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and the Consequent Role of the Engaged Scholar

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Ross School of Business Working Paper
Working Paper No. 1343
January 2016
Journal of Change Management, 16(2): 77-96

This paper can be downloaded without charge from the
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**Reflections: Academia's Emerging Crisis of Relevance
and the Consequent Role of the Engaged Scholar**

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Published as: Hoffman, A. (2016) "Academia's emerging crisis of relevance and the consequent role of the engaged scholar," *Journal of Change Management*, 16(2): 77-96

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ABSTRACT: Universities are facing a crisis of relevance. While there are multiple reasons for this to be happening, one that deserves particular attention is the extent to which academic scholars do not see it as their role to engage in public and political discourse. However, increased engagement is unavoidable in an emerging educational context where the caliber of public discourse has become so degraded and social media is changing the nature of science and scientific discourse within society. Further, there is a demographic shift in play, where young scholars are seeking more impact from their work than their more senior colleagues. In this article, I begin the process of articulating what we know and what we don't know about the evolving role of the engaged scholar by breaking the conversation into two parts. First, why should academic scholars engage in public and political discourse? Second, how can we structure a set of ground rules that could form what might be considered a handbook for public engagement? In the end, this article is about a reexamination of how we practice our craft, to what purpose and to which audiences.

KEY WORDS: Change; Academia; Higher Education; Relevance; Purpose

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Introduction

Universities are facing a crisis of relevance. While there are multiple causes for this dilemma, one of them is self-inflicted. Through our culture, rewards and concerted effort, we have become a field of “brick-makers.” While Bernard Forscher (1963) levied this critique nearly 50 years ago, it is all the more true today (Hoffman, 2015a).

Forscher (1963) lamented that academic scholarship was becoming fixated on generating lots of pieces of knowledge – bricks – but was far less concerned with putting them together into a cohesive whole that could fully explain the corpus of their inquiry. With time, he worried that brickmaking would become an end in itself. Today, his fears are becoming true. Contemporary academic success lies in publishing “A-level” academic journal articles that make incremental contributions to theory, not summarizing the broader contributions of the community of scholars. Specialization, not generalization, is the signal of academic rigor. The conventional rules of academic tenure and promotion steer us all in this direction. Today, with some notable exceptions, very few social scientists are building an edifice, telling a whole story as it exists, and deciding what new pieces of information – bricks – may be necessary to tell the next chapter in the story.

Fewer still are telling that story for the public and policy makers, the very people that can put it to use. We are encouraged to build bricks that are used, or more accurately cited, by other brick makers. The predominate focus on A-level journals feeds what some have called our “theory fetish” (Hambrick, 2008), leads us to pursuits where practical relevance is over-shadowed by theoretical rigor; empirical evidence is used to inform theory, not the other way around. Taken to the extreme, some view the mere task of speaking to the general public as a distraction from our “real” work, or worse an anti-intellectual waste of time (Hoffman, 2004). The increasing insularity of our individual academic fields “registers not the needs of truth but academic-empire building” (Jacoby, 2000: 154). At its extreme, we find ourselves talking to smaller and narrower academic audiences, using a language that an educated reader does not understand, publishing in journals they don't read and asking questions for which they have little concern. Whether this work actually creates real world change is a question that is rarely, if ever, asked.

This is dangerous for both society and higher education. One of the reasons, among many, that the public discourse on a variety of serious issues we face (i.e. climate change, gun control, health care, GMOs, nuclear power and many more) has become so confused and degraded is that too many academics do not see it as their role to engage in it (Kristof, 2014a, 2014b). However, the truth is that we have an obligation to engage in it. If society is to make wise choices, those who create knowledge must find ways to move it beyond the ivory tower.

But regardless of whether academic scholars see this obligation, increased engagement is unavoidable in an emerging educational context where a college degree is becoming too expensive, the academic disciplines in which those degrees are conferred are becoming too narrow and specialized, the people who populate those disciplines become further removed from empirical reality, and external critics are asking questions about the value they provide to society. The role of the academic scholar in society is in flux.

How can we understand these pressures for change and what they mean for the academy as a whole and the scholar as an individual? How can we find ways to understand how the interests of the academy can and should merge with the interests of society (Stokes, 1997)? These are questions that go back at least as far as World War II with debates over the role and value of science in society (Kleinman, 1995; Lindblom, 1990; Nisbet, 1971; Bush, 1945) and goes to the core of what the University of the 21st century is and will be (Cherwitz, 2012; Crow and Dabars, 2015).

Two forces, among many, are particularly important in creating this flux. First, social media is changing the nature of science and scientific discourse within society, allowing a much wider array of voices to enter the debate with varying degrees of voracity. Indeed, it is changing how academics perform their tasks of research and teaching in ways that we have only just begun to comprehend (Brossard, 2013). Second, there is a demographic shift in play, where young scholars are seeking more impact from their work than their more senior colleagues. These, and other pressures, are forcing the academy to examine new efforts at public engagement and “the necessity and possibility of moving from interpretation to engagement, from theory to practice, from the academy to its publics” (Burawoy, 2004: 324; see also 2005

This examination is taking place in a growing number of domains. For example, the National Academies of Sciences’ has hosted two Sackler Colloquia on “The Science of Science Communication” (National Academies of Science, 2012, 2013; Fischhoff, 2013); the Alfred P. Sloan Foundation has begun a program in “Public Understanding of Science, Technology & Economics” (Alfred P. Sloan Foundation, 2013); and the University of Michigan hosted a Michigan Meeting on the topic of “Academic Engagement in Public and Political Discourse” (Hoffman et al, 2015). At the root of all these efforts is an attempt to define the “rules of engagement” for academic scholars. The simple truth is that we are not trained to engage in public and political discourse, nor are we given incentives and support to do it. Simply put, we do not know how to do it as individuals or as a community.

In this article, I would like to begin the process of articulating what we know and what we don’t know about the evolving role of the engaged scholar (Van de Ven, 2007) by breaking the conversation into two parts. First, why should academic scholars engage in public and political discourse? How urgent are the pressures for change that are we facing and why should they compel us to act at this moment in time? Second, how can we structure a set of ground rules that could form what might be considered a handbook for public engagement? What can we learn from existing efforts at engagement, and what do they tell us about hazards and opportunities, obstacles and incentives to creating a new culture of academia?

In the end, this article is but a first step, a call for more research into the ways in which our role as scholars is changing and simultaneously an attempt to begin to lay down some rules of engagement by which scholars can structure the engaged dimensions of our professional identities. It is, at its root, a reexamination of how we practice our craft, to what purpose and to which audiences.

Why Should Academics Engage in Public and Political Discourse?

The context of the academy is changing in multiple ways, all of which suggest that we are facing a crisis of relevance. The form of this crisis can be structured around three domains: pressures for change, signals of change and finally, the urgency for change.

The Pressures for Change.

Pressures for change are driven by two sets of forces: one is external and centers on the state of public debate in society, the other is internal and centers on the new context of the academic environment.

The degraded state of public discourse on science. Consider the current public and political debate over climate change. A recent study found that, of the more than 4,000 academic articles that expressed a position on climate change between 1991 and 2011, 97.1% agreed that climate change is occurring and is anthropogenic (Cook et al, 2013). This is consistent with other studies showing similarly conclusive results (Oreskes, 2004) and the consensus of over 200 scientific agencies around the world (California Governor's Office of Planning and Research, 2014). And yet, the most recent surveys of public attitudes on climate change show that only 65% of American adults believe that there is solid evidence that temperatures on earth have increased during the past four decades (Borick and Rabe, 2012), and that the number of Americans who believe that "most scientists think global warming is happening" declined from 47% to 39% between 2008 and 2011 (Ding et al, 2011). More importantly, there is a sharp partisan divide on this issue; the latest surveys show that 81% of Democrats and 42% of Republicans believe there is solid evidence of global warming (Borick and Rabe, 2012).

This is but one example of the startling disconnect between the consensus of the academy and the understanding of the general population. A January 2015 Pew Research Center study found a similar divide on other topics: 87% of scientists accept that natural selection plays a role in evolution, while only 32% of the public agree; 88% of scientists think that genetically modified foods are safe to eat, but only 37% of the public agree (Funk and Rainie, 2015).

This is a cause for concern. In our increasingly technological world, issues like nanotechnology, stem-cell research, nuclear power, climate change, vaccines and autism, genetically modified organisms, gun control, health care, and endocrine disruption require thoughtful and informed debate. But instead, these and other issues have often been caught up in the so-called "culture wars" (Hoffman, 2012, 2015b). Though this effect is not uniform -- a July 2015 Pew Research Center study found that climate change and energy policy are more affected by ideology than food safety, space travel and biomedicine (Funk, Rainie and Page, 2015) -- this problem is exacerbated by the fact that the public is not well versed in science. According to the California Academy of Sciences (2009), the majority of the U.S. public is unable to pass even a basic scientific literacy test, and the National Science Foundation (2004) reports that two-thirds of Americans do not clearly understand the scientific process. A survey by Research!America (Leif, 2015) found that two-thirds of Americans could not name a single living scientist. Of the one-third that could, half named Stephen Hawking. This lack of knowledge coupled with an increased degree of antagonism toward science itself prompted *National Geographic* in March 2015 to devote its cover story to "The War on Science" (Achenbach, 2015).

Numerous factors help to explain these disconnects between scholars and the public – such as motivated reasoning (Kahan 2010), political partisanship (McCright and Dunlap 2011), and threatened political or economic power (Oreskes and Conway 2010) -- but one particular explanation that deserves special attention is the extent to which the academic and scientific communities have been ineffective or disengaged in explaining the state and gravity of scientific findings. While academics often “believe the public is uninformed about science and therefore prone to errors in judgment and policy preferences,” they frequently do not accept any role “as an enabler of direct public participation in decision-making through formats such as deliberative meetings, and do not believe there are personal benefits for investing in these activities” (Besley and Nisbet, 2013: 644). Instead, many remain on the sidelines of important public and political discourse. For the benefit of society’s ability to make wise decisions and for the benefit of the academy’s ability to remain relevant, the academic community needs to accept its role in public engagement.

The new context of the academic environment. Beyond a need within society for more academic engagement, there are other urgent pressures within the academy that compel change. First, social media is democratizing knowledge, changing the channels through which science is communicated and both who can create it and who can access it. Society now has instant access to more news, stories, and information from more sources and in more varied formats than ever before. For universities to remain relevant, we must learn to engage in the new realities of the information age.

However, the academy is not keeping up. Massive Open Online Courses (MOOCs), open access journals, and other forms of new educational technology are altering what it means to be a teacher and a scholar. While we write our articles in academic journals and think we have contributed to public discourse, the general public does not read them. Instead, other interests publish competing reports and use social media to have far more impact on public opinion. Add to this changing landscape a rise in pseudo-scientific journals (Kolata, 2013) and we must face the reality that we can continue to write only for specialized scholarly journals, but in so doing, we become relegated further to the obscurity of the sidelines.

Adding to this growing threat of irrelevance is a professed lack of appreciation for the value that the academy provides to society within state legislatures (Strauss, 2013) and a concurrent trend to cut funding to higher education (witness activities in Wisconsin and North Carolina as exemplars). Academics are often viewed from the outside as an elite class of people who are studying issues that are “beyond the reach of the ordinary man’s scrutiny, but who can, and often do, determine his fate” through a disproportionate influence on the political process, often at the expense of the taxpaying public (Hofstadter, 1962: 33). This perception feeds upon a contemporary social environment in which some people are suspicious of authority or expertise.

Coupling these factors with the rapidly rising cost of higher education and the threat to the academy is alarming. This confluence of forces led *The Economist* (2010) to wonder if America’s universities could go the way of the Big 3 American car companies, unable to see the cataclysmic changes around them and failing to react. In particular, the article cited the dangers of excessive pressure on faculty to do more research at the expense of teaching, growing administrative staffs and rising tuition costs (median household income has grown by a factor of 6.5 in the past forty years, but the cost of attending state college has increased by a factor of 15 for in-state students and 24 for out-of-state students).

Signals of Change.

And yet, against this backdrop some scholars are beginning to change by engaging in public and political discourse (Konkel, 2015), despite the fact that they are often not trained or given the proper incentives to do so. In a survey of 330 University of Michigan faculty (Hoffman et al, 2015), nearly two-thirds of respondents believe that external engagement is complementary to their academic research, although 56% feel this activity is not valued by tenure committees and 41% consider it to be time consuming and distracting. Roughly 40% do not, and never will, use Twitter or Facebook for academic or professional work. A Pew Research Center/AAAS survey found similar results: 43% of 3,748 scientists surveyed believe that it is important for scientists to get coverage for their work in the news media, but 79% believe that the news media can't discriminate between well-founded and less unreasonable or illegitimate scientific findings. Forty-seven percent use social media to talk about science and 24% write blogs (Rainie, Funk and Anderson, 2015).

Level and type of engagement appears to be strongly dependent on (a) school or department (disciplines vary quite widely in their posture toward engagement) and (b) career stage, with younger faculty expressing more interest in engagement and in using social media to do it. Indeed, there appears to be a demographic shift underway, one in which young people are coming to the academy with a different set of aspirations and goals than their senior advisors. Many graduate students report that they have chosen a research career precisely because they want to contribute to the real world; to offer their knowledge and expertise in order to make a difference (Hoffman et al., 2015). And many report that if academia doesn't value engagement or worse discourages engagement, they follow a different route, either toward schools that reward such behavior or leave academia to think tanks, NGOs, the government or other organizations that value practical relevance and impact. The frustration is such that some no longer tell their advisors that they are involved in any form of public engagement. This, to many senior academics, is a worrying trend as it will lead to a reduction in the level of diversity and quality in the next generation of faculty.

The Urgency for Change.

To many, the call for public engagement is an urgent return to our roots and a reengagement of the core purpose of higher education (Checkoway, 2013). It is part of, what Jane Lubchenco calls "scientists' social contract" (Lubchenco, 1998, 2015). This obligation is born out of both a need within society for our expertise and a recognition of the responsibilities that come with the privileged life that academics lead. Academics have an obligation to provide a service to the community, to give value for money they provide in public funding, government grants or general tuition and an account of what that money is being used for. This is especially true for academics in public universities and even more so for land-grant universities. In the words of University of Michigan President Mark Schlissel:

"We forget the privilege it is to have lifelong security of employment at a spectacular university. And I don't think we use it for its intended purpose. I think that faculty on average through the generations are becoming a bit careerist and staying inside our comfort zones. [But] If we're perceived as being an ivory tower and talking to one another and being proud of our discoveries and our awards and our accomplishments and the letters after our name, I think in the long run the enterprise is going to suffer in

society's eyes, and our potential for impact will diminish. The willingness of society to support us will decrease." (Hoffman et al, 2015: 46).

Arizona State University President Michael Crow frames the issue with more urgency,

"We are increasingly filled with hubris, filled with arrogance, cut off from the general public and unable to find an appropriate tone with which to communicate ... We need to communicate in ways that we've never even thought about communicating before because if we don't figure out how to deal with this ... the gap between the academic elite and everyone else will continue to grow, and what we now see as political debate will be people with pitchforks outside the door ... They want to know what we're doing, why we exist and why they're giving us money. This is a very serious thing that we need to focus on." (Hoffman et al, 2015: 43).

In the end, the pressures on the university and on individual scholars to become more engaged with the society of which they are a part are growing to levels that necessitate a response. That response comes in the form of the engaged scholar. But the truth is that, at this moment in time, we do not have a clear sense of what this means or how to do it.

Drafting Rules of Engagement for Public and Political Discourse.

In considering what it means to be an engaged scholar, we need two things: more research and a clarification of the rules of engagement. Consistent with the proverbial axiom of "changing the tires while driving down the highway," both are synergistic activities that must be conducted in tandem. There is much that we still do not know about this activity. And yet, we must act. In articulating some rules of engagement, I'd like to structure the rest of this article around five themes, shown in Table 1. In some cases, I offer some sense of the rules as we may presently know them. In many cases, I simply offer questions for which we do not know the answers.

Table 1
Rules of Engagement

1. What is Public Engagement?
 - a. What is the role of the academic in public and political discourse?
 - b. Where is the line between "legitimate" and "illegitimate" public engagement?
 - c. When should an academic engage?
 - d. Who should engage in public discourse?
2. How Should We Engage?
 - a. Move beyond the knowledge deficit model.
 - b. Know your audience.
 - c. Master social media before it masters us.
 - d. Stay within your area of expertise
3. What Obstacles Must be Overcome to Increase Engagement?
 - a. Formal rewards and tenure.
 - b. Informal culture.
4. Structural Tools for Supporting Engagement
 - a. Employ science translators.
 - b. Training, formal and informal.
 - c. Recognize the limits of academic inquiry in the political sphere.
5. What to Expect from Engagement?

- a. Engagement is messy.
- b. Engagement can be hostile.
- c. Engagement can be rewarding.
- d. Engagement can improve your research.
- e. Engagement will change your publication strategy.

What is Public Engagement?

Today, with an ever-expanding array of ways to engage, even a simple definition of engagement remains unclear. Engagement activities can include, but are not limited to: Congressional testimony, assistance to government agencies, board service, public presentations, media interviews, K-12 education, blogging, editorial writing, social media and political activism. All of these activities lie outside what we presently consider the “standard” notions of scholarly pursuits.

One key distinguishing factor in each activity is articulating who is “the public,” or more accurately “the publics” that we are trying to reach? Our role as academics in the 21st century must go beyond the classroom. We have a role in society to help educate its many constituencies. These could be the media consumers of media, residents of local communities, politicians, business, non-profits, school groups, users of medications and many more. Each group requires different modes of engagement, and each mode of engagement requires new skills for the academic scholar. But before considering skills, we must consider how to define our role.

What is the role of the academic in public and political discourse? Roger Pielke, Jr. (2007) describes four archetypal roles that academics can play in public and political discourse. The first is the *Honest Broker*, one who provides as much information as possible on a particular topic and allows policy makers and the public to reduce the scope (i.e., make a decision). The Honest Broker “expand[s] the scope of choice available to decision-makers...and explicitly integrate[s] scientific knowledge with stakeholder concerns in the form of alternative possible courses of action.” Pielke differentiates this role from those of the *Pure Scientist* who focuses on research with no consideration for its use or utility (a role which he states is more frequently found in myth than practice), the *Issue Advocate* who focuses on the “implications of research for a particular political agenda” and “tends to reduce the scope of available choice,” and the *Science Arbiter* who will answer questions from decision makers to clarify research (i.e., the National Academies). This structure, and the goal of the Honest Broker, is accepted by some, contested by others and worthy of further research. But having a clear delineation of the archetypes of engagement is an important first step in articulating the rules of engagement.

Where is the line between “legitimate” and “illegitimate” public engagement? A critical implication of deciding our role is delineating the line between knowledge source and knowledge advocate, or worse. Without a clear line, scholars may find themselves crossing into biased advocacy without knowing it, losing the legitimacy of the objective academic scholar within the academy. Having lost this legitimacy, they may find both their voice in public debates and chances at promotion diminished. But where does that line exist? We do not know.

There is a widening range of outlets available to the academic scientist, many of which span the spectrum from news to entertainment, conservative to liberal, thoughtful to sensational. The menu of blogs, twitter, facebook, e-zines, talk shows and other outlets is steadily expanding, and

the engaged scholar must give careful consideration to deciding which are genuine and constructive forms of public engagement and which are more shallow pursuits that feed the discord within our public discourse. For example, consider the range of talk shows available to scholars today: Bill Moyers, Frontline, The Daily Show, The Colbert Report, The Bill Maher Show, The Glenn Beck Show, The Rush Limbaugh Show, Entertainment Tonight, The Howard Stern Show, The Jerry Springer Show—and the list goes on. Will each of these outlets offer the same kinds of opportunities to inform the public through a thoughtful presentation and discussion of our research? How do we decide?

When should an academic engage? Whatever channel is used, another question pertains to the timing of when an academic has the stature and security to begin to include engagement in their portfolio of activities. The answers to this question is driven to a large extent by stage of career. An academic can best enter the public debate from the security of tenure. Junior faculty members must remain aware that the academic model is an apprenticeship model, and that young academic must earn their place within the academic community by demonstrating their ability to perform rigorous and grounded research. The route to tenure is still based on academic scholarship, not public engagement. Yet, it would be unrealistic to expect a tenured faculty member who has spent little to no time on outreach activities pre-tenure, to suddenly be able to engage once given tenure. The skills and motivation will have atrophied or died over the 10 to 12 years between commencement of a PhD degree and tenure. Instead, scholars would wisely choose to make brief forays into the public debate before tenure, and allowing public engagement to increase as one's career advances and they gain security, skills and credibility.

Who should engage in public discourse? This career phasing process leads to a broadening of the role and definition of the full professor. As University of Michigan President Schlissel was quoted earlier, too many senior professors have become conservative and careerist in their outlook, continuing to perform the same tasks and focus on the same purpose of their work as they did when they were junior professors. Adding engagement to an academic portfolio broadens the scope of roles that senior professors can play.

But the goal is not to change the role of *all* academic scholars such that all must engage. Instead, the goal is to widen the range of definitions of what it means to be an academic scholar, allowing more diversity within our ranks. Using the analogy of a supply chain, some scholars may choose to focus their academic pursuits in the beginning of that chain, addressing questions that are more akin to basic research. Others may choose to move down the supply chain, fulfilling the role of developing research that is more applied in its orientation. As a result, an assessment of the balance of teaching, research, service and increasingly engagement can be done at the department or school level, and not just at the individual level. A department could seek diversity of skills within its faculty portfolio, where some are stronger in one domain, others in other domains. Taken as a whole, the department can cover the entire spectrum of scholarly modes.

Pidgeon and Fischhoff (2011: 39), for example, offer a model for the coordination of multiple roles within science: “(1) Subject-matter experts to present the latest scientific findings, (2) Decision scientists who can identify the most relevant aspects of that science and summarize it concisely, (3) Social and communication scientists who can assess the public's beliefs and values, propose evidence based designs for communicating content and processes, and evaluate their performance, and (4) Program designers who can orchestrate the process, so that mutually respectful consultations occur, messages are properly delivered, and policymakers hear their

various publics.” This spectrum of roles will vary by discipline, where some allow for more applied orientations and others allow more theoretical orientations, and the span between the two extremes broadens or thins.

How Should We Engage?

Present day notions of public engagement are based firmly and incorrectly on the deficit model, as “something” that “we” do to “them” to give them the benefit of our knowledge and understanding. It starts with the presumption that “If you knew what I knew, you’d think what I think.” Or, as Jane Lubchenco describes it, the audience “is simply an empty vessel that needs filling up with scientific knowledge, and then that audience will do whatever the filler-upper would want them to do” (Lubchenco, 2015: 70). This notion is rooted in the (often unconscious) assumption of the superiority of the academy, an assumption that has helped engender much of today’s estrangement between the academy and the world outside it.

Move beyond the knowledge deficit model. The engaged scholar must recognize the extent to which discourse is inherently a dialogue rather than a monologue, a conversation requiring mutual respect and appreciation for the expertise of all sides. In order to succeed, academics need to accept that they do not have a monopoly on knowledge and expertise, and that engagement is a two-way learning process. This is a model of engagement based on service that entails reaching out to the community and making the effort to discover what issues matter to them, what they need to know or what help they need so that we can collectively address these issues.

Know your audience. When it comes to conveying a message to “the public,” you must define your audience, learn about them, refine your message, and then develop a strategy to reach them. Very often, when our message fails to get through, the problem is not the audience. The problem is us. We very often do not know how to translate our work into a form that the audience can understand (Kerr, Riba and Udow-Philips, 2014). Our jargon and terminology is very often a foreign language for public and political audiences (Rothman, 2014).

But with an audience defined, academics must determine how to appropriately engage with that particular community before people will listen. This not something that most academics excel at. Nancy Baron (Baron, 2010a, 2010b) summarizes five key points of being a good communicator. First, show your passion – the what, how and why of what you do. If people are interested *in you*, they will pay attention, even if they disagree with you. Second, do not underestimate the power of being personal. Rather than sticking to the purely objective rationale for a given recommendation, finding, or message, also provide your own personal motivations alongside them (Dietz, 2013). Third, find the right stories to make your point and tell them well. Academics must become more adept at storytelling, communicating not just knowledge but also history and context as well as the personal and persuasive aspects surrounding their research. Fourth, be a leader. Those who lead the herd can get people to pay attention. Fifth, find a community of support who will help you to improve. In the end, the challenge is to gain the trust and respect of those with whom you are trying to engage (Fiske and Dupree, 2014).

An important part of crafting that message lies in the array of tools available to communicate that message - traditional tools like mass media (publications, TV and radio broadcasts), public lectures in schools and communities, and art and literature, to less traditional tools in social media (including blogs, Twitter, Facebook, etc.). But too often, scholars put the tools before the message. Social media makes this especially easy, and prevalent – research groups often create

Twitter accounts, Facebook pages, and blogs without a clear audience in mind or message to convey.

Master social media before it masters us. Social media is changing what the academy does, offering new channels and tools through which to educate a broader constituency; not just those within our classrooms. Many within the academy are beginning to adopt it for a variety of reasons (Yeo, Cacciatore, Brossard, Scheufele and Xenos, 2014).

For our *research*, social media is allowing an expanded set of tools and domains for data gathering and literature review. We have access to a far wider array of materials for improving our scholarly inquiry. Indeed, studies find that academics use social media to boost their professional presence online, post content related to their work, discover related peers, track metrics, find recommended research articles, and participate in discussions on research-related issues (Van Noorden, 2014). For our *teaching*, students now carry access to the world's information in their cell phones, reducing the need to simply teach them facts. We need to teach them how to think, analyze and look for facts. Social media also allows an expansion of the notion of the classroom, allowing us to bring education to a much larger array of students. For our *engagement*, the "ubiquity of knowledge" that is available through social media platforms and new technology allows conversations to take place in virtual space, on comment sections of blogs, news sites, social media, and online forum sessions; this poses enormous challenges to civil discourse and public dialogue.

And yet, with all these opportunities, we have still not mastered the use and boundaries of social media (Jenkins, 2014), and are at times making mistakes. For example, in 2014 the University of Illinois at Urbana-Champaign revoked a faculty job offer after the recent hire made controversial Twitter posts about Israel (Dunn, 2014). Many schools are beginning to set new policies (Jaschik, 2013) but much remains unclear about the full impact and use of social media.

Stay within your area of expertise. Public engagement should remain within the boundaries of our expert knowledge. To remain a knowledgeable source, we should not drift too far outside our area of specialization. Economists should be careful when commenting on climate modeling, and climate scientists should be careful when commenting on cap-and-trade policies—if in fact they should comment at all. Leaving one's area of expertise is a hazard, especially if we adopt the role of the Honest Broker.

But we are, of course, both academics and public citizens, and we should exercise our rights as citizens in domains that may (or may not) lie outside our domains of expertise. We can talk abstractly about "putting on different hats," but in practice that is not so easy or clear. When we lend our name to notably political issues, we must be careful to declare when we are speaking from our research and science, and when we are speaking from our concerns as citizens of this country (e.g., through the title or email we use when signing petitions or speaking in public forums). Therefore, it is critical that we clearly distinguish between when we are describing science and when we are advocating what to do about the problem (Goldston, 2008).

What Obstacles Must be Overcome to Increase Engagement?

The academy is currently ill-prepared to support faculty in their efforts to engage in public discourse, and in fact often discourages it. To change this reality, obstacles must be cleared around the tenure process and the dominant faculty culture. Support for faculty engagement must send the clear message that such activities are a valued activity, both for the individual

scholar and the institution in which they reside. Faculty members must be incentivized and honored, not penalized, for adding engagement to their academic identity.

Formal rewards and tenure. While recognition dinners and other activities can be used to honor faculty for engagement, the formal structures of tenure are the greatest source of resistance and therefore the greatest lever for real change (Ellison and Eatman, 2008). As a source of resistance, the institution of tenure makes faculty members conservative in their approach toward research. Many will eschew engagement since it is not highly valued in the three traditional areas of tenure evaluation: research, teaching, and service. But as a lever of change, altered tenure, review and promotion criteria will encourage more diversity in a school's faculty portfolio. For example, the Ross School of Business at the University of Michigan has added "practice" as a fourth category to their annual review process with the goal of encouraging faculty to work on problems that have real value to the private sector. Another solution is to allow more flexibility in determining who is a peer or colleague in the review process. A junior faculty member who has performed public or political engagement should be evaluated by peers who have also conducted this type of work, and not just by peers who are only aware of scholarly merit. Ultimately, we must consider the question of whether a faculty member whose engagement outweighs their publication record can be tenured.

But changing the rules of tenure is an institutional issue, one not easily tackled by one school alone. Academia is a competitive market, where faculty members act as free agents. If one school establishes idiosyncratic metrics for tenure, an untenured junior faculty member would be taking a chance by following them unless they were guaranteed tenure. The risk of a resume that is not valued by the broader market is too great.

And beyond such strategic considerations, the question remains of how can we quantify and assess the quality of engagement? The peer review process has been well vetted as a means of evaluating the impact of academic research, but this does not readily translate to the assessment of the impact of a faculty member's engagement-based work. For example, it is easier than ever before to reach a wide audience, to join and inform discussion, to disseminate knowledge and reach out to communities using the widening array of social media tools. But, how does one measure the value of this activity? What is the intellectual value of a blog with one million page views? How does this compare to other metrics for measuring individual impact? Many look to new forms of social media analytics as playing a role in both improving our general impact (Liang et al. 2014) and quantifying impact in a way that is as rigorous as peer review. Indeed, social media platforms have already established novel analytics to assess the impact of social media; analytics that can be refined to focus on the impact on selective demographics, providing a far more powerful and insightful measure than the current set of metrics.

Informal culture. Beyond formal rewards, the informal faculty culture must also change. Indeed, many of us are culturally biased away from engagement, which is often viewed as a waste of time at best and held in contempt as anti-intellectual at worst (Goldberg, 2014; Hoffman, 2004). Ironically, even faculty members who engage successfully often advise their graduate students against it, or at least to defer it until they have achieved tenure.

But there are an increasing number of scholars who quietly deviate from the rules of academia and participate in public engagement. These people are gaining valuable knowledge and experience that can help the rest of the academy learn more about how to engage effectively,

while also remaining credible within the academy. We need ways to study these examples and highlight their path-breaking lessons.

Structural Tools for Supporting Engagement

With the right combination of changes to the tenure process and the dominant faculty culture, a climate where faculty can feel free to engage with the public and political sectors can be created. But beyond the removal of obstacles to engagement, multiple structures must be created to encourage and support this activity.

Employ knowledge translators. Not everyone can effectively engage in public and political discourse, nor should they. Speaking to lay audiences is, in many ways, like speaking another language. “One challenge is that people have less capacity to pay attention to scientific presentations than many communicators anticipate. A second challenge is that people in politicized environments often make different choices about whom to believe than do people in other settings” (Lupia, 2013). As a result, some schools are hiring translators: editors and communications professionals to reach diverse external audiences for us.

Training, formal and informal. For those that wish to engage on their own, one key strategy for improving performance is training throughout one’s career. First, training should start early, as part of the curricular or co-curricular training of doctoral students. One example is the Researchers Expanding Lay-Audience Teaching and Engagement Program (RELATE), which was started at the University of Michigan in 2013 by a group of graduate students to help “early career researchers develop stronger communication skills and actively facilitating a dialogue between researchers and different public communities.” Second, training should be an ongoing part of an academic’s career; for post-doctoral fellows, assistant professors, associate professors and full professors. This training can be both formal and informal.

Formally, universities are hiring coaches and public relations professionals to aid academics in their engagement pursuits. For example, University Press Offices can help with the preparation of media releases, provide education and training, and help increase the visibility of individual scholars and explore the best routes of dissemination. Academics should be aware of these internal resources and seek them out before they are thrust into the 24-hour cable news cycle or come under attack in social media.

Beyond the individual institution, there is a growing array of formal training platforms becoming available. For example, the Leopold Leadership Program at Stanford University’s Woods Institute for the Environment provides resources and training for mid-level academics covering topics like building and leading teams, working with Congress, and communicating with print and social media. Its’ sister program, COMPASS, provides training, individual coaching, and networking opportunities to help academics participate more effectively in public discourse about the environment (Smith et al. 2013).

Moving to the more informal modes of training, academics should find role models and mentors, learning directly from the personal experience of those who have already been involved. As the domain of academic engagement is still undefined, learning from direct experience is often the only direct educational option. Similarly, audiences can be one of the best resources for engagement training. By seeking feedback from those with whom you have engaged, scholars can develop their own experience that is personally tailored to their own communication style and the audiences they seek to engage.

Recognize the limits of academic inquiry in the political sphere. Academics must learn specialized skills for addressing political audiences. But, they should be aware that the power of the political world trumps the academic world, and academics should enter the political world with appropriate expectations. It is impossible to impart the values of the academy into the political sphere. Roger Pielke Jr. advocates for academics to expand the scope of political debates, by including all relevant information and the inclusion of varied voices and perspectives but then allowing the process to play out. It is not the appropriate role for academics to “save” politics from its worst offenses relative to academic values (Pielke, 2007). Rather, academics must enter in political contexts with a fuller understanding of their essentially secondary role. Even when facts are agreed upon, the interpretation of those facts and how they should inform policy will be very different for different political actors.

What to Expect from Engagement?

Engagement is political whether one acknowledges it or not. While many academics believe that their work is politically and socially inert – “the data state x” – any conclusion that has import for people’s beliefs or the way they live their lives is, by definition, political (Hoffman 2012b). As such, the engaged scholar cannot control the process by which it is interpreted. In fact, in the new age of social media and information access, your work may be drawn into the spotlight and distorted with or without your consent. So, academics need to manage their online presence as best they can while also recognizing that others will try to do it for them through Twitter, Facebook and comment boards, which provide an anonymous means of criticizing, threatening, and otherwise harassing scientists. With this set of expectations set, we should expect engagement to be messy and hostile, but also rewarding and research enhancing.

Engagement is messy. Public debate plays by a different set of rules than academic debate, and those who choose to engage should be prepared for unfamiliar tactics and players. A useful model is that of the “social amplification of risk”: “Messages about risk emerge from one part of the system (e.g., scientists), the threat is then amplified by other actors in the system (e.g., activists and politicians) and downplayed by others (e.g., corporate interests) leading over time to changes in mass media coverage, public opinion, consumer markets and government policy” (Leiserowitz et al. 2012: 3). Then, ultimately, the multiple messages are consumed by the general public, who form opinions that either support or resist policies designed to deal with it (Kasperson et al. 1988). The secondary and tertiary ripple effects of this process can be quite large (Leiserowitz et al. 2012). Through it all, scientists lose control of the message they intended their data and models to convey as competing interests either use, attack and distort their message to further their own political goals. The upshot of this process is that academics should be committed to a protracted and messy engagement in order to make their voices heard.

Engagement can be hostile. Beyond the messiness of social debate, it can also be hostile. If you are saying something important, you will receive blowback. As the aphorism states, “If you are not offending anyone, you never took a stand.” That doesn’t necessarily mean that you are wrong or that you presented your ideas inappropriately. You just need to be ready to receive engagement in all its forms, ugly and otherwise (Feder, 2012).

At its worst, many scholars receive hate mail (Dawson, 2012; West, 2012). Others receive startlingly harsh treatment (from both outside and inside the academy); diminished stature, harassment through burdensome Freedom of Information Act (FOIA) requests, public inquiries about funding sources (Hutchens, Sun and Miksch, 2014), Congressional scrutiny and even

direct pressure from outside interests to terminate employment (Mann, 2012; McKie, 2012). Academic engagement is an important but risky business.

Engagement can be rewarding. But the implications are not all negative. Ultimately, why an academic makes the choice to engage in public or political discourse is a personal decision, motivated by his or her own circumstances, value-set and beliefs, and driven by his or her own goals. However, they are united by a desire for the same outcome: to enrich their lives and the lives of those of the community they are engaged in. Academic research explains how the world works, how it is changing, what are the likely possible future states, the different paths we can take to reach these states, solutions to the world's problems and understanding trade-offs of different possible options. The benefits of engaging in the pursuit of these questions lead many to a greater sense of meaning and purpose to our work.

Engagement can improve your research. In the existing model of academic scholarship, the constant immersion in academic seminars and journals to the exclusion of practitioner seminars, meetings and journals weakens our literacy in the languages of the larger public. But the goal of engagement is collaboration with these publics to create new knowledge. Whether it be through a conversation with the community or collaborating with national professional associations, engagement ultimately has a beneficial outcome for both the academic and the community. For the academic, it can yield better future research questions, a deeper appreciation for the nuanced context in which that research is done and an expanded network of partners for exploring that context. For the community, it can empower people to offer input and guidance on research that can have an impact on their lives, inform their own decision making with regards to political and social issues, demystify the ivory tower of the academy and those who inhabit it, and expand their own networks for seeking assistance with future issues and challenges.

Engagement will change your publication strategy. Typically, we do our research, write it up, submit it for review, revise and resubmit it, publish it and we are done. But public engagement challenges us to take the work further, finding ways to present it in forums and media that are accessible to a general audience. We can write editorials, speak on radio shows, write for practitioner journals, speak at practitioner audiences, give government testimony, write blogs, tweet, and on and on. We live in a world where the marketplace of ideas is becoming an increasingly public one.

To aid in this pursuit, academic publishers are introducing more practitioner-oriented journals for disseminating articles written with real world applications that are tailored to a broader audience. Professional organizations are arranging more conferences that span the boundaries of academia and practice, facilitating meetings between academics and policymakers and developing platforms to allow academics and stakeholders to exchange points of view and explore common areas of interest.

And beyond the academic outlets, the engaged scholar may consider publishing in journals that step outside the standard academic milieu and are read by policy-makers and non-academic intellectuals, such as *Harper's*, *the Atlantic*, *the New Yorker*, *the New Republic*, *the Nation*, *Foreign Affairs* or *the National Review*.

Conclusion

In our increasingly technological world, issues like nanotechnology, stem-cell research, nuclear power, climate change, vaccines and autism, genetically modified organisms, and endocrine disruption require thoughtful and informed debate. For this to happen, we need a more socially literate scientific community and a more scientifically literate public. To remedy both, we need scientists who can be effective communicators of the scientific issues of our day. We need new and multiple Carl Sagans, scholars who can take complex scientific ideas and make them understandable by recognizing their deep cultural and social underpinnings, reaching all demographics, young and old, poor and affluent, liberal and conservative.

Unfortunately, many excellent scientists are poor communicators who lack the skills or inclination to play the role of educator to the public. As the prevailing logic goes, scientists develop data, models, and conclusions and expect society to accept their conclusions because their methods and their interests are established within their scientific communities and should not be questioned. But scientists have a duty to recognize the inherently political nature of their work when it impacts on people's beliefs and actions, and they have a duty to communicate that impact to those who must live with the consequences (Hoffman 2012b). We cannot develop a scientifically literate electorate, or indeed a sound democracy, without the voice of scientists to introduce the results and implications of our work to the decision-making process (Meyer et al. 2010).

In the end, beyond a sense of duty, I believe that a satisfying career will be measured more in the ways we have impacted how people think and act and less on citation counts and top-tier journal articles. Further, I believe this measure of success will become more pronounced as the next generation of scholars grows to replace us. This changing reality is, in many ways, merely a return to the notion of the academy as a special and honored place in society (March 2003), not above it or separate from it, but part of it. Those of us who are privileged enough to live the life of an academic possess a privileged opportunity to contribute to the world around us. Or as John F. Kennedy said, "To those whom much is given, much is expected."

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