

# *Seismic Shift: Metrics, Media and Marketing and the changing world of journals*

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## *Metrics Mania: Measuring the Impact of Research*

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### TRANSCRIPT

#### **Dr Eric. T. Meyer**

[START] Thank you very much. My first slide... So, I have the advantage and disadvantage of being the last speaker. I've had the advantage of hearing what everybody else has to say, some of which means I can skip past a few things I had intended to say, but it also gives me the opportunity to reflect a bit on what we've been hearing this morning. So I've got a title here called 'Metrics Mania'. I could have probably also called it 'The Impact Imperative' or something like that, equally catchy. Essentially what we've been seeing today is something I've been involved in somewhat for several years. Which is, we've got an entire industry that's developed, I think it's safe to say, around impact, measuring impact of various sorts and it's driven partly by... behind the computerization of publication and also by the ubiquity of the internet, but also a couple of other things that I'll be talking about.

Now let me just mention, even though I'm from a place called the Oxford Internet Institute, which is just up the road and where we study the social impacts of the internet, I'm not necessarily the sort of, y'know, technology evangelist that you might be expecting. I might take a slightly [sic] position to some of the things we've been hearing this morning and a couple of points.

One of the things I wanted to mention before I go into my slides properly is remembering why are we doing any of this? Y'know, what's the value of measuring all these things and coming up with all these numbers? Well, at some level I think people are trying to make predictions about the future. And the question is, 'At what level do [sic] these sorts of

predictions work'? Well I would argue that... If we head back to some of the slides that we saw from Dr Green that showed some of the national and field differences, I think we can make some pretty safe predictions, going somewhat into the future: that China will continue to grow in publications; that some of the patterns in the different fields will probably continue at the same rate. And it works reasonably well to start making some predictions at these big, broad levels, so at these big, structural levels.

We've also heard this morning that, to a certain extent, some of the journal-level metrics can help us make some, at least probabilistic predictions based on the likely impact of future things that are put into that same journal, right? If you've got a journal with a high Impact Factor, all that says is not that this individual article will be highly cited, it says you've increased your probabilities of being highly cited if you're included your article in a highly cited journal. It doesn't say anything at the article level until that article gets picked up by other people who think it's important. But we also heard the example this morning, I don't remember the exact journal it was in but somebody said, y'know, the journal impact went from .00 nothing to, y'know, hundreds, based on a single article that was highly cited. Well, that either says you know we could have predicted that for that journal or it basically says is [sic] maybe that author put their article in the wrong journal because it was a very low impact journal that was highly cited. So actually at the individual level, for the individual author, and certainly the individual article level, these sorts of pass metrics are a really bad predictor of future success. They don't really tell us much about whether a particular author will continue to be highly cited or highly tweeted or highly anything else, and it certainly doesn't tell us for an individual article what happens. Now as a room full of editors, and I was saying this during the break, I suspect that what makes the best editors are the ones who have some ability to predict the future success of articles and to pick the articles that they think are going to be successful based on a whole variety of things: their knowledge of the field; their knowledge of the authors; their knowledge of the topics that are current. And so I would hope that these metrics would be primarily seen as a way of improving your ability to make some of these predictions for your own journals and for the articles that you're accepting. Now when we move on to societal impact things become much less predictable, and I'll get into that a bit later.

One other point I want to make, just based on what we've been hearing this morning, is remembering... Y'know we've heard a bit about downloads, and downloads is measures. Downloads, we have to remember what it is they measure, right? They don't measure anything about the content of the article because you haven't seen that yet. They measure something about the attractiveness of the title, the value of the abstract, the topic, the marketing, the kinds of things we've been hearing about. But it takes you to open up the article to decide whether the article itself is any good. And we used to... it used to be quite difficult to do that. Y'know, back when I was in graduate school, y'know, years ago, I had to trek over to the library and open up the journal and maybe decide whether to waste my

copy, y'know quota on whether I was gonna copy that article back and take it home to read it. Now the marginal cost of doing that is practically zero. Y'know, the library's done a very good job of providing me free access to these things, as long as I'm sitting at my desk, it just opens up. So it doesn't cost me much of anything to choose to open that article and see whether I wanna save it. And because that marginal cost has dropped so much it means that it's very, it's even more difficult to decide what opening that article or downloading the article means.

Now, a little bit about scientometrics as a field. So, scientometrics... Eugene Garfield, he's still with us, he's about 87 years old I believe... who wrote this article in 1955 that basically started the scientometrics and bibliometrics field. It says, 'Look we can use citations to measure the value of science and the quality of scientific articles'. He then founded the ISI, which later became the Web of Science and the Web of Knowledge, and, in the 1960s, then started to work on things like journal Impact Factor, which became the Journal Citation Reports in 1975. Now, I can... I put this up here not to say that we should all worship at the, y'know, throne of Garfield but to say what was happening is over the several decades, from 1955 until 2005, or thereabouts, scientometritions were very active, doing lots of publications but everybody ignored them. Nobody else cared what they were doing. Y'know, they were writing a lot of articles for each other but practically nobody in any other scientific field cared at all what they were doing. However, by the mid-2000s a few things changed. Scopus and GoogleScholar were released in 2004. In 2005, the h-index, which we've already heard a bit about this morning, was proposed. And also, as I've mentioned, we suddenly got all of our articles available digitally and we suddenly are able to track all these things that we've been seeing measures of this morning: we can track what people are doing online; we can track what downloads they're making; what articles they're citing, much more easily than we were able to in the paper era. So this has influenced the explosion of interest in, in bibliometric measures and things like the h-index. So we see, as I'll return to later, things like the REF that are starting to have some of the panels focussed on whether articles have been highly cited or not, what kind of journals they're in and also the... we'll, we'll touch again on the whole impact story that people have to create to show the impacts of their work. So this h-index, which we've already heard described, is a simple measure, and I think that's one of the things that has caused the h-index to take off like wild fire. It's because it's so incredibly simple to figure out your h-index, right? How many of you know your own h-index? OK, not many of you do. If you go to Google and you set up a Google profile it'll tell you your h-index. And we saw an example earlier of somebody, I think Andy had his up there... you can find that out instantly. But even without that you can find it out practically. All you do is go to GoogleScholar, or any of the other indexes, search your own name, sort your papers by number of citations and start counting. And you just count down until you get to a number that's lower than you've reached and you're counting and then you stop. So if you've had ten articles that have had ten citations, you count down and all

the ones below that don't count. It's very easy to calc.. there's no calculation involved, it's just counting. And so, Hirsch hit upon a measure that was not only reasonably good at predicting someone's, sort of, impact as an author, it was also massively easy to calculate, unlike, I guess we heard, the Eigenfactor, which is almost impossible to calculate yourself. So I think this has helped influence this industry in understanding peoples'... things like h-index and impact.

Now I've been interested in impact in a slightly different field from academic publishing but I want to mention it because it does, I think, reflect some thing, some things I've learned that I think might help understand it. So, I first got involved in measuring some impact with an organisation called JISC, which some of you may be aware of, that was interested in.. in the late sort of 2007, 2008 period they'd spent a lot of money on digitising primary materials, so these are manuscripts and early books and all these kinds of things... digitising all the stuff that people in the humanities use quite heavily. They said 'Look, we don't dumped millions into digitising these things, has that been a good investment'? And this is the kind of question everyone's asking, right? Has it been a good investment in scholars, in digitised resources, in journal articles? Are these things good investments that people want to demonstrate? So they asked me and my team to do some work looking at some of their early digitisation efforts, and as part of that we made this toolkit, which is available, called TIDSR. If you Google 'TIDSR' all the first pages are us. And this says 'Here are some tools that you can use to try and understand some of the impacts your online resources are using'. Now this is designed for people who have these collections: librarians; or scholars; or other collections holders. You'll be able to go in and be able to use some relatively simple tools to try and understand the kind of impacts, yes, multiple impacts that their resources have. We walked them through a lot of quantitative and qualitative measures that they could use to try and understand the impacts of these different resources, some of which... y'know we've got scientometrics and bibliometrics also webometrics, which I'll give you an example of in a minute, but also lots of other things to try and flush out what kinds of impacts are these resources are having? So, in this report, and you'll have these slides afterwards, you can go read, we synthesised some of the evidence from a number of different projects that you used our toolkit. And they, these... uh oh! Could be this slide because it gives you the full names... These are some of the projects that used our toolkit to try and say 'Are the resources that we built having an impact'? So if you look at this... Old Bailey online certainly does well with having a lot of other websites linked to it. If any of you are familiar with Old Bailey online, it's the records of the Old Bailey, so the criminal records of London and Britain. It gets a lot of attention when new things come out, like radio programmes that use Old Bailey records and a television programme that I can't remember off the top of my head that uses Old Bailey records and so forth. But if you were just looking at this purely in numbers you'd say these things at the bottom, well these are pretty low impact, right? Nobody cites them, nobody links to them. If you look at the numbers at the top, they don't

have very many visitors per month but we also were important to say 'Look, if you're an organisation wanting to decide what you digitise you can't simply look at these raw numbers because not everything that's valuable is highly cited'. Some things can be valuable to a smaller community, can be very valuable to a smaller readership. And you need to figure out ways of understanding what those values are. So one of the examples... Siobhan Davies Dance RePlay, down there at the bottom, doesn't get linked to very much, doesn't get visited all that much but I think it's an actually very interesting resource. It's about Siobahn Davies who's a UK dance choreographer, and what this website did was it made a lot of ways for students of dance to see how professionals built up their dance portfolios, through video and things like that. And lets them see how to become professional dancers, works through the process rather than just seeing final performances. And from that a lot of teachers have started to link to this as a way of getting their students to think about what they need to do to become professional dancers. And there's not that many professional dancers in the UK, right? This is a very small community but they were, by using some measures they were able to track down who these users were and say 'Look, for this small group of users it's actually an important resource that was worth in investing even though it's not, it's never gonna get millions of visitors, it's not that kind of resource but it can still be valuable'.

Another quick example that was with the Bodleian Library. They've got this resource called EEBO-TCP, the Early English Books Online Text Creation Partnership. And we were trying to understand how EEBO-TCP was being used. EEBO's a very well-used resource, by and large, this is some of their usage statistics for ProQuest. As you can just see for 2004-2011 they've got a general growth of different kinds of views. But one of the things that came out of looking at this was that most people didn't actually know what they were using. One of the interesting things about EEBO is that there's a multiple resources. So, Early English Books Online's housed at ProQuest, where the images of the pages are held. And they've also got the text creation, which is the text behind those images, the actual, y'know, copyable text versions that are housed both at Oxford and at Michigan and in JISC's Historic Books Collection. But when we asked people who were using this heavily most people had no idea where they were getting this stuff from. And I think this is actually of interest to some of the things we've been hearing this morning when you say, when we were talking about, y'know, where the article's housed. Y'know, whether it's housed on an author's homepage, or whether it's coming through a link to the journal. Actually, most people don't know... and another category could be your 'don't care'. Y'know, as long as they get it they don't really care where they got it from, if they got the right version that they're using for their research. And so it adds a, a sort of branding challenge to anybody delivering these sorts of resources because the fact that users largely want to make sure that they get what they wanted not that they got it from the place that everybody else knows. Also, a brief word, with EEBO books, about the different kinds of measures one can use. There are the

publications related to Early English Books Online using a variety of search terms from different sources. And you can see that if you want to say how much this resource is being cited you get vastly different numbers depending on which resource you use. GoogleScholar includes a lot more than JSTOR or Scopus. But also the Scopus Thesis and Dissertation shows a pretty big number, as does ProQuest, which indicates that even though there might be some lower numbers in the official publications, in the journals, there seems to be this growing use amongst students, which might tell EEBO something about how to market the product that they've got and how to better increase their impact.

Now, one of the questions that I'm always asking myself is, y'know, do the technologies start wagging the dog? Y'know, do the metrics start wagging the dog? We've been hearing this morning about Twitter and Facebook and other different things. Do we run the risk that these start to warp our idea of what's valuable research? Because, y'know, something... and I'm not denigrating what Andy says. It looks like he does great work. Be he does work that's particularly amenable to being picked up by the public. Y'know, it's things that have a particular public interest. Y'know, he's doing sport and the Olympics and things like that. We want to risk not fetishizing only work that has this possibility of being picked up widely in the public, and realising that some other kinds of work are still valuable.

Now, I've used up most of my time but I wanna talk, at least briefly, about the REF. Some of you in this room might be much more knowledgeable about the REF, if you're on REF committees and so forth, than I am. So the Research Excellence Framework is something most of us are stuck living with, and it's part of, as I said, indicated earlier, this general move towards measuring impact. So not all of the panels, some of the panels, are including things like citation metrics for the articles that they're looking at in the REF analysis. It's been the choice of different panels whether to do that if it's relevant or not. Now, if that works I think there would be increasing pressure in the next exercise, should there be one in five or six years, to do more of these kind of measurements. The other thing that everybody is being asked to do is to present these impact cases, where for every five academics you submit you've got to have some sort of impact case showing how the research has had an impact on the world. Now for some institutions that's not a problem, they've done a lot of things that have public impact. I've talked to some people at some institutions however that that's one of their limiting factors. At some smaller institutions where they've got plenty of academics that they want to submit to the REF but they don't have enough impact cases that they feel tell a compelling story. So they're submitting fewer people because they can't, sort of, build up enough impact cases where they say 'Look this has had a big impact on the public, this has had a big impact on policy', some of the things we've seen this morning. But I think that that's going to be more and more and more important for things like future exercises of this nature. People are going to be asked to show their impact. I mean, if we can see it in the Research Council's dictates... When you're putting in a grant proposal these days, you're asked to make up this impact statement. And also several different kinds of

impact statements, if you've had to do these things lately, all meaning slightly different things: about academic impact; about non-academic impact. And the trick is moving beyond... Some people just make up [sic] stories that say 'Yeah, I'll imagine some kind of impact that I may or may not have. Or I'll have my pathways to impact that include things like, oh, we've got a Twitter account'. But moving that into something that actually can tie what it is you're doing to appropriate methods of extending your impact. We all want to have an impact, that's why we write these things. We don't write them just because we're pathologically driven to put words on paper, we hopefully mean to influence the scholarly debate and to influence our colleagues, and to influence our peers, to understand things in the world about a new way. But we want to make sure that these things are appropriate and aren't driven by the availability of a few kinds of measures. Y'know, not all of us are necessarily best measured by how many Twitter downloads we have... versus others who, who that might be a very good measure.

Now let me just end up with one last word, since I've used up all of my fifteen minutes, about interdisciplinarity. One of the things that is increasingly valued in different fields is interdisciplinary work. However, exercises like the REF almost completely erase that. Y'know there's no interdisciplinarity panels at the REF. And there's no value, really, of interdisciplinary work. We were at a conference where we were asking some of the REF please, y'know, 'How do put in a display of work'? They said 'You don't'. It's not valued at all. You've got to pick a panel, you've got to put stuff in for that panel. I've been working at E-Sci for the last ten years, which is very interdisciplinary set with computer scientists and other disciplines, and people I know in that field said... you look at their REF submission you can't see any hint they were ever involved in a science programme. They're only putting in say pure disciplinary computer science publications, pure computer science journals, rather than anything that reflects this. This is just a couple of quick numbers from the Scopus, this in a book that's coming out next year. Don't look at this whole chart just look at these yellow things. When you look at interdisciplinary publications, so in this is about you researching in science... The two yellow bars there are social sciences on the left and computer science on the right. The yellow bar highlights the percentage of their publications which are in articles... I mean, articles versus conference papers. And social scientists, as we all know, publish more in articles. Computer scientists publish more in conference proceedings. Now, this has an impact on the kinds of citations you get and how many citations you get. Even though the computer scientists will tell you that conference proceedings are sort of their gold standard of where they publish things, even they get cited less when they're in conference proceedings. And social scientists get cited much less when they're in conference proceedings than when they're in journal articles. But when they start working together, you can see these two yellow bars... a little hard to pick out here but essentially, when the social scientists are working with the computer scientists they're almost three times as likely to put things in conference proceedings than they are in journal

articles. Which has an impact on their own impact as they try and demonstrate that what they've done with computer scientists is of value even though it has been cited that much and it isn't in a proceeding... it isn't in an outlet that people consider legitimate. Y'know, my anecdote about this is, sitting in a meeting once, a project meeting with some computer scientists and some social scientists, and a paper that we'd written had been given at a conference recently and we said 'Oh, well that went really well at the conference'. And the social scientist said 'Now we should publish it'. And the computer scientists say 'But we just did'! So there was a complete disagreement over what constituted publication between these people in the same project, of whether the... having the proceedings... including this in the conference actually counted as publication or not.

So these are just a few thoughts about some of the issues related to impact. Hopefully this makes a little of sense, and I'm happy to talk to anybody during the breaks. And I think we have the break outs coming up just next where we can talk about some these things in more detail. But I just want to end by saying, y'know, we need to take these measures seriously but we also need to put them in the right context so that we know what we're measuring and why we're measuring it. Not just measuring it for the sake of measuring, and not becoming seduced by the fact of numbers just because they exist. Thanks. [FINISH]