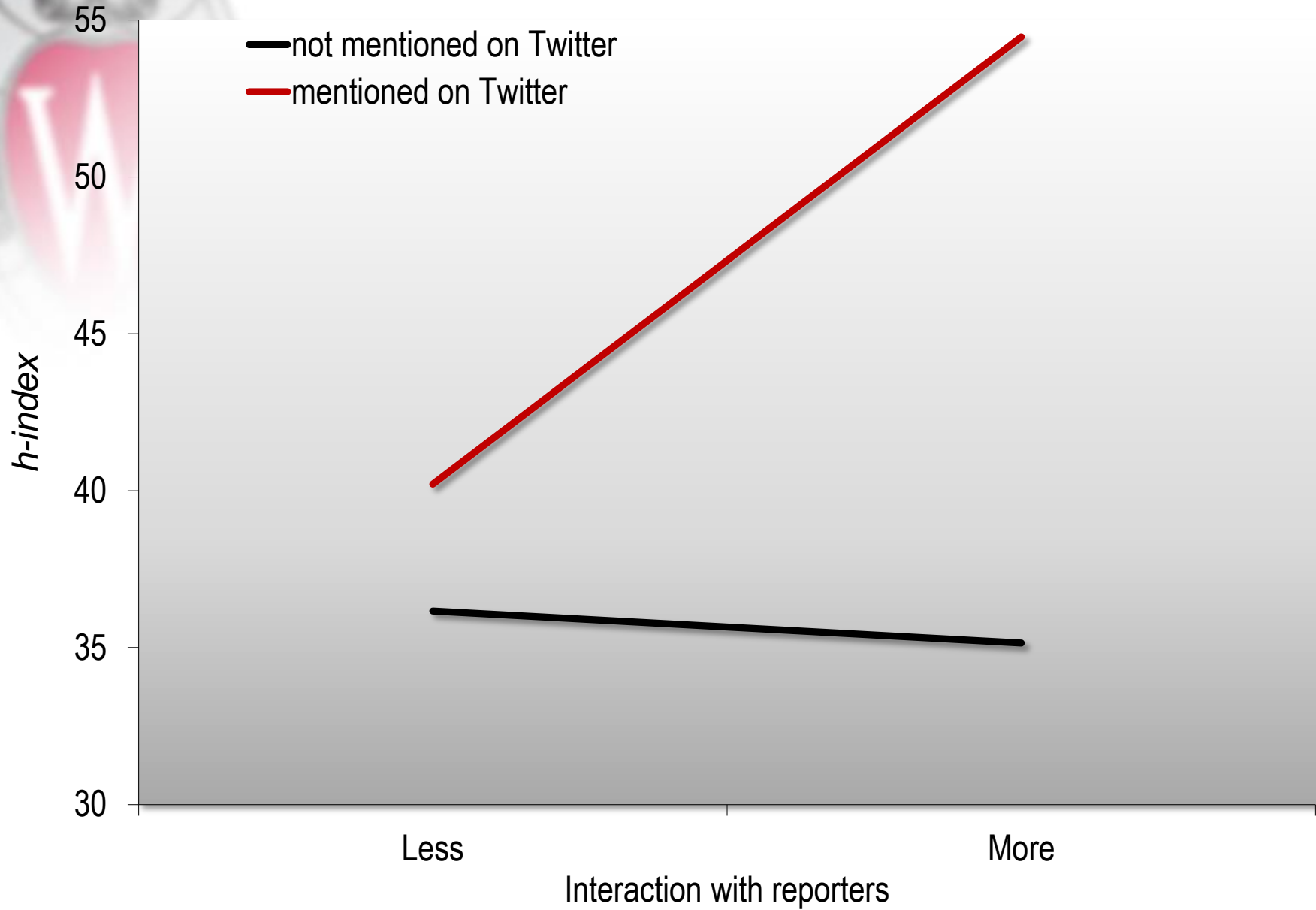
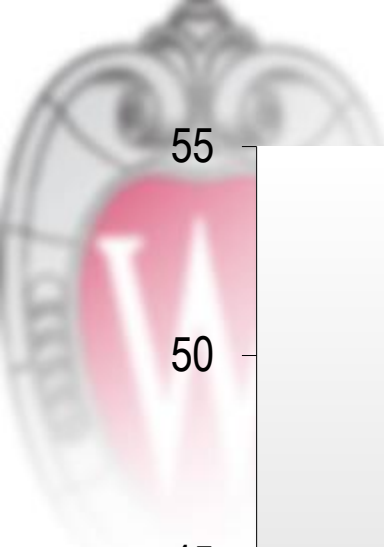
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Are Online Buzz and Academic Impact Related?

Liang, X., Su, L. Y.-F., Yeo, S. K., Scheufele, D. A., Brossard, D., Xenos, M., Nealey, P., & Corley, E.A. Building buzz: (Scientists) communicating science in new media environments. *Paper to be presented at the 2014 Convention of PCST, Salvador, Brazil*

	Zero-order	β
Block 1: Demographics & Professional status		
Gender (female=1)	-.08	.03
Scientific age	.70***	.54***
Tenured	.54***	.14*
Block 2: Science Communication		
Interaction with reporters	.34***	.22***
Interaction with nonscientists	.18**	.02
Science blogging	-.03	-.06
Mentioned on Twitter	.23***	.13**
<i>Incremental R² (%)</i>		6.6***
Block 3: Two-way interactions		
Interaction with reporters * Mentioned on Twitter	–	.14**
Interaction with nonscientists * Mentioned on Twitter	–	.11*
Block 4: Two-way interactions		
Interaction with reporters * Mentioned on Twitter	–	.14**
Interaction with nonscientists * Mentioned on Twitter	–	.11*
Total R ² (%) ^a		60.7***

PREDICTING *h*-INDEX





Online Buzz and Academic Impact Are Related

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- Twitter can amplify the effect of other types of communication on academic impact
- From an academic visibility standpoint, the essential question is not *whether* scientists should engage with (social) media to communicate their research, but *how* to do so



Concluding Remarks

- Institutional barriers not apparent; training and self efficacy are the main predictors (out of status) of interactions with media
- Change in the cultural outlook toward public communication, particularly in social media settings; scientists actively searching for ways to communicate and discuss their research
- Data needed on main constraints (besides time)



Thank you for your attention

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