Designing Tools for Serendipity

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February 19, 2015
Designing Tools for Serendipity

1. Brief professional autobiography

2. Peer review as a tool for accountability & autonomy

3. Designing tools for serendipity
Brief professional autobiography

- Professional training in the history of philosophy
- 100% teaching positions at GSU and Emory
- 100% research position at UNT
- Assistant Director, CSID (50/50 research/admin)
- Visiting Assistant Professor, Georgia Tech
The science-society relation

Linear Model

$ \rightarrow $ Basic Research $ \rightarrow $ Reservoir of Knowledge $ \rightarrow $ Applied Research $ \rightarrow $ Development $ \rightarrow $ Technology $ \rightarrow $ Application $ \rightarrow $ Societal Benefits

Peer Review

Accountability in the science-society relation

Science

Accountability

Peer review

Societal metrics (national needs)
Peer review – a tool designed for what?

NSF Merit Review Criteria (1997-2012)

• What is the intellectual merit of the proposed activity?

• What are the broader impacts of the proposed activity?
Assessing the science–society relation: The case of the US National Science Foundation’s second merit review criterion

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Abstract
Preliminary Report

Click here for a preliminary report from the workshop (PDF opens in a new window).

Workshop Themes

The National Science Foundation merit review process requires scientists to address the broader impacts as well as the intellectual merit of the research being proposed. The aim of this research workshop is to reflect on why (rather than how) scientists and engineers ought to address the broader impacts of their research.

- Why did NSF change its merit review criteria in the first place?
- How much freedom should the scientific and engineering community be granted to set the terms of its research?
- Why is "the integration of research and education" an important value that scientists and engineers ought to uphold? What would such integration actually entail?
- Why should scientists and engineers seek to expand the participation of underrepresented groups?
- What are the links between science and politics?
- Why should scientists and engineers worry about the broader impacts of their research? Do scientists and engineers have a responsibility to pursue research directed toward pressing societal needs when their research is publicly funded?
- Is basic research in science and engineering value-neutral?
The Comparative Assessment of Peer Review (CAPR) was a four year project (2006 - 2012) that examined the peer review process at six science agencies worldwide: NSF, NIH, and NOAA in the United States, the Natural Sciences and Engineering Research Council of Canada (NSERC), the European Commission 7th Framework Programme, and the Dutch Technology Foundation (STW). Funded by the NSF's SciSIP program, CAPR was a project of the Center for the Study of Interdisciplinarity at the University of North Texas.

- For our work on NSF’s broader impact criterion, click here.

Our research focuses on how different agencies integrate broader societal impacts issues into the peer review of grant proposals.

CAPR's products... Read More
CSID Impacts, 2008-2011
Activities and Results

Aug '07: Holbrook/Frodeman--$25k NSF grant: “Making Sense of the ‘Broader Impacts’ of Science”

Fall '09: Special issue of Social Epistemology: US National Science Foundation’s Broader Impacts Criterion (Holbrook, ed.)

Oct '07: Frodeman/Holbrook--$394k NSF grant: “Comparative Assessment of Peer Review”


April '10: NSF Merit Review Task Force buys 25 copies of Social Epistemology Special Issue

April '10: Meeting with John Veysey, Asst. to Rep. Lipinski (D-IL)


July, '10: Meeting with NSB Merit Review Task Force Exec. Sec. Tornow

Dec '10: Tornow attends Brussels EC workshop on “Peer Review & Broader Impacts”

Research Evaluation ('11) article compares NSF and EC on use of impact criteria; Science Progress article June 27 and letter in Science, July 8 argue against ‘national goals’ list

Autonomy & Accountability

Scientists

NSF

Congress

Merit Review
### Directions for future research

#### Metrics

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<tr>
<th>Title</th>
<th>Cited by</th>
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<td>Assessing the science–society relation: The case of the US National Science Foundation's second merit review criterion</td>
<td>41</td>
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<td>Peer review and the ex ante assessment of societal impacts</td>
<td>27</td>
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<td>Science's Social Effects</td>
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<td>Answering NSF's Question: What are the &quot;Broader Impacts&quot; of the Proposed Activity</td>
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<td>Philosophy in the Age of Neoliberalism</td>
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Altmetrics
# Designing tools for serendipity

## 1. Tools

## 2. Conviviality

## 3. Basic research

## 4. Serendipity – sagacity, accident, phronesis, usefulness

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### Research impact: We need negative metrics too

**Score in context**
- Puts article in the top 5% of all articles ranked by attention
- Good compared to other articles of same age & journal (73rd percentile)
- Very good compared to articles of the same age (90th percentile)

**Mentioned by**
- 1 news outlet
- 6 blogs
- 81 tweeters
- 6 Facebook users
- 1 Wikipedia page
- 2 Google+ users

**Readers on**
- 39 Mendeley
- 7 CiteULike

**Track this article**
- Get email updates when this article is shared

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**Research impact:**

The Almetric score is one measure of the quality and quantity of online attention that this article has received. You can read about how Almetric scores are calculated here.

This article scored 99.87.

The context below was calculated when this article was last mentioned on 1st May 2014.

**Compared to all articles in Nature**

So far Almetric has tracked 33,837 articles from this journal. They typically receive a lot more attention than average, with a mean score of 40.1 vs the global average of 4.9. This article has done particularly well, scoring higher than 90% of its peers.

**All articles of a similar age**

Older articles will score higher simply because they've had more time to accumulate mentions. To account for age we can compare this score to the 64,756 tracked articles that were published within six weeks on either side of this one in any journal. This article has done particularly well, scoring higher than 90% of its contemporaries.

**Other articles of a similar age in Nature**

We're also able to compare this article to 981 articles from the same journal and published within six weeks on either side of this one. This article has gotten more attention than average, scoring higher than 73% of its contemporaries.

**All articles**

More generally, Almetric has tracked 3,423,012 articles across all journals so far. Compared to these this article has done particularly well and is in the 99th percentile: it's in the top 5% of all articles ever tracked by Almetric.
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Impact map

413 geotagged events from 29 countries

Country | Impact events | Population impact
---|---|---
Argentina | 2 | 0.1
Australia | 4 | 0.2
Austria | 1 | 0.1
Belgium | 6 | 0.6
Brazil | 6 | 0.1
Canada | 10 | 0.7
Chile | 1 | 0.1
China | 1 | 0.1

107 | 65 | 241
Designing tools for serendipity

- Illich (1973) *Tools for Conviviality*

- Basic vs. applied research – intrinsic vs. instrumental value

- Peer review vs. metrics – academic vs. societal impact

- Autonomy vs. accountability

- Serendipity – sagacity regarding opportunity

- Thanks!