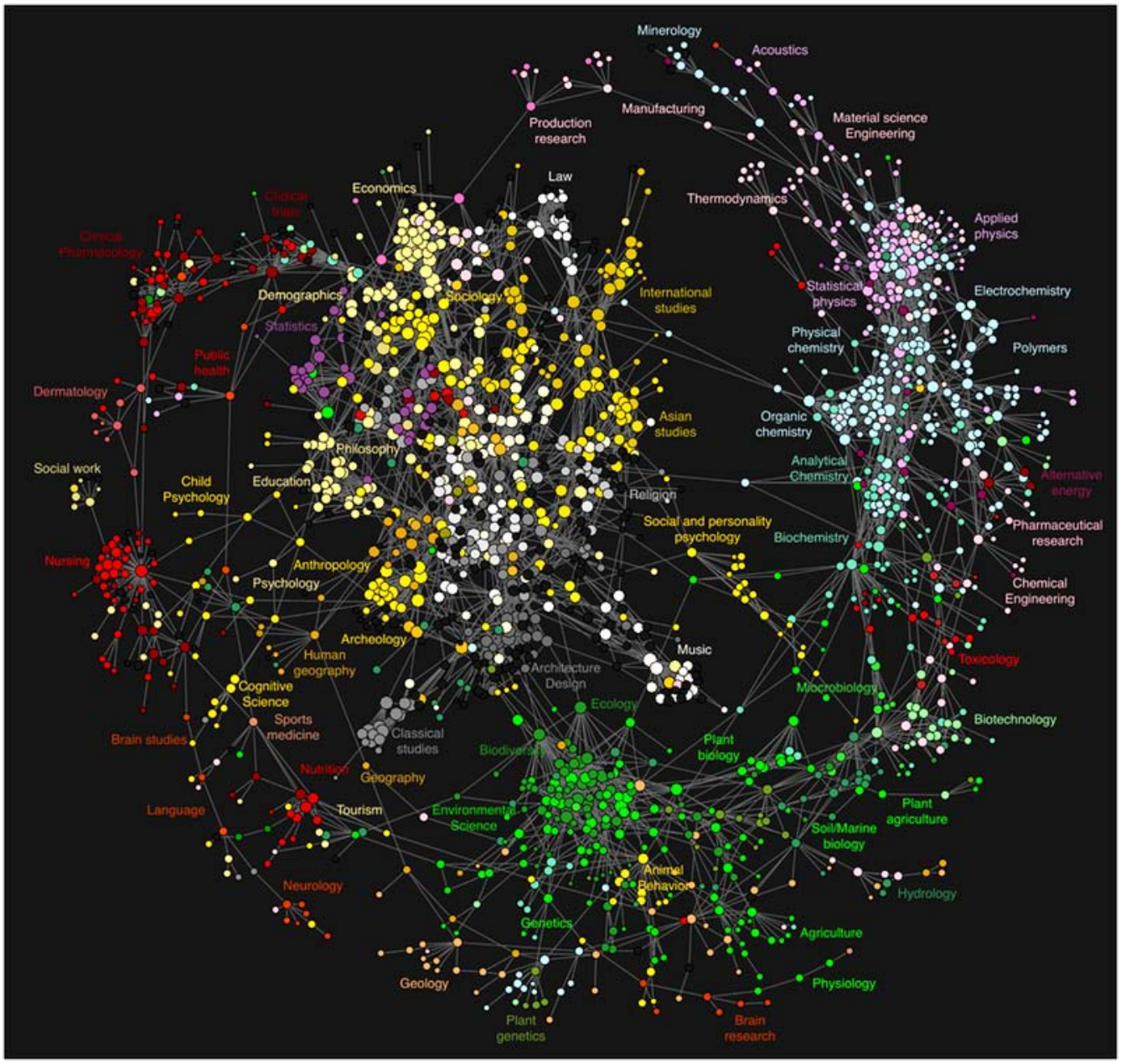
OUT OF FOCUS:
A CRITICAL ASSESSMENT OF THE SENATE REPORT, "THE NATIONAL SCIENCE FOUNDATION: UNDER THE MICROSCOPE"



"Map of Science," Los Alamos National Laboratory

A STAFF REPORT BY THE DEMOCRATIC STAFF OF THE HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
JULY 5, 2011

Dear Ranking Member Johnson,

The Democratic Committee staff evaluated the claims contained in Senator Coburn's report on the National Science Foundation (NSF), "The National Science Foundation: Under the Microscope." The Senate report claims that there are three areas of significant wasted funds at NSF. First, the report claims that NSF is sitting on a large sum -- $1.7 billion – of unexpended funds that should be returned to the Treasury. Second, the report claims that duplications between NSF funding and that of other agencies represent another $1.2 billion in wasteful spending. Third, the report asserts that Senate staff identified some $65 million in questionable projects funded by NSF.

Committee staff can assure you that NSF is not sitting on $1.7 billion in uncommitted dollars that should be returned to the Treasury. The $1.7 billion represents undisbursed funds obligated for multi-year grants which are legally retained by NSF to meet those obligations. The $1.2 billion in duplication also represents an assertion that comes with no proof. Finally, the $65 million in questionable projects is built on very superficial press reports of various research efforts. Those popular reports have been used to turn what appears to be important research work into punch lines and parodies. Your staff undertook a survey of all the researchers whose work we could find mentioned in the Senate report and we found that not one of them had been contacted by Senate staff to clarify the research before the Senate staff wrote about it. Further, we found virtually none of the researchers felt the Senate report's characterization of their work was accurate.

The National Science Foundation is one of the best managed agencies in the Federal government, with very low overhead and a very aggressive Inspector General working to keep NSF focused on those areas that need improvement. While the search for duplication and savings is important, the Senate report contributes nothing new to the discussion, and gets much wrong along the way. We wanted you to fully appreciate the limits of that report as the Congress takes up questions of funding and budget cuts.

Democratic Staff,
Committee on Science, Space, and Technology

OUT OF FOCUS:
A CRITICAL ASSESSMENT OF THE SENATE REPORT,
"THE NATIONAL SCIENCE FOUNDATION: UNDER THE MICROSCOPE"[1]

On May 26, 2011, a report on the National Science Foundation produced by the staff of Senator Tom Coburn (R-OK) became the basis for an ABC News segment.[2] Subsequent to that story, the Senate report was widely covered in other press outlets. An element of both the ABC News story and a later television treatment by CNN was a video from YouTube of one of the research projects profiled by Senate staff. The video shows an effort to test the endurance of shrimp on a treadmill and television news played the video, and the report, for laughs. The punch line, which was certainly the intent of the staff report, is that 'NSF "wastes" $3 billion of your dollars on crazy things like this shrimp running on a treadmill.' It is a simple message and a simple maneuver, but the joke is on the press that took the report seriously. Rather than putting the NSF "under the microscope" as the title implies, the report did not dig beneath the surface and is badly out of focus.

Science Committee minority staff reviewed the substance of the claims in the Senate report.[3] Of the $3 billion in alleged waste, Science Committee staff cannot validate a single category of significant purported savings. This memo attempts to document problems in the "Under the Microscope" report so that Members can place the headlines and the claims in perspective.

The Coburn report argues that his staff have identified over $3 billion in wasteful or mismanaged funds at NSF. The majority of the $3 billion comes from a claimed $1.7 billion in expired grant funds that they allege have not been returned to the Treasury in a timely fashion. The next largest category of wasted money comes from a claimed $1.2 billion in programs that are duplicative with those at other agencies. Another $65 million is alleged to be "wasteful spending on low-priority projects."[4] The remainder of the money identified in the Senate report comes from a collection of relatively small managerial missteps or fraud cases that have already been handled by NSF (often ending in money returning to the Treasury from the offending parties). On June 23, Senator Coburn testified about his report before a Subcommittee of the House Oversight and

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[1] The cover image for this report was developed at the Los Alamos National Lab and is one version of their "Map of Science." The press release on this can be found here: http://www.lanl.gov/news/index.php/fuseaction/home.story/story_id/15960

[2] http://abcnews.go.com/Politics/oklahoma-sen-tom-coburn-report-shows-taxpayer-money/story?id=13689403

[3] The National Science Foundation: Under the Microscope (hereafter "Under the Microscope"), a report by Senator Tom Coburn, M.D., April 2010. Science Committee staff have used the copy of the report that was posted at the ABC News site for this analysis.

[4] Under the Microscope, p. 6.

Government Reform Committee. The Senator reiterated the claims listed above and repeated examples of wasteful research spending recorded in that report.[5]

Science Committee staff took several steps to evaluate the sources used to support the claims in the Senate report. In addition to going back to double check the cited documents to verify that they actually supported the characterizations offered in the report, we also reached out to the researchers whose work is characterized in the report. Relying on the sources cited in the report, we attempted to identify the principal investigators. To those we could identify, we sent a simple five question survey that included a question about whether they had been contacted by the Senator's staff about their research and whether they had any comment about the way their work was characterized or the report generally. Key passages from the responses we received are woven throughout the body of this report. Full responses are included in Appendix I for those respondents who gave us permission to use their name.

Senate Description: Why did America vote as it did on Election Day?

"It is not accurate… The report questions whether this project should be continued. The ANES [American National Election Studies] provides data to the nation and the world that is matched by no other entity… For over 60 years, researchers have used this data to clarify many important aspects of how people feel about past actions of government, and how such feelings affects their willingness to contribute to society in a range of different ways, from the workplace, to the ballot box, to a range of volunteer organizations. The ANES is used by tens of thousands of scholars, teachers, journalists, and citizens around the world to not only better understand the current state of American democracy, but to compare the present to the past. This work is used by many agencies of the US government as well and was explicitly solicited by the Department of Homeland Security to help it achieve its important tasks… Our goal is to support the legitimacy and vibrancy of American democracy by producing credible measures of individuals' relationship to their government and to their country."[1]

Professor Arthur Lupia
Hal R. Varian Collegiate Professor of Political Science &
Research Scientist, Institute for Social Research
University of Michigan

For clarity, Committee staff rearranged selected quotes from Dr. Lupia's statement. Dr. Lupia's statement is long, but well worth the time to read in its complete, original formulation (see Appendix I).

[5] Senator Coburn testified before the Subcommittee on Technology, Information Policy, Intergovernmental Relations, and Procurement Reform, see: http://republicans.oversight.house.gov/index.php?option=com_content&view=article&id=1355%3A6-23-11-qimproving-oversight-and-accountability-in-federal-grant-programsq&catid=14&Itemid=22

Confusion About Appropriations Law

The Senate report alleges that NSF is sitting on a mountain of money, $1.7 billion, equal to almost one-quarter of the agency's annual budget. Specifically, in a section labeled: *"Use It or Lose It: NSF Should Better Manage Resources It Can No Longer Spend or Does Not Need and Immediately Return $1.7 Billion of Unspent, Expired Funds It Currently Holds,"* the report states:

> "This report exposes significant problems with the NSF's grant administration. Perhaps the most costly is the agency's inattention to undisbursed balances in expired accounts. NSF currently is sitting on $1.7 billion that has expired. This represents a significant amount of resources that could have either been directed towards scientific research or returned to the Treasury for purposes of debt reduction.
>
> GAO has called for "systematic resolution of these undisbursed grant balances," to "facilitate the return of these funds to the Treasury." This should be done promptly and NSF should pay greater attention to the expiration of grant funds to ensure those monies can either be reprogrammed towards scientific priorities or are returned to the Treasury as required. Our fiscal challenges today do not allow for such inattention to the proper financial management of taxpayer funds."[6]

Senate Description: "Where is the line between work and play in online virtual worlds"

"The Senator and his staff clearly did not read any of the actual research results from any of the grants he is claiming to be wasteful. They are all "easy targets" that can be made to look bad if portrayed in a superficial fashion. The project of mine he singled out was [a] workshop including representatives from a number of major IT corporations including IBM, Microsoft and Intel… It discussed, among other things, how virtual worlds such as Second Life are being used to enhance productivity and distributed collaboration in major IT firms. This work actually has significant implications in terms of economics, globalization and distributed work. The Senator appears to have read only titles and summaries of mine and others' projects and drawn erroneous conclusions based on complete ignorance."

Assistant Professor Celia Pearce
School of Literature, Communications and Culture
Georgia Institute of Technology

Georgia Institute of Technology

[6] Under the Microscope, p. 54.

Science Committee staff examined the citations used to justify these claims of unreturned moneys and found that the Senate staff rely upon the expertise of the Government Accountability Office (GAO). Two reports by GAO are cited; one from 2008 and one from 2011. The older report does not mention NSF nor did it evaluate anything about the unexpended, unreturned funds it identified at other agencies.[7] The 2011 GAO report cites NSF as one of four agencies with unexpended, unreturned funds, but simply concludes that "better tracking of grant accounts maintained in all federal payment systems could identify the expired grants with undisbursed balances." GAO did not do any work—and acknowledged that in the report—to evaluate whether any of the $1.7 balance reported by NSF was eligible to be "returned to the U.S. Treasury."[8]

Since GAO did not actually reach any conclusion regarding the inappropriateness of NSF having $1.7 billion in their expired, unspent account, Committee staff turned to NSF to clarify why they retain control over these funds. Below is a written response NSF provided:

"The [Senate staff] analysis above is inaccurate. The $1.7 billion is associated with active projects that were funded in previous years. The funds are "expired" only in the sense that the underlying appropriations are no longer available for obligation. The funds themselves were obligated, before the appropriations expired, for specific merit-reviewed scientific research and education projects, and can only be disbursed on those specific awards, or returned to the Treasury.

"After this 2-year period,

Senate Description: Do Turkish women wear veils because they are fashionable?

"The description of our research is very superficial and misses the major importance of our work… When revolution erupted in Tunisia and social upheaval spread across the Middle East, many turned to Turkey as a model of a country that is majority Muslim, capitalist, and democratic. We believe that American tax payers are interested in questions of how Islamic societies of the 21st century may integrate into the global economy. We are conducting an empirical investigation of the veiling fashion industry in Turkey to answer this question."

Associate Professor Anna Secor
Department of Geography
University of Kentucky

[7] Government Accountability Office, "Grants Management: Attention Needed to Address Undisbursed Balances in Expired Grant Accounts," August 2008, GAO-08-432.
[8] Government Accountability Office, "Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue," (hereafter referred to as "Duplication Report"), March 2011, GAO-11-318SP, p. 287-88.

the budget authority enters an "expired phase" for five years and is no longer available for new obligations. However, it is still available for liquidating existing obligations by making disbursements or payments. The $1,733.12 million in undisbursed grant balances as of September 30, 2010 represents the amount that NSF grantees have been awarded but have not yet spent. Although NSF has made the awards and has recorded the obligations, the disbursement rate will typically occur over multiple years due to the nature of science and engineering research and consistent with project budgets agreed to at the time of the award. Over the course of the award term NSF grantees will carry out their grant activities and incur expenses. NSF programmatic, grants and financial staff provide award oversight during this period.

"After the last expired year (typically year 7) of the appropriation, the accounts are closed, and the balances are canceled. The authority to disburse is cancelled and is no longer available for any purpose. NSF would then return all remaining funds to the Treasury."

According to the NSF budget manager, authority for NSF to retain control over these "expired, unexpended" funds rests in law, specifically 31 USC, Sec. 1553 which provides the legal framework for agencies to expend and manage appropriated funds. NSF does return money to the Treasury after the seventh year of its availability passes. Typically, the amount returned each year is between twenty and thirty million dollars.[9]

Senate Description: What is the relationship between online virtual world users and their avatar?

"What is not clear to me from the Coburn report is what specifically they find objectionable about my research… by citing material from interview questions (with the Wall Street Journal)… that were not directly related to my research and its findings, the Coburn Report seems to rely on innuendo rather than substance to discredit my research."

Associate Professor Ulrike Schultze
Information Technology and
Operations Management
Cox School of Business
Southern Methodist University

[9] Staff interview with the Director of the NSF Budget Office, June 1, 2011.

It is hard to understand how Senate staff would fundamentally misunderstand the GAO reports--for they certainly do not conclude that NSF is sitting on a large pile of unexpended, expired funds that should be returned to the Treasury--or be so unfamiliar with grant management and appropriations law. It is even harder to understand this mistake in light of NSF assuring Science Committee staff that the same explanation provided to this staff was shared with Senator Coburn's staff. **The bottom line is that NSF does not have $1.7 billion in expired grant funds that could simply be returned to the Treasury.** The money is obligated and NSF is responsibly managing it year-by-year in their multi-year grant awards.

Senate Description: "Can Members of Congress improve their approval ratings through internet town halls?"

"The report's characterization of our research is quite inaccurate, and we have good reason to believe that Sen. Coburn's staff understood and recognized the characterization… Our research team had the opportunity to present the results of our study to House and Senate staff in October, 2009. In advance of this seminar, Sen. Coburn's office issued a press release that, for whatever reason, mischaracterized our research, arguing that the study is simply a demonstration of a means for members to avoid face-to-face contact with constituents, "to show legislators how to exile angry town-hall mobs to cyberspace."

"We know for certain that some of Sen. Coburn's staff attended the seminar (one of them asked a question during the Q&A period) and so they certainly had the opportunity to discover their misunderstanding of our work. Unfortunately, the same mischaracterization that appeared in the October, 2009, press release is repeated in the new "Under the Microscope" report…

"Failing to exploit new technology means missed opportunities to enhance accountability, representation and our democracy. We have been and continue to be perplexed why Sen. Coburn would object to experimentally-based, scientific research into best practices for how members of Congress can use new technology to discuss issues with their constituents in a rational manner…"

Associate Professor Kevin Esterling
Department of Political Science
University of California, Riverside

UNIVERSITY of CALIFORNIA
Riverside

Mischaracterization of Duplication

The second largest area of potential savings that the Senator's report identifies is $1.2 billion in claimed duplication. However, the report provides no proof of duplication whatsoever. On this matter, the report reads (for example):

> "NSF is one of at least 15 federal departments, 72 sub-agencies, and 12 independent agencies engaged in federal research and development."[10]

That constitutes as much analysis as is provided of duplication. There is simply an assertion that because there is so much research done at so many agencies, there must be duplication.

The report does point to science education as a specific area where there is duplication and bases that claim on the work done by GAO for their "Duplication Report." The GAO called out science education as an example of an area where there may be duplication. In the language of the Senate report, the GAO's work is cited in this fashion:

> "The GAO recently highlighted the NSF's STEM teacher quality programs as indicative of government duplication. The report states, "GAO identified 82 distinct programs designed to help improve teacher quality… administered across 10 federal agencies," and identified "9 of the 82 programs support improving the quality of teaching in science, technology, engineering, and mathematics (STEM subjects) and these programs alone are administered across the Departments of Education, Defense, and Energy; the National Aeronautics and Space Administration; and the National Science Foundation."[11]

The only problem with using the GAO "Duplication Report" as proof of duplication is that the report itself is careful to note that it should not be used in that way. GAO did not directly evaluate these programs or reach conclusions about where programs could and should be fruitfully cut. The Senate report is an example of the kind of work which falls under the warning, contained in the Comptroller General's transmission letter in the "Duplication Report":

> "(P)recise estimates of the extent of unnecessary duplication among certain programs, and the cost savings that can be achieved by eliminating any such duplication, are difficult to specify in advance of congressional and executive branch decision making.

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[10] Under the Microscope, p. 6. The Senate report discusses duplication along these lines in somewhat more detail on pp. 20 and 21, but still provides no evaluation of programs to find evidence of duplication; they simply list the agencies and the amounts spent and leave it to the reader's imagination.

[11] Under the Microscope, p. 22.

> In some instances, needed information on program performance is not readily available; the level of funding in agency budgets devoted to overlapping or fragmented programs is not clear; and the implementation costs that might be associated with program consolidations or terminations, among other variables are difficult to predict."[12]

GAO has not dug into all the science education programs they list in their report to reach conclusions about actual duplication. They merely suggest that this would be a fruitful area for further Congressional and Executive consideration. The Senate report takes this as a green light to advocate for elimination of the Directorate for Education and Human Resources with a total savings of $872 million (from the FY2010 budget).[13]

Because of the existence of research at other agencies that could be construed as being social science, the report also advocates eliminating the Directorate for Social, Behavioral and Economic Science. This is also a matter of "priorities" according to the report, but the report makes no coherent argument about why, for example, studying the changing face of American democracy is inherently less important than funding a physics or chemistry experiment. The savings from eliminating social science research would represent a cut of $255 million (FY2010).[14]

Senate Description: "Why do the same teams always dominate March Madness?"

"I never had an NSF grant to study the hierarchy of basketball… My work on the 2005-2007 NSF grant mentioned in Sen. Coburn's report is fully documented in my book *Constructal Theory of Social Dynamics*… It gave birth to two international workshops… There is no basketball there... Sen. Coburn's report is false. I would have been happy to explain… but I was not contacted by any member of his voluminous and well paid staff. Now, who is not spending the taxpayers' money wisely?"

Professor Adrian Behan,
J.A. Jones Distinguished Professor,
Duke University

Duke
UNIVERSITY

[12] Duplication Report, p. 3.
[13] Under the Microscope, pp. 53-54.
[14] Under the Microscope,, p. 53.

There is no authoritative source cited regarding duplication to justify either the science education or the social science cuts advocated by the report. Neither does the report muster its own coherent analysis of the substance of any work funded by government agencies that would represent a new addition to the discussion.

Senate Description: "Are people more or less racially-focused when seeking love on-line in the Obama era?"

"Our NSF-funded project was wholly misrepresented by Senator Coburn's report… The words "race", "racist", "racism", etc never appear in the cited project abstract or title… Coburn's report relies on a single media relations article promoting some of the findings from one of our numerous research papers. We study relationship-formation dynamics through online mediating technologies, and race is one of countless characteristics that we can examine with our data."

Assistant Professor Coye Cheshire
School of Information
University of California, Berkeley

Statement is co-signed by four researchers. In addition to Coye Cheshire, the P.I., the co-principal investigator, Gerald Mendelsohn, and two other researchers, Andrew Fiore and Lindsay Shaw Taylor, are also signatories.

Reverse Earmarks: Congressional Staff Picking Winners and Losers Among Science Projects

The only proof offered in the Senate report about the questionable nature of Social, Behavioral and Economics research comes in the longest section of the report labeled, "Questionable NSF Projects."

The report indicates that Senate staff spent "several years reviewing hundreds of NSF research awards".[15] Science Committee staff attempted to understand what sort of review these research awards were subjected to by the Senate staff. That section of the Senate report deals with 44 different research questions which were created by Senate staff based on their understanding of the research subject. There are no footnotes that suggest Senate staff looked closely at the research produced from NSF grant awards or dug into the peer reviewed literature on the various topics. The citations in the Senate report are almost exclusively to the NSF database of award summaries and to articles that appeared in the popular press or were put out by University or agency press offices to provide some popularized characterization of the work.

Science Committee staff constructed a very brief survey to ascertain whether the scholars whose work was profiled had an awareness of the report, whether they had been contacted by Coburn staff and to gauge their reaction to the characterization of their research. The survey was a simple five question device delivered by e-mail. The survey questions (and summaries of responses) are reproduced below:

Senate Description: "How long can a shrimp run on a treadmill"

"We feel that the report was misleading… it clearly intimates that much money was spent on studying shrimp on treadmills and this is simply not true. Had the Coburn report been thorough, it would have noted that: (1) our treadmill work is a small piece of a much larger research effort by ourselves and other scientists that was funded under our current NSF grant… (2) maintaining healthy populations of marine organisms has important economic and ecological benefits to the US and worldwide. (3) three of our NSF awards over the past 11 years (totaling close to $900,000) directly supported science and technology scholarships for 90 US undergraduates from 44 states..."

Professor Louis E. Burnett &
Associate Research Professor Karen G. Burnett
Department of Biology
Grice Marine Laboratory
College of Charleston

COLLEGE of CHARLESTON
GRICE MARINE LABORATORY

[15] Under the Microscope, p. 24.

"Senator Tom Coburn's office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,
XXXXXXX
202-225-XXX

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

38 of 39 respondents had heard of the report. One only learned of the report through our survey e-mail.

2. Did you know that your work was included in the report as an example of a "questionable" research project?

37 of the 39 respondents were aware that their research had been included in the Coburn report; 2 only learned through our survey e-mail.

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

39 of the 39 respondents said that they were not contacted by Senator Coburn's staff about the research profiled in the report.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

33 respondents said the characterization was inaccurate; 4 responses did not allow for a clear determination of an answer; 2 respondents agreed that the summary was accurate, but with fundamental reservations ("accurate, but radically incomplete"; "accurate but incomplete").[16]

[16] This question combined a request to evaluate whether the work was accurately portrayed with a request to describe how the Senate report failed to fairly portray the research if they felt it inaccurate. This combination led to sometimes convoluted answers and reflects an imperfection in the survey instrument.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?
May we quote from your responses? ( ) Yes. ( ) No.
May we use your name if we quote from your responses? ( ) Yes. ( ) No."

28 of the 39 respondents gave us permission to quote their responses and use the respondent's name. Those responses are attached in the Appendix.

Senate Description: "Does Intelligent Extraterrestrial Life Exist on Other Planets"

"The Coburn Report's characterization of my work is NOT accurate… The vast majority of our students do not participate in any SETI (Search for Extraterrestrial Intelligence) research – they perform research projects in fields including astronomy, planetary science, chemistry, microbiology, physics, earth science, and more. Moreover, the goal of such an internship program is to expose students to the process of doing scientific research, and to encourage students to consider attending graduate school or finding jobs in science or engineering fields…"

Dr. Cynthia Phillips
Carl Sagan Center for the Study of Life in the Universe
SETI Institute

SETI INSTITUTE

The nature of the Coburn report made it difficult to accurately identify all the researchers whose work was referenced. While the report highlights 44 different research "questions", the text of those items often identified more than one research project (and sometimes more than one question). Some awards involved "cooperative" grants where two independent grants were given to scholars at different institutions to work on an integrated research question, and Coburn staff did not always identify the second grant or researcher. Other research summarized by Coburn staff appeared to be mis-attributed to NSF with no clear tie to a grant citation or tied to a grant that did not appear to cover the work described. Finally, the Senate staff's reliance on popular news stories to identify researchers and topics also complicated identifying who should be contacted by the Science Committee Democratic staff. Despite these difficulties, Science Committee staff identified 52 scholars from specific NSF grants or from popular articles and were then able to gather their e-mail addresses.

Staff sent the survey instrument to those 52 scholars on May 31, 2011. We received a total of 39 responses, the majority of those on June 1 or June 2, 2011. The most recent response came back on June 13. A response rate of

75% is a fairly robust number.[17] As mentioned above, of the 39 responses we have collected not one of them has indicated that they were contacted by Senate staff to discuss the research project profiled in the report.[18] None of the researchers who responded to the question indicated that their work had been fairly portrayed by the Senate report.

If Senate staff had contacted researchers, they may have learned that at least four of their examples of questionable NSF projects, totaling $1.1 million, were not funded by NSF. They may also have found that they misidentified a recipient. For the project they identify as *"Can Members of Congress improve their approval ratings through internet town halls?"* and which is actually titled in the NSF grant records as "Connecting to Congress: The Adoption and Use of Web Technologies Among Congressional Offices," the principal investigator is not at the Congressional Management Foundation, as Senate staff allege, but is instead at the University of California Riverside.[19] If the Senate staff had contacted principal investigators,

Senate Description: "What exactly does a low-budget robot rodeo and hoedown look like?"

Rowan University

"Perhaps the Robot Hoedown and Rodeo was singled out because it has an intentionally eye-catching name, and because on the surface it appears "fun." Indeed in his report Senator Coburn states, "Videos of the event posted to YouTube suggest the effort was a source of enjoyment for observers." It is precisely this "fun" which our program aims to associate with Computer Science education, so that our current students will choose to become the future researchers that make the kinds of transformative discoveries that improve our society and our economy."

Associate Professor Jennifer Kay
Computer Science Department
Rowan University

Tom Lauwers, Ph.D.
Founder
Birdbrain Technologies

[17] Among factors that could explain a failure to reach a higher response rate: (1) the emails were sent without verification that we had the most up-to-date e-mail address; (2) some scholars may be intimidated by what they view to be a politicized environment surrounding their work and be hesitant to respond; (3) many schools were already out-of-session by May 31, with faculty members on travel for research or other purposes and unavailable to respond. Further, Committee staff made no effort to follow-up to encourage participation through either a phone call or a second e-mail; such steps routinely drive up response rates. However, our feeling was that a 75% response rate was robust and the consistency of answers suggests it was unnecessary to take additional steps to gather data.

[18] One reply indicated that the Senator's staff had contacted them to discuss their research grant, but it was a grant for work not profiled in the Senate report so it still counted as a "no" in the survey.

[19] The Congressional Management Foundation is cited in the abstract, and a member of CMF was involved in the work. However, it is misleading to suggest this was about approval ratings and being funded at CMF by the Federal government. The research was exploring whether using the internet would allow a Member to more effectively reach out to constituents. In an era where Congressional districts are routinely composed of approximately 700,000 constituents, as opposed to the 30,000 at the time of the founding of

they may also have gotten an earful about the mischaracterization of the research projects they were profiling. The tone of many of the research summaries composed by Senate staff is mocking and sometimes even mean.

But in almost every case, the summaries are misleading, sometimes drastically misleading. Just as one example, the report points to a pair of grants on "The Costs of Voting." The report describes these as:

> "Other NSF grants help party leaders learn strategies to increase voter turnout. In 2006, University of California-Berkeley and SUNY Binghamton researchers were provided collaborate (sic) research grants totaling $165,000 to study "The Costs of Voting." By "costs," the researchers indicate they are referring to, "the time one spends voting, locating the voting place, waiting in line to vote, traveling to and from a polling place and learning enough about the ballot choices to make one's vote minimally informed." One of the goals of the research is to suggest "strategies that might be used to increase turnout." (Quotes in the body of this text are from the NSF award summaries).

This is about as thorough a treatment of a research topic as the Senate report engages in, and yet it is misleading because it grossly misstates the intended audience and understates the importance of the issues. The researchers provided Science Committee staff with their own statement regarding the focus of their work:

> "The intended audience for this information, however, was never political party personnel as the Senator's report fears, but rather (a) social scientists and academics, because the findings of the research substantially advance the body of knowledge in the field of voting behavior, and (b) non-partisan election administrators, whose task it is to conduct free and fair elections as efficiently, inclusively, reliably, and securely as possible. The findings of this research will be invaluable to them in doing just that. Higher voter turnout enhances the legitimacy of the democratic process… We suggest there is a clear public interest in generating knowledge that can enhance political participation and legitimacy."[20]

In short, the study is not about seeking tools for partisan advantage, but about providing information that can better guarantee voter participation. Oh,

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the Republic, probing the promise of technology to allow citizens to communicate with their Representatives does not seem like a trivial question. There has even been some discussion in recent years of expanding, perhaps radically, the House of Representatives to make Congressional districts more in line with the original size of districts.

[20] Communication from Professor Henry Brady (U. Cal Berkeley) and Assistant Professor John McNulty (Binghamton University) to Science Committee staff, May 31, 2011. See the Appendix for their complete response.

and one of the researchers is the immediate-Past President of the American Political Science Association, so this is not marginal work within the field.

There is another quality inherent in the Senate language on this topic of voting costs—there seems to be an assumption that voting is cost-free. However, there is ample literature on the barriers to voting, and voluminous examples can be found all around the country every election day. Anyone who has ever worked a polling place knows that for working families, voting is anything but free.

While the Senate report takes a slight majority of its examples of questionable projects from the social sciences (27), the physical sciences and engineering are well represented (21) and education and education research also have a handful (4). Computer-related research designed to shed light on emerging virtual online worlds comes in for particular scrutiny.

One other point that consistently comes through in the researchers' responses to our survey was that the Senate report attempted to reduce projects of great scope and wide support for training the next generation of scientists to single, often quite-narrow items. For example, the Senate report points to a $2 million grant to Cornell to find out, in the words of the Senate report, "Are people who post pictures on the Internet from the same place at the same time often socially connected?" In addition to rejecting the Senate report's substantive description of the research, Dr. Jon Kleinberg wrote that "this grant from NSF has supported a broad array of research projects, as well as the training of graduate students. All of these activities were key goals of the project when it was proposed to NSF. Therefore, describing the grant as providing funding for this single paper, rather than for a much broader scope of activities, is

Senate Description: "Exactly how much housework does a husband create?"

"NSF did not support the study cited. It grew out of a course… and was financed by [the instructor's] salary… The worst feature of the discussion of the PSID [Panel Study of Income Dynamics]… is that it refers to one study using the data, which they (apparently) find insufficiently interesting to merit government funding, and then report the amount that NSF has provided to support the entire project. Someone who read only this report would never learn that PSID data is used by federal agencies, has inspired similar studies in other countries around the globe, etc."

Professor Charles Brown
Department of Economics and Co-Director of the Panel Survey of Income Dynamics University of Michigan

Committee staff edited the Brown response to move "NSF did not support the study cited…" to the front of the response for readability. The original appears in the Appendix.

inaccurate." For more on what the Senate got wrong, see Dr. Kleinberg's full survey response in the Appendix.

The Senate staff work is confusing. On the one hand, they seem to have understood the limits of their ability to evaluate research on its own terms so they did not work hard to understand its worth within the 'field' of research from which it comes. On the other hand, they feel confident enough that a university press release or a *USA Today* story is accurate to use as a basis for characterizing and (de)valuing the work.

Despite the thin research record, the Senate report readily engages in what amounts to "reverse" earmarks. While earmarks are now widely condemned as Congress improperly directing money to recipients, this report amounts to an effort to pressure an agency—and ultimately build a case for defunding some of its research agenda—because the staff have determined that this research is a low priority. These projects supposedly exemplify the kind of "wasteful" spending that the report advocates be terminated. But the lack of understanding by the Senate staff regarding the research projects, or their place in the evolving areas of science that the projects speak to, directly undercuts the credibility of the "reverse earmarks."

Virtually any field of science can be parodied or played for laughs. The distinguished Democratic Senator from Wisconsin, Senator William Proxmire, famously gave one of his "Golden Fleece" awards to Professor E.F. Knipling for his research on "The Sexual Behavior of the Screw-worm Fly."

The screw-worm is a parasite that kills livestock, and occasionally humans. Dr. Knipling's silly-sounding project actually led to the eradication of the screw-worm, helped save the lives of millions of livestock and saved the cattle industry in the United States an estimated $20 billion. That was a $20 billion return on a $250,000 grant. On top of that, consumers enjoyed a 5 percent decrease in the cost of beef at the supermarket. Dr. Knipling ended up winning the 1992 World Food Prize for his work on parasites, and the Senator ended up apologizing.

Why would anyone study the sex habits of the fruit fly—one of the studies that Senator Coburn's staff point out as a low priority research area?[21] The Senate report describes the research question as "Exactly how do the genitalia of fruit flies assist them in hooking up?" Obviously, a sensible person would readily agree that such a topic is a transparent waste of time and money to satisfy the odd curiosities of some professor. However, this research has the same underlying motivation that led to Professor Knipling's work: looking for effective ways to control a pest that can cause billions of dollars in damage to agriculture. A similar incentive drives the research into shrimp that the Senate report reduces

[21] "Under the Microscope," p. 43.

to an amusing YouTube video.[22] The difference between viewing such a study as a waste, or viewing it as a promising line of research that could lead to real improvements in our lives and economy is simply one of knowledge. Science Committee staff found, on a consistent basis, that if one takes the time to look at what the research is wrestling with, a reasonable person would quickly come to see the research as full of promise and not just a punch line. But Science Committee staff also understand that the best judges of the work are the peers who reviewed the original grant applications and found them sufficiently promising to recommend funding them.

Conclusion

The House and Senate, and the country, are engaged in a great debate about our fiscal future. Priority-setting is an implicit part of that debate. Sound judgments about priorities need to be rooted in real facts. The intention of the Senate report was to advance a debate about the nature of NSF funding priorities, but the product released turned out to be disappointing. The report's evaluation of "questionable" research is built itself on very weak research and often misleading characterizations. The report does not engage in any effort to identify real duplication in NSF education programs or research. The most important category of potential savings—recovering $1.7 billion in unexpended funds—turns out to rest on a fundamental misreading of the law and the grant-making process.

In the end, there are no savings to be found in the Coburn report, and little reliable information to inform a discussion about priorities.

[22] See the full response to the survey by Professors Burnett & Burnett of the College of Charleston in the Appendix.

Appendix I: Responses to Committee Staff Survey on the Coburn Report

What follows are the actual responses provided to the staff by researchers whose work was mentioned in the Coburn report. We reproduce them so that readers can reach their own conclusions about the researchers' reactions to the Coburn report. We believe that the statements by the researchers are so important that they are well worth taking the time to read.

Mr. Jackson Moller, J.D. and Ms. Kate Farley, B.S. – both interns serving with the Democratic staff of the Committee – and Dan Pearson, Ph.D. of the permanent staff of the Committee conducted the communications to gather these responses. Their names are included in the text below in the email and contact lines. No reasons of privacy seemed to suggest that their names should be excised.

Each entry has the Senate report "research question" as its header so that readers can tie the response back to the original language of the Senate report. The respondents whose submissions are included can be found by name at the following pages (in no particular order):

Dr. Arthur Lupia, University of Michigan……. p. 19
Dr. Brian Pentland, Michigan State University……. p. 25
Douglas Wasitis (*for Dr. Johan Bollen*), Indiana University…… p. 27
Dr. Jon Kleinberg, Cornell University……. p. 28
Dr. Cynthia Phillips, SETI ……. p. 31
Dr. John Hibbing, University of Nebraska ……. p. 33
Dr. Ulrike Schultze, Southern Methodist University……. p. 35
Dr. Michal Polak, University of Cincinnati……. p. 37
Drs. Louis and Karen Gray Burnett, College of Charleston…… p. 39
Dr. Charles Brown, University of Michigan……. p. 42
Dr. Frank Stafford, University of Michigan……. p. 44
Dr. Pieter Abbeel, U. California, Berkeley…….. p. 46
Dr. Nicholas DiFonzo, Rochester Institute of Technology…..... p. 49
Dr. Stuart Shulman, University of Massachusetts, Amherst….. p. 51
Dr. Anna Secor, University of Kentucky……. p. 53
Dr. Adrian Bejan, Duke University……. p. 55
Dr. Ron Hess, U. California, Davis……. p. 58
Dr. Celia Pearce, Georgia Tech University……. p. 60
Dr. Jennifer Kay, Rowan University…….. p. 62
Dr. Wendy Silk, U. California, Davis……. p. 65
Dr. Coye Cheshire, U. California, Berkeley……. p. 68
Dr. Kevin Esterling, U. California, Riverside..…….. p. 72
Dr. David Laitin, Stanford University……. p. 75
Dr. Robert Goldstone, Indiana University……. p. 77
Dr. Todd Gureckis, New York University……. p. 81
Dr. John McNulty, Binghamton University…….. p. 86
Dr. Henry Brady, U. California, Berkeley……. p. 89
Ms. Michelle Norgren, Missouri State University……. p. 91

“Why did America Vote as it did on Election Day?” &
“How can politicians motivate people to make political donations?”

Sent: Tuesday, May 31, 2011 1:52 PM
To: lupia
Subject: Questions about Sen. Coburn's report

Dear Dr. Lupia,

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,

Kate Farley
Committee on Science, Space, and Technology
202-225-7567

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

>> YES

2. Did you know that your work was included in the report as an example of a “questionable” research project?

>> YES

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent?

>> NO

If “yes”, can you summarize who contacted you, what they asked and were told?

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate?

>>IT IS NOT ACCURATE.

If you feel that it was not accurate, please provide a brief summary of what they got wrong.

>> There are two projects with which I am involved.
>> One is mentioned on pages 42-43. It is a grant that I received to support one of my graduate students. “Doctoral candidate Adam Levine received a $6,900 grant for his dissertation entitled “Examining When Impersonal Donation Solicitations are Successful.” The grant summary explains, “This research focuses on how and when individuals decide to donate money to social organizations.”One of the key findings from the dissertation was that “a major factor influencing people’s decisions to donate is the simple fact of receiving a persuasive request for money. Indeed a majority of people who make small donations report that they donated upon receiving a persuasive soliticitation.”.” Politicians and special interest groups are likely to be the only beneficiaries of this questionable “scientific” research.”

This research examines the conditions under which people will choose to donate time or money to social causes. It shows how reminding potential donors/participants of certain things during a solicitation (such as the high price of gas or economic uncertainty) makes certain types of people far less willing to contribute to causes that they would otherwise help. This research provides insights that organizations such as the American Red Cross, the United Way, the Salvation Army, the American Cancer Society, to name just a few, can use to fundraise more effectively. As a result these organizations can spend less time and effort on fundraising which will allow them to spend more time and effort providing valuable services for individuals across the country. The Senator’s report describes the work as pertaining *__only__* to politicians and special interest groups. ***This is not true.*** Levine has conducted work that can help many organizations more effectively solicit the support on which they and their constituents depend. This work, as it becomes better known, is likely to convert a $6900 grant into practices that are worth millions of dollars to social organizations that require donations or volunteers to accomplish their goals.
>>A second project is mentioned on page 39. “In January of 2010, the University of Michigan and Stanford University received a total of $10 million as part of the “American National Election Studies (ANES)” project to “inform explanations of election outcomes” … Michigan and Stanford researchers received an similar award close to $10 million in 2005 to study the 2006 and 2008 election cycles.”

I was a principal investigator on the ANES grant that did work on the 2006 and 2008 elections. I served as Michigan’s ANES Principal Investigator from 2005-2009. Our goal is to support the legitimacy and vibrancy of American democracy by producing credible measures of individuals’ relationship to their government and to their country. For over 60 years, researchers have used this data to clarify many important aspects of how people feel about past actions of government, and how such feelings affects their willingness to contribute to society in a range of different ways, from the workplace, to the ballot box, to a range of volunteer organizations. The ANES is used by tens of thousands of scholars, teachers, journalists, and citizens around the world to not only better understand the current state of American democracy, but to compare the present to the past. This work is used by many agencies of the US government as well and was explicitly solicited by the Department of Homeland Security to help it achieve its important tasks. Moreover, the ANES studies are considered a benchmark for election

surveys around the world. In established democracies and new democracies, National Election Studies support governmental legitimacy by providing powerful and valid measures of the factors that affect citizens feelings about, and contributions to, the nations in which they live.

The report questions whether this project should be continued. The ANES provides data to the nation and the world that is matched by no other entity.

The ANES agenda distinguishes it from many other election surveys. Many such valuable surveys are proprietary. Some surveys sponsored by news media organizations, political campaigns, political parties, interest groups, and others are never publicly released, so only limited analyses of them are ever reported. Other surveys have different limitations. Most media and campaign polls, for example, are conducted quickly (in just a few days) and involve low response rates and very short questionnaires (rarely longer than ten minutes on average). While such polls are valuable for giving news audiences real-time measures of key questions, many scholars have not found them to provide a credible basis for in-depth explorations considering many relevant variables at the same time. Media and campaign polls ask only a small handful of questions repeatedly over time during a campaign or over many years, instead shifting the focus of questionnaires from survey to survey to address the events of recent days. And it is exceedingly rare to see the same respondent interviewed extensively before an election and then again after the election to understand more deeply the two behaviors that are our focus: vote choice and turnout. Most importantly, few if any political surveys of any variety solicit extensive feedback from broad arrays of social scientists about the most effective way to draw samples, conduct interviews, or ask questions. The ANES does all of these things and more. This is why it is widely regarded as the "gold standard" of election studies.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

>> I am grateful to the National Science Foundation for its support of innovative scientific research. Because of NSF, America leads the world in many beneficial kinds of social inquiry.

On several occasions in the past, I have been asked to speak about the public value of political science research. These ideas have been expressed here (http://www.nytimes.com/2009/10/20/books/20poli.html) and here (http://www.jstor.org/stable/420770).

Here are two excerpts from a speech on the subject that I gave at the Southern Political Science Association Annual Meeting in January 2011 in New Orleans.

The Public Value of Political Science

"Political science is valuable to millions of people all over the world.

For example, students at colleges and universities all over the world think that Political Science is relevant. At every university at which I have ever worked, Political Science has been one of the most popular majors, if not THE most popular major.

Political science is relevant to many governments and multinational organizations. These people seek political scientists' advice frequently on matter ranging from how to design constitutions to how to improve communication with, and responsiveness to, citizens….

Even elected representatives find it relevant. Not only do many officeholders have political scientists on their staff, quite a few are trained as political scientists such as former Vice President Dick Cheney, who was in the graduate program at Wisconsin, Commander David Petreaus who received a PhD in International Relations from Princeton, and leaders like US Congressman Daniel Lapinski, who has a Political Science Ph.D. from Duke.

Many members of the media find Political Science relevant. Political scientists are quoted in newspapers and featured on television news programs all the time….

***

I have found that what some observers dislike about political science is not the science but the politics. For when outsiders look into the subject matter of other sciences, their jaws drop in awe of nature's beauty and power. They are justifiably impressed by those who work hard to uncover nature's amazing secrets. By contrast, when outsiders look into the subject matter of political science they see ideological battles, demagoguery, and scandal. They're just repulsed by the subject matter.

The promise of the natural sciences is that we can improve our existence by using them to uncover the properties and mechanics of forces that are fundamental to our lives. The promise of political science is no different.

In addition to ugly subject matter, political science has another difficult attribute--a somewhat adversarial relationship with its objects of study. To make this point, I ask you to consider how different physics or astronomy would be if they had the following characteristics:

1. *The objects of study fight back*. In political science, the objects of study can read what scientists have said about them and adjust. If they think that someone wants to examine them, they may attempt to hide or destroy information about themselves. "Predictions of the return of Halley's comet," by contrast, "do not influence its orbit" (Merton 1968, 477).
2. *The objects of study do not welcome analysis*. Political scientists seek to clarify the mechanics of objects such as constitutions, policies, and campaigns. People operate these mechanisms and many of them do want their actions analyzed. Indeed, I have yet to meet the person who enjoys hearing that aspects of their voting or legislative decisions can be reduced to a mathematical equation--even if their behavior does indeed exhibit general properties than can be represented mathematically. Quarks and leptons, I presume, don't take attempts to characterize them so personally.
3. *The objects of study are more passionate than the scientists*. Most people who work in government or who are active participants in campaigns or policy debates have a deep concern for some aspect of social life. By contrast, most political scientists are not political activists. Indeed, people who have spent a great deal of their lives working for "the cause" (whatever it may be) tend to have a difficult time accepting the idea that their political opponents are as worthy of study as

they are. The forces implicated in the debate over the cosmological constant, by contrast, never fear that physicists are secretly working for "the other side."

4. *Everyone believes that they already know the answers to many of your questions*. Unlike physics, many people believe that they know precisely how politics works. They believe that it is easy to define "right" and "wrong" and then to convert "right" into policy. Of course, if you draw a random sample from most large populations, you quickly find very different and conflicting conceptions of "right." Nevertheless, many people prefer their view of politics to objective analyses of politics.

That many people believe they understand politics may seem to make a *science* of politics unnecessary. After all, why study something that people think they already know? But this attribute of politics makes the development of political science all the more important. Society benefits from having transparent, impartial, and replicable means for evaluating the validity of various social myths. Political science provides such a means.

A key question in thinking about the public value of political science, and whether or not it deserves taxpayer support, is not simply whether investments in political science research can generate positive scientific and social impacts, but whether the likely returns on investments in such research are *greater or less than those that could be earned were individual scholars, research institutions, and the federal government to invest their funds elsewhere*. NSF will always have a wide range of potential uses for extraordinarily scarce resources.

So, with this criterion in mind, what is the value of political science research?

Life as we want it to be requires us to construct complex political instruments, such as constitutions or public policies. Understanding such instruments is not trivial. Many of these instruments and phenomena have properties that only political science can uncover.

And it is important to realize the danger of undervaluing political science research that comes from confounding the research's value with the fact that governments in a free society have somewhat adversarial relations with those who study what they do. Indeed, one of the most important things separating authoritarian regimes from non-authoritarian ones is that the latter allow a free social science. While political scientists sometimes delve into issues that make legislators squirm, regimes that do not support such entities learn far less about how to operate complex political machinery to beneficial public ends.

As difficulties in many other parts of the world reveal, restrictions that isolate government actions from public scrutiny in the short run lead to long-run ignorance about how to operate democracies and markets. Indeed, for many formerly authoritarian states, this ignorance continues to have severe economic and social consequences long after the restrictions have fallen.

As long as governance is complex, societies benefit from a press that has the freedom to provide information about political actors and actions and a science that has resources sufficient to discover fundamental properties of politics and the economy.

Moreover, while offering clear and impartial explanations of complex political mechanisms provides new capabilities for human benefit, such knowledge also benefits

science directly. Many of the most important ideas from the natural sciences, for example, can impact human life only if governments react in certain ways.

As noted science historian Charles C. Gillispie pointed out: “Science is anything but apolitical in its application, practice and very possibility. What else but politics decided the fate of the Superconducting Supercollider, which might have fortified the laws of physics?”

Many counterexamples to the belief that "good science implies better policy" persist. While it is easy to blame such outcomes on politicians who do not understand science, or scientists who do not understand politics, blame games do not address these problems.

By contrast, a science that focuses on how political actors use information provides a better corrective. Political science is such a science. Research in political science improves how people live. As a result, political science merits serious scholarly consideration and continued public support.”

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

“For organizational performance, are routines advantageous?”

From: Brian Pentland [mailto:pentlan2@msu.edu]
Sent: Tuesday, May 31, 2011 3:47 PM
To: Farley, Kate
Cc: Tom Oswald; Kathy Walsh (walshka@msu.edu); Jennifer Somerville
Subject: Re: Questions about Sen. Coburn's report

Dear Ms. Farley,

Thanks for getting in touch. I've included answers to your questions below. I have cc'd our university media relations people, just so they are in the loop.

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
Yes.

2. Did you know that your work was included in the report as an example of a “questionable” research project?
Yes.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?
No.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.
I did read the brief section of the report that referred to my research on organizational routines. In my view, the Coburn report did not "characterize" the research at all. Rather, they quoted very selectively from a university press release and an old working paper in a way that makes the topic seem frivolous. The quotations did not characterize anything about the motivation for the research, it's potential impact or findings.

If they had asked me, here is what I would have told them (similar comments are available at http://routines.broad.msu.edu):
1) Organizations often find it very difficult to change or innovate. Much of this inertia is caused by organizational routines. This phenomenon is evident in all kinds of organizations: healthcare, education, manufacturing, services, government, military, and so on. There is an enormous human and economic cost associated with this lack of flexibility. So, we conduct basic research on organizational routines to help understand how organizations may be better able to change.

2) Recent field research has highlighted a different aspect of routines that is also very important: drift, or gradual change over time. In our research, we refer to this as

endogenous change. When routines "drift", it causes all kinds of problems in areas like quality, security, and so on. Our research on endogenous change in routines won the 2009 Scholarly contribution award from the top journal in our field, Administrative Science Quarterly.

3) So based on points 1 and 2, we see that routines have a paradoxical quality. One one hand, they tend to stay the same, even when we try to change them (inertia). On the other hand, they tend to change even when we want them to stay the same (drift). Our research has demonstrated that these paradoxical aspects of routines can be explained in terms of the same underlying phenomenon (path dependence in repetitive patterns of action).

While still relatively new, this work is having quite a lot of impact. Here is what the editors of Administrative Science Quarterly said about this line of research, when presenting the 2009 Scholarly Contribution Award:

"It is rare to find articles that take on core issues in a discipline and are able to say something fundamentally new. We believe that Martha Feldman and Brian Pentland's 2003 article 'Reconceptualizing Organizational Routines as a Source of Flexibility and Change' does just that. The article takes on issues that are core to the field of organizations and have been for more than a century. But Feldman and Pentland's reconceptualization of organizational routines is quite different than virtually anything that has been said on the topic in the past. While virtually all of organizational research accepts as conventional wisdom the notion that routinized routines give rise to inertia, Feldman and Pentland present a different view. Drawing on the work of Bruno Latour, the authors take us deep inside an examination of organizational routines and say something truly innovative about the complexity of routines. They argue that while certain aspects of routines do lend themselves to stability, other aspects foster change within organizations. They then go on discuss the implications of this framework for future research. The article is truly original and a theoretical breakthrough. It will shape fundamental lines of research for years to come."

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?
No.

May we quote from your responses? (X) Yes (a slightly shorter version of the above comments are publicly available anyway, at(http://routines.broad.msu.edu).

May we use your name if we quote from your responses? (X) Yes (or you could just cite the web site).

“Can twitter predict the stock market?”

[This is the only response that did not come directly from the researcher, but it makes clear that the research was not funded by NSF.]

From: Wasitis, Douglas Andrew
Sent: Tuesday, May 31, 2011 4:08 PM
To: Farley, Kate
Cc: Bollen, Johan L.
Subject: Coburn Report and Indiana University

Ms. Farley - I am the Director of Federal Relations for Indiana University. I am aware of your interest in a research effort led by IU faculty member Johan Bollen that was portrayed as a misuse of taxpayer funds in a report recently released by Sen. Tom Coburn.

Since the release of the Coburn report, we have determined that Dr. Bohan's research paper was NOT funded by the NSF. An IU press release from October of 2010 incorrectly identified NSF as the sponsoring agency and is cited in the report as the source of that information. IU plans to contact Sen. Coburn to inform him of this error. Had the Senator's staff bothered to contact IU before publishing the report, the mistake would have been caught. Instead, we must now work to correct the report's negative and inaccurate description of Dr. Bohan's research.
In addition to Dr. Bohan's work, the Coburn report includes two other NSF-supported IU projects. The Principal Investigator for each of those projects has been contacted by your committee and will respond accordingly.

Thank you for the opportunity to respond. Please contact me with any questions.

Doug Wasitis
Director of Federal Relations
202-434-8012

"Are people who post pictures on the Internet from the same place at the same time often socially connected?"
"What's more photographed ... the Fifth Avenue Apple Store or the White House?"

From: Jon Kleinberg
Sent: Tuesday, May 31, 2011 11:51 PM
To: Farley, Kate
Subject: Re: Questions about Sen. Coburn's report

Thank you for your mail. I understand that my colleague Michael Macy, with whom I am a co-PI on NSF funding, has also replied to your message. He and I agree that the research arising from this funding was described inaccurately, but since our perspectives are somewhat different, I wanted to provide a reply as well.

To answer your questions,

1 and 2: Yes, I have heard of the report and know that my work was included in it.

3: To my knowledge, no one from Senator Coburn's office has contacted me at any point in time.

4: I think that both the motivating issues and the conclusions of our research were presented inaccurately in the report.

By way of a brief summary of what was inaccurately presented, I should first note that I was a co-author on two papers mentioned in the report, under the entries

"Are people who post pictures on the Internet from the same place at the same time often socially connected?"

and

"What's more photographed ... the Fifth Avenue Apple Store or the White House?"

The papers are closely related in that they build on the same dataset of on-line photos and social interactions. Since the issues around them are similar, let me talk mainly about the first one. (I hope some of the broader context here will also address your Question 5.)

The report presents the research without any of its motivating context. The research was motivated in large part by the issue of on-line privacy, a topic of considerable interest to users of the Internet, to businesses, and to policy-makers. We know that a large fraction of Internet users post photos on-line; use "check-in"
services to say where they've been; and use on-line sites to rate hotels, restaurants, and other destinations. By doing any of these things, they are placing themselves

(approximately) in certain places at certain points in time. The question is: by revealing where they were and when, to what extent are they also revealing whom they know? A little bit of this activity is presumably not a major privacy risk, but a lot of it probably is. Can we assess the amount of privacy risk based on the amount of activity? How much do we need to know about your path through space and time before we can start assembling information about your social circle?

Our research was one of the first to attempt to give precise numbers to these questions, using a methodology that applies to any kind of data that places people in particular places at particular times. This could include records from financial, communication, or transportation systems.

The following analogy to a different topic might be useful. When you look at the results of a study on the dangers of exposure to nuclear radiation, you could choose to criticize it by saying, "Scientists received funding to discover the obvious fact that when you are exposed to radiation, you often get sick." But that would be missing the point. We know that radiation can make you sick. What we need to find out is how much radiation causes you to get sick, and how the level of radiation affects the amount of harm. Only when we understand the question at this level can we begin to develop guidelines for safe exposure levels, and to inform policy based on such guidelines.

The same thing happens when we try to learn about how private social network information is leaked by people's geographic movements. We already know that friends often do things at the same time as each other. But what we don't know, and need to understand, is exactly how much information is actually leaked when we see two people in roughly the same place, at roughly the same time, on a certain number of occasions. Being in the same city in the same month is very different from being on the same street corner in the same hour, and only once we understand how different levels of evidence reveal different amounts of information about social connections can we provide serious input to policy discussions about on-line privacy.

There's a final, different source of inaccuracy, which is the description that "NSF has provided just over $2 million to researchers at Cornell University to produce a study concluding ... ". In fact, this grant from NSF has supported a broad array of research projects, as well as the training of graduate students. All of these activities were key goals of the project when it was proposed to NSF. Therefore, describing the grant as providing funding for this single paper, rather than for a much broader scope of activities, is inaccurate.

Thank you for the opportunity to provide this information, and I hope that it is useful. We certainly appreciate that the public deserves to know whether science funding is being spent effectively, and my colleagues and I view the task of justifying the significance of our research as part of our collective responsibility as scientists.

Regarding your final questions:

- May we quote from your responses? Yes.

- May we use your name if we quote from your responses? If it's useful, you may use my name, though it is also completely fine to quote from my responses without giving my name.

Sincerely,

Jon Kleinberg
Tisch University Professor
Dept. of Computer Science
Cornell University

“Does Intelligent Extraterrestrial Life Exist on Other Planets?”

From: Cynthia Phillips
Sent: Wednesday, June 01, 2011 1:28 AM
To: Farley, Kate
Subject: Re: Questions about Sen. Coburn's report

Hi Kate -

I was quite disturbed to find my work included in this report, and am pleased to hear that there is some sort of inquiry. Answers to your questions are below, and I'm pleased to provide further information if desired.

Thanks for your efforts,

Cynthia Phillips
1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
Yes

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

No - I was not contacted and did not provide any information to Senator Coburn's staff.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

The Coburn Report's characterization of my work is NOT accurate. Rather than contact us to find out more about our program, the summary appears to be based only on the publicly-released grant abstract and a quick perusal of our website. Our program is part of the NSF's Research Experience for Undergraduates (REU) program, which is a successful program that has been running for decades with a goal of involving college undergraduate students in scientific research. Research Experience for Undergraduates is a fundamental NSF program that assists young US citizens in preparing for careers science, technology, engineering and mathematics (STEM) disciplines, a major focus of the US Congress, President and Governors of this nation.

Our program has served 79 students in the past 5 years - these students come from around

the country, from large research institutions, state universities, small liberal arts colleges, and community colleges, with a particular outreach to students from underserved minority groups. Our 2011 group of 16 students will arrive at the SETI Institute in a few weeks. Our program is highly competitive, selecting less than 15% of applicants - we receive many more applications from well-qualified students than we have room for.

The report states "In addition to having fun searching for Martians, the handful of students involved in this project may learn more about the universe and astronomy." The vast majority of our students do not participate in any SETI (Search for Extraterrestrial Intelligence) research - they perform research projects in fields including astronomy, planetary science, chemistry, microbiology, physics, earth science, and more. Moreover, the goal of such an internship program is to expose students to the process of doing scientific research, and to encourage students to consider attending graduate school or finding jobs in science or engineering fields. 79 students is hardly a "handful", and the "3.11 jobs" reported as being saved or created refers to the small percentage of funded time for the PI, myself, as well as 10 weeks of employment for each summer intern. Many of our former REU interns have gone on to graduate school at such institutions as Harvard, MIT, and UC Berkeley.

Rather than recognizing the legitimate scientific purpose of internship programs such as this one, the report concludes by poking fun at the recent shutdown of our telescope array, which they say "surely is disappointing to REU participants expecting to participate in making contact with life from other planets". This is unfortunate because it is both an off-base conclusion, and misses the key purpose of our project, which has been very highly reviewed as an excellent project that truly stimulates students to continue careers in science.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

May we quote from your responses? (x) Yes. ( ) No.

May we use your name if we quote from your responses? (x) Yes. ( ) No.

“Do your genes impact your political views?”

From: John R Hibbing
Sent: Wednesday, June 01, 2011 12:28 PM
To: Farley, Kate
Subject: Re: Questions about Sen. Coburn's report

Kate--
Answers below in caps.
John

Dear Dr. Hibbing,

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,

Kate Farley
Committee on Science, Space, and Technology
202-225-7567

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)? YES I HAVE.

2. Did you know that your work was included in the report as an example of a “questionable” research project? YES I DID.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told? NO ONE FROM SENATOR COBURN'S OFFICE CONTACTED ME PRIOR TO RELEASE OF THE REPORT.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong. THE REPORT STATED THAT OUR STUDY WAS ABOUT THE "GENETIC PRE-DETERMINATION OF POLITICAL ATTITUDES" AND THIS IS A MISCHARACTERIZATION. GENES RARELY "DETERMINE" ANY PHENOTYPE AND CERTAINLY NOT COMPLEX SOCIAL PHENOTYPES SUCH AS POLITICAL VIEWS. OUR STUDY IS DESIGNED TO INVESTIGATE THE EXTENT TO WHICH BIOLOGY IS RELATED TO POLITICAL ORIENTATIONS. BIOLOGICAL CHARACTERISTICS COULD BE GENETIC BUT

THEY ALSO COULD RESULT FROM VARIOUS ENVIRONMENTAL SITUATIONS. AND REGARDLESS OF WHETHER THESE BIOLOGICAL FEATURES ORIGINATE IN GENETICS OR NOT, THEY ONLY HELP TO SHAPE AND CERTAINLY NOT TO DETERMINE POLITICAL ORIENTATIONS.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences? IT IS UNCLEAR WHAT SENATOR COBURN'S STAFF FINDS PROBLEMATIC ABOUT OUR PROJECT SO IT IS DIFFICULT TO KNOW HOW TO RESPOND. DO THEY THINK THE METHODS WE USED ARE INAPPROPRIATE? DO THEY THINK THE QUESTION IS NOT WORTH ASKING? WHO DO THEY THINK SHOULD DECIDE WHAT IS AND IS NOT IMPORTANT ENOUGH TO STUDY? WE BELIEVE FEW THINGS ARE MORE IMPORTANT THAN THE TOPIC OF OUR RESEARCH. THE BIGGEST DANGERS TO THE PLANET ARE DIFFERENCES OF IDEOLOGY AND THEOLOGY AND WE SEEK TO UNDERSTAND WHY FEELINGS RUN SO STRONGLY ON THESE MATTERS. WE ALSO SEEK TO UNDERSTAND WHY SOME PEOPLE ARE COMPLETELY APATHETIC WHEN IT COMES TO POLITICS (FOR EXAMPLE, IT TURNS OUT PEOPLE WITH HIGH CORTISOL LEVELS ARE LESS LIKELY TO VOTE IN ELECTIONS). AS SUCH, OUR RESEARCH HAS THE POTENTIAL TO ASSIST IN UNDERSTANDING THOSE WITH EXTREME POLITICAL BELIEFS AS WELL AS THOSE LACKING IN ANY POLITICAL BELIEFS. BOTH OF THESE GROUPS OF PEOPLE CONSTITUTE SOME DANGER FOR AN OPEN DEMOCRATIC SOCIETY. PERHAPS THIS IS WHY WE WERE INVITED TO PRESENT OUR RESEARCH TO STRATCOM, THE DOJ, THE NATIONAL SECURITY COUNCIL, AND OTHER ORGANIZATIONS LAST DECEMBER AT AN EVENT FOCUSED ON COUNTERTERRORISM.

May we quote from your responses? (XX) Yes. ( ) No.

May we use your name if we quote from your responses? (XX) Yes. ( ) No.

IN FACT, IF AT SOME POINT YOU NEED SCHOLARS TO TESTIFY BEFORE YOUR COMMITTEE OR ONE OF ITS SUBCOMMITTEES, I WOULD BE HAPPY TO PAY MY OWN WAY TO DC TO DO SO. IN A SEPARATE EMAIL I WILL FORWARD A LINK TO A MEDIA PIECE THAT RAN LAST WEEK WITH A QUOTE FROM ME, IN CASE YOU ARE INTERESTED. THANK YOU FOR YOUR HELP ON THIS MATTER. IT IS MUCH APPRECIATED.

“What is the relationship between online virtual world users and their avatar?”

From: "Farley, Kate"
Date: Tue, 31 May 2011 13:52:14 -0400
To: Ulrike Schultze
Subject: Questions about Sen. Coburn's report

Dear Dr. Schultze,

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,

Kate Farley
Committee on Science, Space, and Technology
202-225-7567

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
- not until your email

2. Did you know that your work was included in the report as an example of a “questionable” research project?
- not until your email

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?
- nobody contacted me

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.
- By and large, the report describes my research using quotes from my grant application and an interview with the Wall Street Journal (WSJ). The only factual error is the description of my work as a "social diary." As my research method, I used "photo diaries;" that is, I asked the research participants to keep weekly diaries of their time in Second Life, and then I interviewed them about it. I am not sure where the report took this term from, because it is in none of the documents they cite. The only explanation I have for the origin of the term "social diaries" is that the WSJ reporter who interviewed

me, misunderstood me and referred to "social diaries" in her initial article, which she asked me to edit. I corrected the term immediately and it could not have appeared on the web for more than a few hours. The Coburn staffers must be working off this very initial, unedited version of the WSJ interview for their report.

What is not clear to me from the Coburn Report is what specifically they find objectionable about my research. Indeed, the final sentence, which labels my research questions as "important," begs the question why my work is included in their list of questionable and frivolous research. In the context of the report, I suspect that the last sentence was meant to be ironic, but irony is ambiguous at best in written speech. In conclusion, by citing material from interview questions -- such as how I use my avatar -- that were not directly related to my research and its findings, the Coburn Report seems to rely on innuendo rather than substance to discredit my research.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

It struck me how many of the social and behavior science examples in the report were related to new media, i.e., Farmville, photo sharing sites, online games and virtual worlds. It is not clear from the report how the studies they focused on were selected, but it does seem that new media studies were singled out for critique. I find this rather surprising considering the social phenomenon that sites like Facebook and online games have become. Facebook has over 600 million users and the gaming industry is estimated to reach $70 billion by 2015. Why is the Senator opposed to inquiry into these social and behavior phenomena? Don't we ignore the social and behavior implications of these technological changes at our peril?

In her latest book, "Alone Together," Sherry Turkle highlights the social implications of social media and robots. She notes that theses technologies create the illusion of companionship without the demands of intimacy and true interpersonal connection. In this research, she raises important questions about the costs and benefits of living in an increasingly technology-mediated environment and challenges us to rediscover the purpose of human connections. That research on virtual worlds, online games, and social media that contributes to our understanding of this technological moment in our society is regarded as questionable and frivolous by Senator Coburn, suggests a reluctance to examine critically the new cultural realities we confront as a society in the face of these new media.

May we quote from your responses? (x) Yes. ( ) No.

May we use your name if we quote from your responses? (x) Yes. ( ) No.

"Exactly how do the genitalia of fruit flies assist them in hooking up?"

From: Polak, Michal
Sent: Wednesday, June 01, 2011 8:24 PM
To: Farley, Kate
Subject: Re: Survey on Coburn Report

Dear Kate,

Please see my responses, below.

Best,

Michal

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

Yes

2. Did you know that your work was included in the report as an example of a "questionable" research project?

Yes

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

No

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

Dr. Polak's research is listed within the report under "Questionable NSF Grants" implying that the research is not a valid use of federal funding.

The Senator's report uses information about Dr. Polak's work that apparently came from a short and necessarily oversimplified popular article appearing in *Science Daily*.

The broader scientific context of the research or its implications were not discussed in the *Science Daily* article, which like other popular articles, was written to appeal to the general public.

Polak's original scientific article, published in *Proceedings of the Royal Society*, produced new insights into how elaborate genitalia in insects function and arise over time.

Below are some points about the validity and broader implications of the research:

For 150 years we've known that genitalia—just like animal color, plumage, etc.— are extremely diverse. In fact, Polak says this diversity is magnified in genitalia, yet why genitalia should be so diverse has remained a mystery.

Dr. Polak's research for the first time used laser technology to answer this long-standing question, and this methodological advance has many potential practical applications.

Understanding how reproductive traits such as genital peculiarities contribute to the formation of new species can be extremely important to agriculture, for example.

If we understand factors in speciation—particularly in species that are damaging to crops—we can find better ways to control pests. There is a certain fly species now in California, for example, that has essentially evolved or split into 2 types of flies and one has proven to be a real agricultural pest.

Another species that migrated to California from Asia (possibly through Hawaii) has a unique way of exploiting its host: It goes after fruits that are just ripening (cherries and caneberries, for example). Dr. Polak, citing figures from a USDA NASS report, says that damage from this fly could be a half-a-billion dollars annually in the U.S. alone. This estimate assumes damage to about 20% of small fruit production from this particular fly.

Learning about reproductive strategies of insects could lead to important tools for controlling these kinds of pests and saving crops and money.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

Not at this time.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

“How long can a shrimp run on a treadmill?”

From: Burnett, Karen Gray
Sent: Thursday, June 02, 2011 3:55 PM
To: Farley, Kate
Cc: Burnett, Louis E
Subject: RE: Questions about Sen. Coburn's report

Dear Ms. Farley:

These are our responses to your questions regarding Senator Coburn’s Report.

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
Yes

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

No

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

- We feel that the report was misleading. The first paragraph of the report asks the simple question about how long a shrimp can run on a treadmill and then makes some statements about the point of the treadmill work (one sentence), how much funding we have received over the last decade (it appears to be accurate, but we have not checked) and then gives the title of the most recent award. There is nothing incorrect about these statments, but it clearly intimates that much money was spent on studying shrimp on treadmills and this is simply not true.
- Had the Coburn report been thorough, it would have noted that :

(1) our treadmill work is a small piece of a much larger research effort by ourselves and other scientists that was funded under our current NSF grant, as summarized below under your question 5.
(2) maintaining healthy populations of marine organisms has important economic and ecological benefits to the US and worldwide.
(3) three of our NSF awards over the past 11 years (totaling close to $900,000) directly supported science and technology scholarships for 90 US undergraduates from 44 states (NSF's Research Experiences for Undergraduates program).

(4) Two of our NSF awards (approximately $441,000) directly supported the refurbishing of facilities and purchase of equipment at the Grice Marine Laboratory, benefiting general undergraduate and graduate research and training in the sciences and faculty research at the College of Charleston (NSF's Field Stations and Marine Laboratories Program).

- The rest of the reference to our work in the Coburn report appears to contain snippets from media coverage of our treadmill experiments over the past several years. Interestingly, the media's own coverage of the Coburn Report appears to be a string of citations of the coverage in various media outlets. We are unaware of any recent reports that factually delve into the science behind our current NSF grant.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

- The understanding of disease and disease processes in marine organisms is essential to sustaining healthy and productive ecosystems. This is especially important where economically important species are involved. Most notably,

(1) The annual harvest of shrimp from the wild has declined from a high of 14,000 tons in 1992 to 635 tons in Year 2009 with a market price of only to $2.5 million.
(2) Shrimp aquaculture has increased dramatically to meet market demand. The shrimp we study are the single most heavily cultured species in the world for human consumption, with a world-wide annual market in 2009 of close to $9 billion.
(3) Each year the US imports more than 90% of shrimp consumed in this country, valued at $400 million. Almost all of these shrimp are imported to the US from Southeast Asia, China or Central America
(4) China has invested heavily in research related to disease and disease resistance. The US invests almost nothing in this area; perhaps not surprisingly, both shrimp aquaculture and the wild shrimp fishery in the US are in decline.
(5) Similarly, the Atlantic blue crab fishery is economically important to the East and Gulf Coast States, as is the lobster fishery to states in the northeastern US. Both of these fisheries are in decline.

- The major thrust of our current NSF grant, cited in the Coburn Report, can be summarized as follows:

Worldwide, coastal development and pollution have increased the frequency and duration of low oxygen events (hypoxia), endangering the survival of economically and ecologically important marine populations. In these same waters, every teaspoon of seawater contains more than one million bacteria. Although marine organisms can defend themselves against most microbes, we recently found that launching such an immune defense can interfere with the ability of shrimp, crabs and lobsters to take up oxygen, even when high levels of oxygen are available. Under the current NSF award, we are testing whether activities that require high levels of oxygen, such swimming, feeding or reproduction, are impaired by this immune response and exacerbated by environmental stress, such as low oxygen or acid conditions. Pacific white shrimp,

Atlantic blue crabs, and American lobsters are injected with bacteria and monitored for changes in (1) aerobic and anaerobic metabolism, (2) protein synthesis and (3) the expression of genes that regulate metabolism and growth. Measurements are made on animals that are resting, exercised or exposed to hypoxia. It is expected that these studies will show that, at least among crustaceans, the immune response itself may make it more difficult for an organism to respond to hypoxic environments, to engage in significant physical activity or complete behaviors that are critical to individual or population survival. While engaged in this research, which addresses questions related to the health of ecologically and economically important species, we continue to teach, train and publish with students from four primarily undergraduate institutions in the US.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

Please let us know if we can provide any additional information.

Drs. Louis and Karen Burnett

Karen G. Burnett
Hollings Marine Laboratory
331 Fort Johnson Road
Charleston, SC 29412
webpage: http://burnettk.people.cofc.edu

Louis E Burnett
Grice Marine Laboratory
205 Fort Johnson Road
Charleston, SC 29412
webpage: http://burnettl.people.cofc.edu

“Exactly how much housework does a husband create?”

From: Charles C Brown 1
Sent: Saturday, June 04, 2011 12:03 AM
To: Farley, Kate
Subject: Re: Questions about Sen. Coburn's report

Answers to specific questions below. I really appreciate your asking!

Quoting "Farley, Kate" <Kate.Farley@mail.house.gov>:

> Dear Dr. Brown,
>
> Senator Tom Coburn's office has released a report on NSF funding
> that includes a long section on grants that his staff consider to be
> low-priority work. Your work appears to be among the grants singled
> out for comment. Democratic staff of the House Committee on
> Science, Space, and Technology are attempting to understand how your
> work came to be included in the report. To assist us in our
> efforts, could you please provide brief answers to the following
> questions. Thank you in advance for your help.
> Sincerely,
>
> Kate Farley
> Committee on Science, Space, and Technology
> 202-225-7567
>
>
> 1. Have you heard of the Coburn report on NSF ("The National
> Science Foundation: Under the Microscope")?

Yes, it was brought to my attention by colleagues at the University of Michigan.

>
> 2. Did you know that your work was included in the report as an
> example of a "questionable" research project?

I believe you're referring to the Panel Study of Income Dynamics. I am a co-director of this project. However, the report did not specifically attack PSID. It described one study, written by then director Frank Stafford, using the data.

>
> 3. Did anyone from Senator Coburn's office contact you to inquire
> about the nature of your research or how the NSF funds were being

> spent? If "yes", can you summarize who contacted you, what they
> asked and were told?

No one from Senator Coburn's office contacted me.

>
> 4. If you have seen the report, do you feel that the
> characterization of your work by Senate staff was accurate? If you
> feel that it was not accurate, please provide a brief summary of
> what they got wrong.

The worst feature of the discussion of PSID on p. 33 is that it refers to one study using the data, which they (apparently) find insufficiently interesting to merit government funding, and then report the amount that NSF has provided to support the entire project. Someone who read only this report would never learn that PSID data is used by federal agencies, has inspired similar studies in other countries around the globe, etc.

A minor point: NSF did not support the study cited. It grew out of a course that Professor Stafford was teaching at UM, and was financed by his instructional salary.

>
> 5. Do you have any other comment you would like to make regarding
> the Coburn Report, its treatment of your work, or NSF support for
> the Social and Behavioral Sciences?

I appreciate your taking the time to contact individual researchers.

>
> May we quote from your responses? (X) Yes. ( ) No.
>
> May we use your name if we quote from your responses? (X) Yes.
> ( ) No.

“Exactly how much housework does a husband create?”

From: Frank Stafford
Sent: Wednesday, June 01, 2011 5:48 PM
To: Farley, Kate
Subject: RE: Questions about Sen. Coburn's report

Hi Kate –

Just got out from a session at our conference.

Just to mention, the note there is based on my use of the data for an undergraduate honors research seminar – and the press found it interesting. So while the infrastructural data – the PSID – are funded by NSF, the simple charts were from a class presentation as part of my teaching (funded by U of M) for why one should use panel data.

By the way, the major source of family income growth since 1980 has been from two-earner families, so how this comes about and what happens on the home front is not such a fatuous topic!

Frank

I am also working on the subprime mortgage and household crisis using the PSID data but my time is funded by the U of M and a separate research grant. In this context we can see that as of 2009, 18 percent of families had negative net worth – of some significance to know and how this came about!

From: Farley, Kate [mailto:Kate.Farley@mail.house.gov]
Sent: Tuesday, May 31, 2011 1:52 PM
To: Frank Stafford
Subject: Questions about Sen. Coburn's report

Dear Dr. Stafford,

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,

Kate Farley
Committee on Science, Space, and Technology

202-225-7567

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?
Just recently via News and Information Services
2. Did you know that your work was included in the report as an example of a "questionable" research project?
No.
3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?
No one from his office contacted me.
4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.
Only that they feel this is not an important topic.

I think they are barking up the wrong tree. I have worked on time use and its various aspects for years – for example I am presenting on this (computer time use of children and cognitive development) at Oxford University this August.

Another aspect of time use data is the creation of 'satellite GDP accounts' and this has often been urged by those who feel the role of home activity is given insufficient attention in U.S. data collections.
5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?
He might want to contact me if he has questions. My research peers in economics cite my work often and I am an elected Fellow of the Society of Labor Economists.
May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

“If you trust your laundry folding to a robot, how long will you have to wait?”

-----Original Message-----
From: Pieter Abbeel
Sent: Tuesday, May 31, 2011 1:43 PM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

Dear Jackson,

thanks for getting in touch. I wrote a response last week, which I posted on my website, here:
www.cs.berkeley.edu/~pabbeel/abbeel-coburn-nsf.html

> 1. Have you heard of the Coburn report on NSF (“The National Science
> Foundation: Under the Microscope”)?
Yes.

> 2. Did you know that your work was included in the report as an
> example of a “questionable” research project?
Yes.

> 3. Did anyone from Senator Coburn’s office contact you to inquire
> about the nature of your research or how the NSF funds were being
> spent? If “yes”, can you summarize who contacted you, what they asked and were told?
No.

> 4. If you have seen the report, do you feel that the characterization
> of your work by Senate staff was accurate? If you feel that it was
> not accurate, please provide a brief summary of what they got wrong.
No. Please see www.cs.berkeley.edu/~pabbeel/abbeel-coburn-nsf.html

>
> 5. Do you have any other comment you would like to make regarding the
> Coburn Report, its treatment of your work, or NSF support for the
> Social and Behavioral Sciences?

Yes: see www.cs.berkeley.edu/~pabbeel/abbeel-coburn-nsf.html

>
> May we quote from your responses? (X) Yes. ( ) No.
>
>

>
> May we use your name if we quote from your responses? (X) Yes. (
>) No.
>
>
Abbeel response from web:

Please find below my statement in response to the Coburn Report on the NSF. Public scrutiny of how taxpayer money is spent to support research is essential. However, criticism based on distorted and inaccurate information endangers the essential role university-based research plays in maintaining America's global competitiveness, the creation of jobs, the emergence of new industries and the development of products and processes that directly contribute to our health and well-being. No matter where you turn---your smart phone, your doctor's office, your workplace---you can find the results of federally funded discoveries.

In his recent report on the NSF Senator Coburn attempts to present the early results of my current research as frivolous. As one of the principal investigators on an NSF project on "Hierarchical Decision Making for Physical Agents" I have a responsibility to address and refute the report's claims and conclusions. In its initial coverage of one of our early discoveries, the popular press picked up on a YouTube video illustrating one small subset of our results, namely a robot with the ability to identify and neatly fold towels. Reading the Coburn report one might come to the conclusion that our team spent $1.5 million for a breakthrough that is far from earth-shaking. Nothing could be farther from the truth. The development of these robotic abilities came six months in to what is, in fact, a four year project that has important objectives that go far, far beyond the creation of over-priced domestic help.

We know that humans somehow manage to choose quite intelligently among the twenty trillion primitive motor commands that are at our disposal over the course of our lifetime. We have astronomically large number of options available to us depending on hundreds of voluntary muscles, each of which are capable of responding to multiple commands per second. Our NSF project is concerned with furthering our understanding of how we do this and then develop computer-based decision making tools that can deal with complex environments and situations.

We believe that society stands to greatly benefit if we can apply these understanding to the field of robotics. In order to expand the use of robots beyond manufacturing the machines must be far more sophisticated in terms of their ability to deal with complexity. That's what our work is all about. Towel folding is just a first, small step towards a new generation of robotic devices that could, for example, significantly increase the independence of elderly and sick people, protect our soldiers during combat, and a host of other applications that would revolutionize our day-to-day lives.

While most of our work involves abstract math and algorithms, in my experience it is vital for research productivty to connect our efforts to concrete, intermediate challenges which are beyond the reach of current technology. Robotic laundry is an example of such an intermediate goal because of the extent to which it exposes the obstacles we face the minute robots are removed from highly structured manufacturing

environments where the machines are, for example, only required to pick up the same bolts from the same place and install them in the same way every single time. Laundry objects, on the other hand, are deformable; they come in different sizes and shapes and for that reason our early success with towels represents a very significant achievement. Put another way, prior to this breakthrough no one had ever successfully utilized a general-purpose robot for anything like this. That is the reason our publications about these initial results have been featured in a series of international conferences on robotics and automation. The people who have dedicated their lives to these subjects understand what the critics do not: we have taken a very significant step forward. This is why assessment of research, particularly that funded by the taxpayer, must consider the entire project and not just one small element that might have tickled the public's imagination. This is also the reason why any research proposal is first assessed by our scientific peers---qualified experts who have the knowledge and experience necessary to determine which projects hold out the most promise and deserve support.

Like all researchers, I am very conscious about how I spend federal funding and welcome public scrutiny. I also believe deeply in the NSF's mission to educate the next generation of scientists and engineers. This includes the sort of outreach efforts we are constantly engaged in. Hundreds of children and their parents have come to our lab to see the robot in question, and one need only look at their faces to know that there may be no better way to share the thrill of discovery with the next generation of scientists.

“How do rumors get started?”

From: Moller, Jackson [mailto:Jackson.Moller@mail.house.gov]
Sent: Tuesday, May 31, 2011 1:40 PM
To: Nicholas DiFonzo
Subject: survey on Coburn's report

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Jackson Moller
202-225-6375

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
***Yes.

2. Did you know that your work was included in the report as an example of a “questionable” research project?
***Not until it was published.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?
***No.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.
****Inaccurate:
A. The question that my project was alleged to study, “How rumors get started”, is incorrect. My study is not concerned with this question. Rather, it studied how we may better understand and model how network structure affects rumor propagation.
B. The clip-art associated with my study (two women whispering to one another) implied the topic of my project was gossip (evaluative social chat), not rumor (unverified information in circulation).

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

****I'm happy for oversight, and glad that people are watching out for US taxpayers (I'm one myself). But the report appears to have mischaracterized what my project was about.

May we quote from your responses? (x) Yes. ( ) No.

May we use your name if we quote from your responses? (x) Yes. ( ) No.

“What was the impact of youtube.com on the 2008 elections?”

From: Stuart Shulman
Sent: Tuesday, May 31, 2011 4:33 PM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

On 5/31/2011 1:56 PM, Moller, Jackson wrote:
Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

>>> Sure have...people have sent it to me from far and yon and the NSF called me.

2. Did you know that your work was included in the report as an example of a “questionable” research project?

>>> I did...most people I know call it a badge of honor.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

>>> The did not contact me

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

>>> I've read it. They don't actually say it was wrong or questionable. They give a quote: "“bring together scholars in Political Science, Computer Science, and related disciplines to examine this topic" as if this is some sort of problem, but it is in fact one of my enduring achievements as a scholar and Editor in Chief of JITP (www.jitp.net) and as a researcher who builds software tools, with NSF-funding, that help sort public comments when they are numerous.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

>>> The defense of our workshop grant is simple. Basic research into the impact of the Internet on democracy is supported when NSF funds workshops that bring cross-disciplinary groups of scholars together. This workshop resulted in a very high quality special issue of a peer-reviewed journal. In terms of converting NSF $ into published research, our conversion rate article/$ was very high:
http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=0903886

May we quote from your responses? (XXX) Yes. ( ) No.

May we use your name if we quote from your responses? (XXX) Yes. ( ) No.

Happy to talk further if you like.

~Stu

--
Dr. Stuart W. Shulman
http://people.umass.edu/stu

“Do Turkish women wear veils because they are fashionable?”

From: Secor, Anna J
Sent: Tuesday, May 31, 2011 4:35 PM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

Thank you for your inquiry. My responses are below.

On May 31, 2011, at 1:40 PM, "Moller, Jackson" <Jackson.Moller@mail.house.gov> wrote:
Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Jackson Moller
202-225-6375

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

Yes, I have heard of the report

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes, I am aware that our work was included.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

Neither I nor my collaborator was contacted by Senator Coburn's office.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

I have seen the report. The description of our research is very superficial and misses the major importance of our work. Our work is not just about fashion. Our research is on Islam and capitalism, and we are confident that it is generating knowledge that is of value to our fellow citizens.

When revolution erupted in Tunisia and social upheaval spread across the Middle East, many turned to Turkey as a model of a country that is majority Muslim, capitalist, and democratic. We believe that American tax payers are interested in questions of how Islamic societies of the 21st century may integrate into the global economy. We are conducting an empirical investigation of the veiling fashion industry in Turkey to answer this question.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

The Coburn Report is deeply misguided. Social and Behavioral Sciences provide key insights into questions of global importance, including (in our case)the possibility for new hybrid forms of Islamic capitalism and consumption in the changing Middle East.

I would also point out that the NSF makes the broader relevance of social and behavioral work a central criteria for funding. Obviously, the Coburn office staff, unlike highly trained NSF reviewers, were not equipped to understand the work that they were reviewing.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

From: Adrian Bejan
Sent: Tuesday, May 31, 2011 4:51 PM
To: Moller, Jackson
Subject: Adrian Bejan : Coburn NSF report

Dear Mr. Moller,

Here are a few facts, and only facts, showing how all this would be laughable if it were not about the citizens' money.
Please use the following statement, and share it with your colleagues and the press. My answers to your questions are at the end.

>>>>>>>>>>>>>>>

Sen. Coburn fabricated the news about my article on the natural design of hierarchy (with basketball as an example). It was not paid for by NSF. In fact, it cost zero.

My work on the 2005-2007 NSF grant mentioned in Sen. Coburn's report is fully documented in my book *Constructal Theory of Social Dynamics* (Springer, 2007). It gave birth to two international workshops giving the opportunity to scientists from different backgrounds to exchange and discover connections/links between their respective works. There is no basketball there. There is absolutely no connection between this grant and my recent 2011 journal article (attached) on the natural design of rigid hierarchy, with basketball rankings as one of many examples.

I never had an NSF grant to study the hierarchy of basketball. The connection between my 2005 grant and basketball hierarchy is a fabrication due to Sen. Coburn. Further note that "March Madness" is not mentioned in my article. These are the words of one reporter who liked our article and wrote about it.

In my academic career I benefited from many grants from NSF, all documented in my articles and books. I also benefited from the extraordinary environment that is Duke University. I believe this is why today at this stage in my career, I am one of the 100 most cited researchers in all engineering (all disciplines, all countries, living or deceased), why I was awarded all the top medals in my field world wide, and why I received 16 doctorates *honoris causa* from 16 universities in 11 countries.

This is also why I use every opportunity to thank NSF.

The mission of a professor in academia is to develop minds and character. I teach my students to pursue the truth, based on original and valuable ideas, and to thank those who encourage and support such pursuits. Every time I detect creativity among my students, I help, promote them, and encourage them. Including through the experience of writing an article and doing the hard work of publishing it.

In 2004, I was awarded by the engineering **education** division of NSF a 2-year grant for

developing a novel undergraduate course to teach principles of design in nature and engineering ("New 4th Year Undergraduate Course on Constructal Design of Energy-System Configuration", $74,918, 7/1/2004 – 6/30/2006. Note that this was for teaching, not for research).
My work on this project is documented in my book with Prof. S. Lorente *Design with Constructal Theory* (Wiley, 2008). No basketball there either. This has been a very successful course, by any measure. It is now a permanent multidisciplinary course at Duke, course ME166, it is and it is being taught in leading universities all over the world.

Every year, in this course we ask each student to imagine and pursue an original topic during the semester and to write a term paper for oral presentation at the end of the course. We encourage and help the best authors to publish their term papers in recognized peer reviewed journals. We also teach these students to always thank those who have helped them.

Several undergraduate students have written truly original research papers. One was about the evolution of locomotion design in speed sports, by Jordan Charles, in the second attachment, or in the Guardian:
http://www.guardian.co.uk/sport/2009/jul/17/bigger-faster-superhuman-athletes.

Another student, Perry Haynsworth proposed to investigate the physical reasons for **the existence and rigidity of hierarchy in nature**. He used basketball rankings as the language in which to present his arguments to the widest public. His peer-reviewed journal article is in the first attachment, or on ESPN (see the concluding paragraphs, which correctly links our work to biological evolution):
http://espn.go.com/blog/collegebasketballnation/post/_/id/24704/circular-evolution-in-the-ncaa-tournament.

When Perry's paper was finished, I advised him to thank those who have supported his education at Duke. Perry was a Navy ROTC student, and he thanked the Department of the Navy. I thanked and will continue to thank NSF for helping me design this course many years ago.

Look, what we have here is publishable original research that is being conducted without any NSF money, long after the NSF grant for undergraduate education. Yet, **if truly valuable, education bears fruit in perpetuity.**

Our undergraduate students deserve congratulations for placing their ideas on the scientific world map. They also deserve respect, not ridicule. Most undergraduates discover nothing and publish nothing based on course work.

Sen. Coburn's report is false. I would have been happy to explain why I thank NSF, but I was not contacted by any member of his voluminous and well paid staff. **Now, who is not spending the taxpayers' money wisely?**

By the way, our explanation of the natural design of **the rigidity of hierarchy explains why incumbent politicians such as Sen. Coburn keep being reelected.** This is why our paper should be read by all who are interested in better government.

I would be happy to talk to your colleagues and the press about how top-level research (veritable discoveries) is being done with zero money.

Adrian Bejan
J.A. Jones Distinguished Professor
Duke University

“How do you ride a bike?”

From: Ron Hess
Sent: Tuesday, May 31, 2011 10:15 PM
To: Moller, Jackson
Cc: Mont Hubbard
Subject: survey on Coburn's report

Senator Tom Coburn's office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Jackson Moller
202-225-6375

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")? **Yes, when it became public.**

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told? **No.**

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong. **It's not so much what they got wrong, but what they chose to omit in the description of our research. The quoted text that follows is taken from a paper that is available on the UC Davis Biomechanics Lab website and which was cited in the Coburn report (Ref. 252). I have underlined a passage for emphasis here.**

"The bicycle with a human rider comprises a human-vehicle system whose dynamic behavior is poorly understood. The reasons for this are varied, but include complex kinematic vehicle constraints, tire-roadway interactions, and difficulty in realistically modeling relevant human behavior.

The bicycle also provides a framework for introducing engineering students to a variety of complex problems in system dynamics and control. These include multi-body dynamics, nonlinear and linear system descriptions,...biomechanics, human control, and system simulation and instrumentation.

In controlling a bicycle, the rider utilizes most all of the sensory feedback information

that is necessary for vehicular control in general, i.e., visual, proprioceptive, and vestibular. The utility of visual feedback is obvious. Less apparent is the importance of proprioceptive feedback, i.e., information about limb position, velocity and applied force...What differentiates the control task of the bicycle rider from that of, say, the automobile driver is the vital nature of all the feedback information just outlined and the fact that the rider/vehicle system must be stabilized while performing a maneuver or path-following task.

The study of the human bicycle rider has the potential to significantly increase what is known about human interaction with dynamic systems in an experimental setting that is reasonably tractable and economical. The complex nature of the dynamics of both the human and vehicle make the research endeavor challenging and the expected results of significant use to the engineering community."

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

My comments simply amplify my answer to Question 4. Essentially our research in modeling the bicycle rider allows us to study a challenging manual control problem wherein the human controller is required to employ nearly all of the sensory feedback information at his/her disposal. Finally, the bicycle provides a relatively inexpensive tool that permits the necessary experimentation to be conducted in a safe, controlled environment.

I have spent a considerable part of my professional career investigating human pilot dynamics, i.e., studying how a human controls an aircraft. The cost of even a modest flight simulation experiment seeking answers to the same questions we are proposing about human control in our study would dwarf the NSF award. I would also emphasize that our award supports and enriches the education of both undergraduate and graduate engineering students and, in doing so, prepares them for entry into challenging technical fields whose growth is vital to the US economy.

May we quote from your responses? (**X**) Yes. ( ) No.

May we use your name if we quote from your responses? (**X**) Yes. ( ) No.

“Where is the line between work and play in online virtual worlds?”

From: Celia Pearce (Georgia Tech)
Sent: Wednesday, June 01, 2011 2:04 AM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

On May 31, 2011, at 12:37 PM, Moller, Jackson wrote:

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Jackson Moller
202-225-6375

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

Yes.

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

No. No-one contacted me.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

The Coburn report is nothing more than an example of sensationalist grandstanding, a spurious and misguided witch hunt, and a pathetic attempt at attracting votes based on ignorance. The Senator and his staff clearly did not read any of the actual research results

from any of the grants he is claiming to be wasteful. They are all "easy targets" that can be made to look bad if portrayed in a superficial fashion. The project of mine he singled out was workshop including representatives from a number of major IT corporations including IBM, Microsoft and Intel. The purpose of the workshop was to explore how people are using online play spaces to collaborate and create in various ways. The result was a publication which was clearly not read or cited by Coburn or his staff that include contributions by researchers from major coporations. It discussed, among other things, how virtual worlds such as Second Life are being used to enhance productivity and distributed collaboration in major IT firms. This work actually has significant implications in terms of economics, globalization and distributed work. The Senator appears to have read only titles and summaries of mine and others' projects and drawn erroneous conclusions based on complete ignorance.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

I'm very alarmed by the growing "war on science." For a time the US was competitive with countries such as Russia, China and India, but because, increasingly, our government officials don't seem to think science is a good investment, we are falling behind. What these people seem to forget is that the success of the U.S. economy has been large based on scientific innovation of one sort of the other. If Coburn were around during the 1980s and 1990s, I'm sure he would have shot down the legislations drafted by Al Gore which resulted to the creation of the Internet as we know it today. The United States is increasingly at risk of becoming economically irrelevant due to its failure to compete on the level of global innovation. With the evisceration of our education system and our science funding, we will soon be eclipsed (if we have not been already) by India, China and the Middle East. This puts as at a disadvantage economically, and also, frankly, in terms of security. Many of the countries that pose the gravest threat to the US are out pacing us due to their commitments to the advancement of science.

May we quote from your responses? (x) Yes. ( ) No.

May we use your name if we quote from your responses? (x) Yes. ( ) No.

I hope you are contacting all the other researchers who have been victimized by this witch hunt.

Best
Celia Pearce

“What exactly does a low-budget robot rodeo and hoedown look like?”

From: Jennifer Kay at Rowan University [mailto:kay@rowan.edu]
Sent: Wednesday, June 01, 2011 10:55 AM
To: Moller, Jackson
Cc: Tom Lauwers
Subject: Re: survey on Coburn's report

On 5/31/2011 1:55 PM, Moller, Jackson wrote**:**
Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Jackson Moller
202-225-6375

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?
Yes

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes
3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

No

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

Please see our attached response to his report

May we quote from your responses? (x) Yes. ( ) No.

May we use your name if we quote from your responses? (x) Yes. ( ) No.

Full Attachment to Response:

The Robot Hoedown and Rodeo Explained

The Robot Hoedown and Rodeo was recently mentioned in Senator Coburn's new report, "The National Science Foundation: Under the Microscope"[1]. As co-organizers we wish to provide a more detailed description of the program than the report's brief mention.

The key goal of the Robot Hoedown and Rodeo was to give educators a new way to engage K-12 & College students in Computer Science, so as to foster the workforce that will be needed to make transformative breakthroughs in the future. The Robot Hoedown and Rodeo was a three day event taking place at the premier conference for computer science educators (SIGCSE 2011). The purpose of the event was to introduce robot programming to the nearly 1200 educators attending the conference, and to raise awareness amongst participants of how robots could be used in their classrooms. Despite evidence that robots can be used as educational tools to excite and motivate students [2,3,4,5], only a minority of educators at SIGCSE have ever programmed a robot, and even fewer participants have tried using them in their classrooms. Our project provided educators with:

- The opportunity to borrow and program one of over 75 robots.
- Over a dozen different environment/language combinations and 5 different physical platforms
- Access to knowledgeable TAs who could help them get started with programming.
- Numerous sample assignments.
- Free downloads of software environments.
- Expert led introductions to the robot platforms and their educational possibilities through a number of demonstrations and exhibits held throughout the three day conference.

Conference attendees who completed an exit survey were generally favorable of the event, and those who programmed a robot indicated that on average, they would be more likely to use robots in their classrooms in the future, and so the event may lead to improved educational opportunities for a number of Computer Science students.

So how much did this event which involved 75 robots, five months of planning, and dozens of volunteers working at the conference, cost the American Taxpayer? **$6,283.** How did we keep the costs so low? Everyone working on the project worked as a volunteer and, as importantly, all the robots and associated equipment were loaned to us for the project. Those involved in organizing the event did so without pay, which we estimate saved the project roughly $10,000. We made every effort to keep the cost of the event low, and leveraged every resource we could to do so, including seeking additional corporate sponsorship (in addition to the NSF funds, the project received a donation of $3,500 from iRobot Corporation).

Perhaps the Robot Hoedown and Rodeo was singled out because it has an intentionally

eye-catching name, and because on the surface it appears “fun.” Indeed in his report Senator Coburn states, “Videos of the event posted to YouTube suggest the effort was a source of enjoyment for observers.” It is precisely this “fun” which our program aims to associate with Computer Science education, so that our current students will choose to become the future researchers that make the kinds of transformative discoveries that improve our society and our economy.

Signed,

Tom Lauwers (tlauwers@gmail.com)
Jennifer Kay (kay@rowan.edu)
Robot Hoedown and Rodeo Co-organizers

1. Coburn, Tom, “The National Science Foundation: Under the Microscope”, http://coburn.senate.gov/public//index.cfm?a=Files.Serve&File_id=2dccf06d-65fe-4087-b58db43ff68987fa, April 2011

2. Kay, Jennifer, Journal of Computing Sciences in Colleges, Vol. 25, No. 3, January 2010, pp.128-133

3. Lauwers, Tom, “Designing the Finch: Creating a Robot Aligned to Computer Science Concepts,” Proceedings of the First Symposium on Educational Applications of AI, July 2010.

4. Summet, J., Kumar, D., O'Hara, K., Walker, D., Ni, L., Blank, D., and Balch, T. “Personalizing CS1 with robots,” In Proceedings of the 40th ACM Technical Symposium on Computer Science Education SIGCSE ’09, ACM, pp. 433-437.

5. T. C. A. Melchior, F. Cohen and T. Leavitt. More than robots: An evaluation of the first robotics competition participant and institutional impacts. http://www.usfirst.org/uploadedFiles/Who/Impact/Brandeis Studies/FRC_eval_finalrpt.pdf,

“Do online music videos such as “Money 4 Drugz,” increase our understanding of scientific concepts?”

From: Wendy K. Silk
Sent: Wednesday, June 01, 2011 4:10 PM
To: Moller, Jackson
Cc: Merryl Goldberg; Marjorie Dickinson; Andy Fell
Subject: Re: survey on Coburn's report

Dear Jackson Moller,

Please see my responses in the attached document.

I have cc'd my colleague Merryl Goldberg, a well known expert in arts education. She has told me she is willing to talk to you if you wish.

Sincerely,
Wendy Silk

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)? Not until the press contacted me on May 26, after the report became public.

2. Did you know that your work was included in the report as an example of a “questionable” research project? Not until the press contacted me on May 26, after the report became public.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? No If “yes”, can you summarize who contacted you, what they asked and were told?
4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? No If you feel that it was not accurate, please provide a brief summary of what they got wrong.
Our project was inspired by the kinds of concerns raised in the document“VISIONS AND CHANGE IN UNDERGRADUATE BIOLOGY EDUCATION / A CALL TO ACTION” This is the final report (2009) of a national conference organized by the American Association for the Advancement of Science with support from the National Science Foundation. Action items in the document include

“• Demonstrate both the passion scientists have for their discipline and their delight in sharing their understanding of the world with students.
• Engage students as active participants, not passive recipients, in all undergraduate biology courses.
• Use multiple modes of instruction in addition to the traditional lecture.

• Ensure that undergraduate biology courses are active, outcome oriented, inquiry driven, and relevant.
• Facilitate student learning within a cooperative context."
The importance of interdisciplinarity as a model for integrating science and enhancing creativity is also stressed in the call to action. The document continues, " Colleges and universities around the country also have invested in programs that integrate curricular innovation and change efforts campuswide. The National Science Foundation, in a joint effort of its Directorate for Biological Sciences and the Directorate for Education and Human Resources, has established a Research Coordination Networks in Undergraduate Biology Education (RCN-UBE) program to bring together people who are working on similar projects and could benefit by coordinating their efforts. These kinds of programs need to be more widely disseminated to the undergraduate teaching community. "

Attachment below:
In several decades of teaching university science I felt the greatest barriers to learning science are anxiety and boredom shown by many students even as they recognize the importance of science. Realizing that the arts have the power to engage young people, I worked with our campus ArtScience fusion curriculum and was favorably impressed with the results. This program is an innovative and successful way to teach science. I wrote in my proposal abstract to RCN-UBE,
"Planning will be supported for a Research Coordination Network centered on the use of music as a tool for engaging undergraduate student interest and learning in biology. Initial tests of having students write and perform songs to reinforce learning of science concepts were received enthusiastically by students. Results of these tests suggest that this may be an effective way of engaging students, including non-science majors, in science classes and of increasing retention of course content. Improving science literacy among non-science majors would be a significant broader impact and address an important national need."
My proposal was peer reviewed and funded as an incubator project. Our core team and other contributors are developing a community of researchers to study the usefulness of music in science education. We have succeeded in building a network that includes educators, scientists and artists at a diverse array of institutions and industry.

The effectiveness of arts education in improving learning is well documented at the K-12 level. Catterall (2009) has found that involvement in the arts associates with higher levels of achievement and college attainment, higher paying and more professional jobs, and deeper community involvement. But arts are rarely incorporated into science classes at the university level. Since we have good evidence that arts can help science education, it is important to conduct rigorous research to use and extend this information and to discover the best ways to teach our university students to understand and appreciate science.
5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

The “Visions and Change” document has given us some urgent priorities for engaging young people and educating them in science. The support of the National Science Foundation is essential for improving science education in the U.S.

May we quote from your responses? (+) Yes. ( ) No.

May we use your name if we quote from your responses? (+) Yes. ( ) No.

James Catterall (2009) *Doing Well and Doing Good by Doing Art: A 12-year Longitudinal Study of Arts Education – Effects on the Achievements and Values of Young Adults*. Los Angeles, CA: I-Group Books.

“Are people more or less racially-focused when seeking love on-line in the Obama era?”

From: Coye Cheshire
Sent: Wednesday, June 01, 2011 5:00 PM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

Hi Jackson,

Please see the attached responses to your short survey. Our team took this very seriously and we appreciate the opportunity to share our responses with you and the staff of the House Committee on SST.

If possible, please acknowledge receipt and do not hesitate to ask if you would like additional information.

Thank you!
Coye Cheshire

--
Coye Cheshire
Assistant Professor
School of Information
University of California, Berkeley
http://ischool.berkeley.edu/~coye

Attached Statement Below:

Survey Responses Regarding Coburn Report on NSF
Coye Cheshire, Gerald Mendelsohn, Andrew Fiore and Lindsay Shaw Taylor
1. Have you heard of the Coburn report on NSF (―The National Science Foundation: Under the Microscope‖)?
Yes, the first that we heard of it was on May 26th when a reporter called me (Coye Cheshire) in my office to ask if I had seen the report. I read it and shared it with my project colleagues at that time.
2. Did you know that your work was included in the report as an example of a ―questionable‖ research project?
We learned of this only on May 26th when the reporter brought it to our attention.
3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If ―yes‖, can you summarize who contacted you, what they asked and were told?
No. No one from Senator Coburn’s office contacted us or left any kind of message.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

Our NSF-funded project was wholly misrepresented in Senator Coburn's report. On p.28 of the report, the purpose of the grant is summarized as follows: ―NSF provided University of California—Berkeley researchers $580,819 to study racial preferences in online dating.‖ This sentence cites the online abstract for our NSF award (http://nsf.gov/awardsearch/showAward.do?AwardNumber=0624356), yet this characterization confirms that neither Senator Coburn nor his aides ever read the abstract that they cited. The words "race", "racist", "racism", etc. never appear in the cited project abstract or title. Given the sad history of segregation and anti-miscegenation laws in this country, we do believe that race issues are particularly important for researchers to study and should not be dismissed as trivial. However, they were not the focus of our NSF-funded research. The last paragraph of our abstract neatly summarizes the *actual* purpose of our grant:

―The research will advance scientific knowledge by deepening our understanding of relationship formation processes in general, on a scale large enough to be broadly generalizable and statistically powerful. The results should shed new light on several important questions in social psychology, including the role of personality and attitudinal similarity in long-term relationship satisfaction and success, and the balance between

positive and authentic self-presentation for relationship formation. This research will also contribute further to our understanding of the effects of computer-mediated communication on interpersonal relationship formation. An understanding of interpersonal compatibility over computer-mediated communication should help improve collaborative processes in many spheres, including students working together in distance education, and facilitate geographically dispersed team formation for businesses, government, and other organizations.‖

If our project description, proposal, and grant report are not specifically about race and racism, how did Senator Coburn create this misleading impression about the purpose of our NSF funding? The answer is that Coburn's report relies on a single media-relations article promoting some of the findings from one of our numerous research papers. The Coburn report does not discuss the research itself but instead takes issue with the historical context we used to frame the findings in that paper.

Successful NSF grant projects advance scientific knowledge and produce dozens of papers and scores of talks, presentations and research posters. We study relationship-formation dynamics through online mediating technologies, and race is one of countless characteristics that we can examine with our data. We are proud of the many papers we have already written from this project and those to come, including analyses of the dynamics of relationship initiation online, the factors that affect the longevity of such relationships, the development of trust in online relationship formation, and the impact of online relationship formation among senior citizens.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

Marriage is one of the fundamental institutions of society, and marriage is regularly preceded (at least in America) by interpersonal communication and dating. Understanding patterns of courtship in the digital age would surely seem just the kind of knowledge we should seek if we hope to better understand this fundamental institution of society. Senator Coburn apparently agrees. As he stated in a 2006 press release: ―The institution of marriage is the cornerstone of civilization.‖[1] Furthermore, Senator Coburn draws from the social and behavioral sciences to support his opinion: ―Sociological studies have confirmed what common sense suggests – the ideal environment for children is to be raised by both a mother and a father.‖[2] While we are not familiar with the particular sociological studies that Senator Coburn draws upon in his statement (none are cited), we applaud his reliance on sociological research to inform his position on marriage and family. Senator Coburn thus makes a strong case for continued federal funding of the social and behavioral sciences.

1 http://coburn.senate.gov/public/index.cfm/pressreleases?ContentRecord_id=af661931-802a-23ad-4e5f-65f78539da89&ContentType_id=d741b7a7-7863-4223-9904-8cb9378aa03a&Group_id=7a55cb96-4639-4dac-8c0c-99a4a227bd3a&MonthDisplay=6&YearDisplay=2006

2 Ibid.

As experts in studying online behavior, we are uniquely qualified to plan, conduct, and analyze results from this research. Senator Coburn himself recognizes that scientists, not politicians, have the training to undertake this effort — in fact, in another 2006 press release from his office, he urged ―his Senate colleagues to resist calls from special interest groups to take research authority away from scientists and put it in the hands of politicians.‖ Such effort to – take research authority away from scientists … and put it in the hands of members of the congressional appropriations committees would set a dangerous precedent.‖3 As scientists, we cannot agree more with Senator Coburn's strong opposition to politicizing scientific research.

3 http://coburn.senate.gov/public/index.cfm/pressreleases?ContentRecord_id=a054ae7b-802a-23ad-44f6-f82b44270935&ContentType_id=d741b7a7-7863-4223-9904-8cb9378aa03a&Group_id=7a55cb96-4639-4dac-8c0c-99a4a227bd3a&YearDisplay=2006

4 Ibid.

Senator Coburn's office spent time, money, and effort to misrepresent our research. We believe that Coburn's 2011 report is a waste of taxpayer dollars, a clear example of disingenuous political maneuvering, and a manifest contradiction of his own statements about the importance of both the family in American life and the scientific community's independence to investigate sociological phenomena. However, Senator Coburn's own words from 2006 offer some encouragement: ―I hope science will prevail over politics‖4 We agree, Senator Coburn.

Coye Cheshire, Ph.D.
Gerald Mendelsohn, Ph.D.
Andrew Fiore, Ph.D.
Lindsay Shaw Taylor, Ph.D.

May we quote from your responses? (X) Yes. ( ) No.
May we use your name if we quote from your responses? (X) Yes. ( ) No.

“Can Members of Congress improve their approval ratings through internet town halls?”

-----Original Message-----
From: Kevin Esterling
Sent: Wednesday, June 01, 2011 8:36 PM
To: Moller, Jackson
Cc: Neblo, Michael (.1); david_lazer
Subject: Re: survey on Coburn's report

Hi Jackson,

Here are our responses to your questions regarding the recent Coburn report. Please feel free to contact me any time for more information. My office number is 951-827-3833 and cell 510-858-9500. Thanks so much for following up on this.

Best,
Kevin

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

We have heard of the report. It mentions a number of political science projects and it has been circulating among some NSF PIs.

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

No one from Sen. Coburn's office contacted us regarding our research.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

The report’s characterization of our research is quite inaccurate, and we have good reason to believe that Sen. Coburn’s staff understood and recognized the mischaracterization.

Our NSF-funded study evaluated best practice methods for members of the U.S. Congress to engage in online townhalls with groups of their constituents. The study demonstrates that such townhalls, if well done, are a low-cost means for members to supplement other modes of member-constituent interaction and to enhance communication with and accountability to constituents. We have published studies from this grant in leading political science journals, for example: demonstrating that the constituents who volunteered to participate in our study were representative of American society as a whole (published in the American Political Science Review), that they gained knowledge of the policy under discussion (published in Public Opinion Quarterly), and that the sessions enhanced citizens' belief that political institutions are responsive to their concerns (published in Political Analysis). The article in Political Analysis also develops a new scientific statistical method for identifying causal effects from field experiment data. We note that these three journals are among the very top rated journals in political science, in terms of ISI's impact factor ratings.

Our research team had the opportunity to present the results of our study to House and Senate staff in October, 2009. In advance of this seminar, Sen. Coburn's office issued a press release that, for whatever reason, mischaracterized our research, arguing that the study is simply a demonstration of a means for members to avoid face-to-face contact with constituents, "to show legislators how to exile angry town-hall mobs to cyberspace." (see, http://coburn.senate.gov/public/index.cfm/news?ContentRecord_id=A1B8BB6A-802A-23AD-4650-A7E882A2B95D).

Sen. Coburn's press release made reference to the townhalls on health care reform that many members of Congress held in the summer of 2009, where the members were often confronted with protests. Our study was in the field in 2006 (and proposed and funded in 2004), so the accusation that we were conducting this research as a response to the tumult at the town-halls of summer 2009 very obviously could not possibly have been true.

The report that we presented in the seminar for congressional staff clearly indicates that online townhalls should supplement face-to-face meetings, as a cost-effective means to reach out to more constituents, and we discussed this as well at the seminar. We know for certain that some of Sen. Coburn's staff attended the seminar (one of them asked a question during the Q&A period) and so they certainly had the opportunity to discover their misunderstanding of our work. Unfortunately, the same mischaracterization that appeared in the October, 2009, press release is repeated in the new "Under the Microscope" report.

An academic political scientist investigated this sequence of events and

reported his summary and independent assessment here:

http://themonkeycage.org/blog/2009/11/09/coburn_and_conservative_media/

The Digital Government program of NSF funded our study to help members of Congress to understand this technology and to promote best practices for the effective use of technology. We note that currently very few members of Congress make use of online technology to reach out to constituents, and many of Sen. Coburn's colleagues in the House and Senate have a genuine interest in learning how to make effective use of new technology to enhance representation and to enhance our democracy. Indeed, twelve sitting members of the House and one of Sen. Coburn's Senate colleagues (Sen. Levin) directly participated in our research by hosting the experimental townhalls. Failing to exploit new technology means missed opportunities to enhance accountability, representation and our democracy. We have been and continue to be perplexed why Sen. Coburn would object to experimentally-based, scientific research into best practices for how members of Congress can use new technology to discuss issues with their constituents in a rational manner, in a way that is convenient for member and constituent alike, in a way that can be done effectively at low cost, and in a way that constituents themselves genuinely appreciate.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

Political scientists who receive NSF funding use rigorous analytic, scientific methods to learn about political institutions and citizen behavior. Understanding political processes is essential to advance our own democracy. To receive funding from NSF, political science researchers must pass peer review, and to do so a researcher must demonstrate that he or she uses scientific methods to study political processes. Contemporary problems such as the recent domestic economic crisis, the deficit, and unrest in the Middle East have shown that the quality of our governance is more important now than perhaps ever before. Having an accurate, scientific understanding of governance and world affairs is essential for the health of our democracy.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

From: David D. Laitin
Sent: Wednesday, June 01, 2011 9:27 PM
To: Moller, Jackson
Subject: Re: survey on Coburn's report

Jackson, happy to see Dem staff following up on this report. See below for some responses.

----- Original Message -----
From: "Jackson Moller" <Jackson.Moller@mail.house.gov>
To: "dlaitin
Sent: Tuesday, May 31, 2011 10:58:36 AM
Subject: survey on Coburn's report

Senator Tom Coburn's office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,

Jackson Moller

202-225-6375

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

Yes.

2. Did you know that your work was included in the report as an example of a "questionable" research project?

Yes.

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

No

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

It was accurate but radically incomplete. The Coburn report noted the findings written up in one research paper from my latest NSF grant that showed rather significant religious discrimination against Muslims in France. The summary of the research finding was correct. It was radically incomplete because the NSF panel that supported the funding for this project was impressed by the measurement strategy of religious discrimination, a methodological innovation that could be applied elsewhere. Thus, the project had a basic science component on measurement that was ignored in the Coburn report.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

As an American, a democrat (with a small "d"), and a political scientist, I fully agree with Senator Coburn that scientists whose work is supported by federal funds should not be exempt from the scrutiny of those elected officials who represent the taxpayers who are funding their research. While I strongly disagree with the "spin" this report put on my research and the research of others whose work I know, I believe Senator Coburn was seeking to do his due diligence that NSF, an institution his committee oversees, is spending taxpayer dollars wisely. From my experience, I am confident that put under a congressional microscope, the NSF will come out with flying colors as serving the national interest in the promotion of science, and I am therefore prepared to defend the NSF against the allegations in this report.

May we quote from your responses? YES

May we use your name if we quote from your responses? YES

Thanks,

David Laitin

“How quickly do American parents respond to trendy baby names?”

E-mail reply from Professor Goldstone to Pearson, May 31, 2011

Dear Dr. Goldstone,

Senator Tom Coburn’s office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Your research is particularly confusing to us because it does not appear to be accurately identified. The staff report out of the Senate says that your study, “Transfer of Perceptually Grounded Principles” underlies a study done on changing trends in baby names. Perhaps that is accurate, but we could not make the connection between your award abstract and the staff report language.
Thank you in advance for your help.

Sincerely,
Dan Pearson
202-225-4494

Dear Dan,

Our REESE grant "Transfer of Perceptually Grounded Principles" was not acknowledged in the paper:

Gureckis, R. L., & Goldstone, R. L. (2009). How you named your child: Understanding the relationship between individual decision making and collective outcome. Topics in Cognitive Science, 1, 651-674.

The research reported in this paper is only tangentially related to our REESE grant (DRL-0910218) in that both deal with learning and complex systems. The main thrust of our REESE grant is on how students learn about complex systems by interacting with computer simulations, and how they transfer their acquired knowledge to subsequent scientific phenomenon. It is highly inaccurate to say that over a million dollars of NSF funding was devoted to the baby name research. Only about $300 of NSF funding was used to support the baby name research. In the above mentioned paper, we acknowledge THREE sources of funding: NIH, NSF, and the Department of Education. In fact, NIH funded about 90% of this research through a training grant to IU to fund Todd Gureckis, who was a postdoctoral research scientist at IU at the time.

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?
Yes, I was notified of it last week.

2. Did you know that your work was included in the report as an example of a "questionable" research project?
Yes

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

No, they did not. If they had, I would have had a chance to correct the inaccuracies in their report.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

No, it is not accurate. Our research goes significantly beyond the characterization in Sen. Coburn's report. This report characterizes trivializes our research by writing that it shows that "popular names are popular with parents." In fact, we show that controlling for popularity, names that achieve a given level of popularity by increasing their prevalence from one year to the next, are likely to increase still further their prevalence in the next year, and similarly for decreases in popularity. That is, parents are influenced by the momentum, not just the popularity, of a name. Furthermore, this momentum influence is itself undergoing societal change. In the 19th century, a name that increased its prevalence from one year to the next, would tend to decrease its prevalence during the next year. Over the course of 150 years, American parents are becoming systematically and increasingly "faddish" in the sense of relying increasingly on name momentum as a source of information for naming their children. If this trend is found in other cultural domains, such as music, consumer products, educational interventions, and technologies, and food, then this will have large consequences for predicting major social trends. In the domain of baby names, our computational model can predict with 73% accuracy whether a name will increase or decrease its prevalence from one year to the next. Other analyses of the same data set have recently been reported in esteemed peer-reviewed journals like *The Proceedings of the National Academy of Sciences* (Berger & Mens, 2009) and the *Proceedings of the Royal Academy* (Hahn, et al., 2003).
This above is excerpted from a report that I sent last week to Doug Wasitis, our Director of Federal Relations for Indiana University. Below I include the full report.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

The research of ours that was cited by Sen. Tom Coburn's (R-OK) report attacking the NSF on waste, fraud and mismanagement of grants was on patterns of baby naming behavior in the United States over the course of 150 years. Baby names, far from being a frivolous data set, is an excellent source of information on patterns of social learning and imitation. Social learning occurs when an individual models their own behavior on the basis of others' behaviors. Social learning and imitation have proven to be societally crucial human behaviors. Christakis and Fowler (2007, New England Journal of Medicine) have shown how behavioral patterns leading to obesity, and obesity itself, spread over social networks. Similarly, pro-social, cooperative behavior also spreads via social learning (Fowler & Christakis, 2010, Proceedings of the National Academy of Sciences). Thoughts and behaviors related to suicide, exercise, charity, classroom attentiveness, attitudes toward science, and mental illness are all "contagious" in the sense that they can be transmitted by social learning. Another example of social learning is the diffusion of innovations in a community, such as surgical procedures among doctors, pedagogical technologies among teachers, businesses practices among companies, and pesticide use among farmers. Understanding the mechanisms of social learning is necessary if we want to control beneficial and adverse ways in which we learn from one another.

Baby names provide an excellent source of data on social learning and imitation for several reasons. First, parents spend a substantial amount of time trying to decide what to call their children; these are not throw-away decisions. Second, to a rough approximation, baby names are value neutral. The name Jacob occurs 300 times more often than Jax in the United States, but not because of intrinsic sound differences, but rather because of "rich get richer" processes attributable to social learning and imitation. Third, there are large databases available through the Social Security Administration that allow us to rigorously and quantitatively chart the dynamics of baby naming over the course of 150 years. These data sets include more than 600 million individuals. Data like these are a treasure trove for revealing socially relevant patterns of cultural transmission.

Our research goes significantly beyond the characterization in Sen. Coburn's report. This report trivializes our research by writing that it shows that "popular names are popular with parents." In fact, we show that <u>controlling</u> for popularity, names that achieve a given level of popularity by increasing their prevalence from one year to the next, are likely to increase <u>still further</u> their prevalence in the next year, and likewise for decreases in popularity. That is, parents are influenced by the momentum (shifts over time), not just the popularity, of a name. Furthermore, this momentum influence is itself undergoing societal change. We showed that in the 19th century, a name that increased its prevalence from one year to the next would tend to decrease its prevalence during the next year. Over the course of 150 years, American parents are becoming systematically and increasingly "faddish" in the sense of relying increasingly on name momentum as a

source of information for naming their children. If this trend is found in other cultural domains, such as music, consumer products, educational interventions, technology adoption, and food preferences, then our research will have large consequences for predicting major social trends. In the domain of baby names, our computational model can predict with 73% accuracy whether a name will increase or decrease its prevalence from one year to the next. Other analyses of the same baby name data set have recently been reported in esteemed peer-reviewed journals such as *The Proceedings of the National Academy of Sciences* (Berger & Mens, 2009) and the *Proceedings of the Royal Academy* (Hahn & Bentley, 2003).

More generally, our work on learning, including social learning, has received recognition from the broader scientific community. My work on learning has been awarded two American Psychological Association (APA) Young Investigator awards in 1995 for articles appearing in Journal of Experimental Psychology, the 1996 Chase Memorial Award for Outstanding Young Researcher in Cognitive Science, a 1997 James McKeen Cattell Sabbatical Award, the 2000 APA Distinguished Scientific Award for Early Career Contribution to Psychology in the area of Cognition and Human Learning, and a 2004 Troland research award from the National Academy of Sciences. Some of our recent related work on social learning and collective behavior (Janssen, Goldstone, Menczer, & Ostrom, 2008) was conducted with Elinor Ostrom, a recent Nobel Laureate in Economics.

Berger, J., & Mens, G. (2009). How adoption speed affects the abandonment of cultural tastes.
Proceedings of the National Academy of Sciences, 106 (20), 8146-8150.

Hahn, M. W., & Bentley, R. (2003). Drift as a mechanism for cultural change: an example from
baby names. Proceedings of the Royal Society of London B (Suppl.), 270 , 120-123.

Janssen, M. A., Goldstone, R. L., Menczer, F., & Ostrom, E. (2008). Effect of rule choice in dynamic interactive spatial commons. *International Journal of the Commons, 2*, 288-312

Dr. Robert Goldstone
Chancellor's Professor of Psychological and Brain Sciences
Director of the Cognitive Science Program (http://www.cogs.indiana.edu/)
Indiana University
Psychology Building
1101 E 10th St.
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Percepts and Concepts Laboratory: http://cognitrn.psych.indiana.edu/

“How quickly do American parents respond to trendy baby names?”

E-mail reply from Professor Gureckis to Pearson, May 31, 2011

Hi Dan,

Responses below. I have also attached a PDF with a brief, 4-point FAQ about this issue. It describes how the Coburn report is not only misleading but factually inaccurate in its description of this project.

1. Have you heard of the Coburn report on NSF (“The National Science Foundation: Under the Microscope”)?

Yes, it was forward to me.

2. Did you know that your work was included in the report as an example of a “questionable” research project?

Yes.

3. Did anyone from Senator Coburn’s office contact you to inquire about the nature of your research or how the NSF funds were being spent? If “yes”, can you summarize who contacted you, what they asked and were told?

Nobody contact me about the research from Coburn's office.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

See that attached document. In addition to a grossly inaccurate summary of the research (quoting primarily from a USA Today tabloid article rather than my actual publication), the footnotes in the Coburn report is factually wrong about the details of NSF's involvement in this project. Had Coburn's office contacted me or my co-author to fact-check they could have easily avoided this situation.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

Again, see the attached FAQ.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

Attached statement below:

Four FAQ's about Coburn 's report and the research by Gureckis & Goldstone on baby naming trends.

by Todd Gureckis (Asst. Prof of Psychology at New York University)

1. Coburn's report alleges that "Armed with a $1 million grant from NSF, researchers at Indian (sic) University-Bloomington and New York University analyzed baby names to determine trends in parents' naming decisions." Did Indiana and NYU actually receive $1 million from NSF to study baby naming?

No. First, **NYU did not receive any funds from NSF related to this project** as the Assistant Professor who wrote this paper was not a PI or Co-PI on the grant in question.

Second, The NSF grant in question was awarded to a co-author of the paper (Robert Goldstone from Indiana University). As the footnote included in Coburn's report indicates (h"p://nsf.gov/awardsearch/showAward.do?AwardNumber=0910218), the title of this grant is "Transfer of perceptually grounded principles" and originated from NSF's Division of Research on Learning in Formal and Informal Settings. From the abstract of this grant: "The research methods involve classroom-based and laboratory experiments incorporating computer simulations of scientific principles. By observing how interaction with one simulation affects students' understanding of subsequently presented information, the investigators can assess the degree to which the underlying scientific principle has been successfully abstracted... Studies will include students in 8th grade science classes." **Thus, the grant was not to study names as claimed in the report which largely undermines the criticism.**

The second author, Rob Goldstone, credited NSF in the acknowledgements of the single paper in question because this paper deals with complex systems: namely, cultural transmission systems. Since his grant is designed to improve the way we teach students about such complex scientific phenomena, he included a mention of his support in the paper. This paper counts as a "synergistic" activity related to the primary focus of Goldstone's awarded grant. Goldstone has also published many highly cited peer-reviewed papers on student learning which credit his NSF support. Note that NSF **requires** all products of research subsequent to the awarding of a grant to acknowledge funding even if the ideas are only partially related to the original award. The paper also acknowledged funding from NIH/NIMH (a Mathematical Modeling Training Grant to Indiana University which paid for Prof. Gureckis' post -doc when he was at Indiana University). Other aspects of the writing of the paper were supported by private funds given to Gureckis by NYU. Thus, the claim in the report is objectively false, sensationalized, but also suggests a troubling lack of understanding about how scientific research is funded (confusing the multiple *products* of that research for the grant itself). Oddly, the

footnotes provided in the Coburn report directly refutes the basic claims made in the text. The bottom line is that no-one received $1 million to study naming behavior. The actual cost to the tax paper produce this particular research report was close to $0 but NSF was credited all the same out of an abundance of caution for appropriately citing their support.

2. Did Coburn or his staff even look at the scientific paper in question?

Rather than examine the actual peer-reviewed research paper (Gureckis, T.M. and Goldstone, R.L. (2009) How You Named Your Child: Understanding The Relationship Between Individual Decision Making and Collective Outcomes. TopiCS in Cognitive Science, 1 (4), 651-674. available for download here: http://gureckislab.org/papers.php), the Coburn report exclusively references a USA Today article written by an individual not involved in the original research. Such a third-party source is not an authoritative source on the contributions of a scientific paper. It would be like referring people to a left-wing blog to describe Coburn's stance on political issues instead of letting them look at his own voting record or website.

Had those developing this report actually read the paper, they would know that we were not specifically interested in baby names per-se except in so far as they offer a unique opportunity for studying such the impact of social influence on decision making. We all know that iPhones are popular but the underlying reasons for this cultural success is confounded by the role that advertising budgets, existing computer technology, stock markets, and access to sales markets have in determining which ideas win out and which die off. In contrast, the popularity of names is more organically determined by processes of social influence (there is no company out there trying to convince you to name you child something in particular). Baby names thus represent a important and relatively “pure” empirical test of theories of cultural transmission and social influence in large groups.

The Coburn report makes it seem as though this research spent money to determine the frequency and popularity of names. However, fortunately, this data was provided for free by the Social Security Administration which has recorded and published the most popular baby names in the United States since the 1880s (freely available here: http://www.ssa.gov/oact/babynames/ 1). Any NSF funds used toward this effort paid exclusively for the statistical/mathematical analysis of this data. In fact, in the context of a discussion about government waste, this is a great example of government **efficiency** since data collected for one purpose (issuing social security cards), which would have been very expensive to collect otherwise, turns out to be very useful to NSF-supported peer-reviewed science.

Note that many researchers agree that this data is unique for studying the interactions of individual decision making and cultural outcomes. Similar analyses on the same data set were nearly simultaneously reported with our paper in esteemed peer-reviewed journals like *Proceedings of the National Academy of Sciences*2, the *Proceedings of the Royal Academy*3, among other peer-reviewed journals4 and naming trends and patterns have been extensively studied and

1 Interestingly, the numerous for-profit websites that are cited by Coburn also use such freely available, government-provided data on names. The fact that so many websites exist is a testament to the public interest in this topic.

discussed by economists (Steven Levitt and Steven Dubner in the best selling booth *Freakonomics*5), sociologists (Stan Lieberson in *A Matter of Taste: How Names, Fashion, and Culture Change*6). The work we published was peerreviewed in a journal by scientific experts and went through multiple revisions and close inspection and debate.

Our paper reports novel findings which suggest a refinement of leading theories of cultural transmission of ideas. **The report gets the basic finding from our research wrong when it claims our conclusion was the tautology "popular names are popular with parents." If only it was so simple.** One prediction of the idea that "popular names are popular" would be that the most popular names would never change from year to year (the same popular names would keep being popular). In fact, the historical record provided by the Social Security Administration shows that there has been dramatic changes in the popularity of names over the last few years. Our paper proposes and evaluates possible reasons contributing to these changes in time. Our theory is rigorous and mathematically specified, and may thus be used by other researchers studying the cultural transmission of other ideas (such as political ideologies, health-related habits and decisions, or purchasing decisions). The ideas in the paper borrows from recent mathematical theories of human decision making and learning and well as cultural transmission and cultural evolution.

I feel, as an author, that I made a concerted effort to communicating the broader impacts of this work to the public at large. The paper is available for free from my website, and NYU and Indiana University jointly issued a very nice press release with details and discussion about the merits of the paper which went far beyond the third-party source the Coburn report extensively quotes from (a USA Today tabloid article).

2 Berger, J., Mens, G.L.(2009), How Adoption Speed Affects the Abandonment of Cultural Tastes, *Proceedings of the National Academy of Sciences*, 106, 8146-8150.

3 Hahn, M.W. and R.A. Bentley (2003) Drift as a mechanism for cultural change: An example from baby names. *Proceedings of the Royal Society London B*, Biology Letters, 270:S120-S123.

4 Bently, R.A., Lipo, C.P., Herzog, H.A., Hahn, M.W. (2007) Regular rates of popular culture change reflect random copying. *Evolution and Human Behavior*, 28(3), 151-158.

Fryer, R.G. and Levitt, S.D. (2004) The causes and consequences of distinctively black names. *Quarterly Journal of Economics*, 119(3), 767-805.

5 http://www.amazon.com/Freakonomics-Economist-Explores-Hidden-Everything/dp/0060731338/ref=sr_1_1?s=books&ie=UTF8&qid=1306865334&sr=1-1

6 http://www.amazon.com/Matter-Taste-Fashions-Culture-Change/dp/0300083858

3. Why publish a paper about naming patterns in the first place? Is this a useful scientific topic?

It is easy to be distracted by the seemingly trivial nature of "baby naming" to view this particular research project as less important than the study of diseases,

developing new medicines, or developing the technology that underlies the Internet. However, as noted above and in the paper, we did not choose this topic for frivolous reasons. Baby naming just happens to be a culture practice for which there are extensive historical records about the aggregate decisions of millions of individuals. Thus, it provides an important domain in which to test theories of how other people influence our opinions, decisions, and judgements. These theories are not trivial but involve detailed mathematical arguments about the how distribution of cultural should change in response to societal forces. Researchers should not be singled out or punished for pursing important, theoretically motivated research that just happens to reference a popular culture phenomena. In fact, this feature of this work helps make many Americans recognize the potential of NSF funded research on transforming our understanding of the world around us. While Coburn's report suggest this research is obvious or trivial, many areas of both public and private research are currently very interested in this type of research. For example, understanding the factors that influence how ideas spread through a culture may help our military better influence the "hearts and minds" of people we are trying to help. In addition, it is noted that social influence has an effect on the health decisions that people make. The application of the ideas in this research may be later used to enact positive societal outcomes. We find evidence that names go through boom and bust cycles not unlike the recent economic bubbles that lead to the current budget situation. Understanding the factors that contribute to these bubbles could be important in preventing these events in the future.

4. Should NSF support for social and behavioral sciences be eliminated?

Coburn's report recommends that funding for social and behavioral sciences should be terminated within NSF (page 53). Coburn cites the past successes of astronomy, biology, chemistry, and physics as examples of the important research that NSF supports. While past success in the physical and biological science are obvious, investing in basic research based only on past success is bad science policy.

Many of the future challenges that face our society have to do with *people*. For example, how can we get people to make better decisions for their health? How does the brain contribute to behavior? How can be best intervene to improve student learning and retention? How can we develop better treatments for language disorders or developmental and learning disabilities? How do trends and propagate through society and how might these contribution to "bubble"-like phenomena? Research funded under NSF's SBE initiative makes important progress on many of the issues. However, unlike NIH, NSF funds basic research of theoretical importance which has the potential to make truly transformative progress on these issues. I would argue that many of the advances in science that we will be talking about in future generations will come from further development of a detailed, quantitative and mathematically-based science of human behavior, exactly of the kind exemplified by the paper in question.

"NSF grants help party leaders learn strategies to increase voter turnout."

Note that this was not a "header" in the Senate report, but a subtopic attached to another section on party leaders… However, it is the Senate language from the introduction to the paragraph in which "The costs of voting" was discussed… see page 44 of the Senate report.

E-mail reply from Professor McNulty to Pearson, May 31, 2011.

Dear Mr. Pearson,

Henry beat me to the punch...I was slightly revising and expanding the comments he included below. I am grateful for the opportunity to provide a reply; thank you.

I have attached a nicely formatted Word document; in addition, I'll paste my comments in.

Sincerely,
John McNulty
Assistant Professor of Political Science
Binghamton University

Dear Mr. Pearson:

I have italicized your request for information and embedded my answers in plain text. I hope this is helpful.

Sincerely,
John McNulty
Assistant Professor of Political Science
Binghamton University

Senator Coburn's office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.

Sincerely,
Dan Pearson
202-225-4494

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

Yes.

2. Did you know that your work was included in the report as an example of a "questionable" research project?

Yes. Indeed, the work was also mentioned in an earlier release from the Senator's office.

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

No, I have never been contacted by Senator Coburn or anyone on his staff or in his employ.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

The research funded by the NSF under the title "The Costs of Voting" was co-directed by Henry E. Brady of the University of California at Berkeley and myself. The research has indeed generated findings that may be used to increase voter turnout in future elections.

The Senator's report suggests that this research was intended to "help party leaders learn strategies to increase voter turnout." That is not accurate.

The intended audience for this fruit of this research was <u>never</u> political party personnel or anything of the sort. Rather, we conducted the research and composed the findings with two disparate audiences in mind:

a. Social scientists and academics, because the findings of the research substantially advance the body of knowledge in the field of voting behavior.

b. Non-partisan election administrators, whose task it is to conduct free and fair elections as efficiently, inclusively, reliably, and securely as possible. The findings from this research will be invaluable to them in doing just that.

Higher voter turnout enhances the legitimacy of the democratic process, and has salubrious effects on civic-mindedness and public trust. There is a clear public interest in generating knowledge that can enhance political participation and legitimacy.

There is nothing in the research regarding political parties, with two small exceptions:

a. Statistical checks to ensure that the party identification of registered voters was indeed entirely irrelevant to the data under examination, and that the poll consolidation in Los Angeles generated no substantive benefit to any political party.

b. An acknowledgement that unscrupulous people have before and might again try to manipulate poll locations for personal or partisan gain. The dissemination of this research makes that less likely to happen; the risks are now better known.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

I am very grateful to the National Science Foundation's Social and Behavioral Sciences Directorate for its support of my research and of many, many other worthwhile research initiatives.

NSF support is invaluable for advancing knowledge in the social sciences. Research in the social sciences is usually less costly that the "hard" sciences, but there is less funding available in the private sector, because commercial applications of social science are less apparent in the short-term. Hence, it is a prime example of where a relatively modest government investment can achieve something the private sector may not.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

"NSF grants help party leaders learn strategies to increase voter turnout."

Note that this was not a "header" in the Senate report, but a subtopic attached to another section on party leaders… However, it is the Senate language from the introduction to the paragraph in which "The costs of voting" was discussed… see page 44 of the Senate report.

From: Pearson, Dan [mailto:Dan.Pearson@mail.house.gov]
Sent: Tuesday, May 31, 2011 11:12 AM
To: 'hbrady@berkeley
Subject: Report on Wasteful NSF Funding
Dear Professor Brady,
Senator Coburn's office has released a report on NSF funding that includes a long section on grants that his staff consider to be low-priority work. Your work appears to be among the grants singled out for comment. Democratic staff of the House Committee on Science, Space, and Technology are attempting to understand how your work came to be included in the report. To assist us in our efforts, could you please provide brief answers to the following questions. Thank you in advance for your help.
Sincerely,
Dan Pearson
202-225-4494

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

YES.

2. Did you know that your work was included in the report as an example of a "questionable" research project?

YES.

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

NO.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

My co-author and I have developed the following comment on Senator Coburn's report.

"Brady and McNulty's research, funded by the NSF, has indeed generated findings that may be used to increase voter turnout in future elections. The intended audience for this information, however, was never political party personnel as the Senator's report fears, but rather (a) social scientists and academics, because the findings of the research substantially advance the body of knowledge in the field of voting behavior, and (b) non-partisan election administrators, whose task it is to conduct free and fair elections as efficiently, inclusively, reliably, and securely as possible. The findings of this research will be invaluable to them in doing just that. Higher voter turnout enhances the legitimacy of the democratic process, and has salubrious effects on civic-mindedness and public trust. We suggest there is a clear public interest in generating knowledge that can enhance political participation and legitimacy. In any case, there is nothing in the research regarding political parties, save statistical checks to ensure that the party identification of registered voters was indeed *not* relevant to the data under examination, and acknowledgment that unscrupulous people might try to manipulate poll locations for personal or partisan gain."

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

Can the National Science Foundation boost the wine-making industry?

From: Norgren, Michelle L (Missouri state)
Sent: Monday, June 13, 2011 12:25 PM
To: Farley, Kate
Subject: RE: Survey on Coburn Report

Hello Kate,

Thank you for your interest in our program. I have replied to your questions in this email. Please let me know if I can be of any further assistance.

1. Have you heard of the Coburn report on NSF ("The National Science Foundation: Under the Microscope")?

Yes, we were made aware of it by Dr. David Campbell, NSF Project Officer for our VESTA Regional Center of Excellence grant.

2. Did you know that your work was included in the report as an example of a "questionable" research project?

We were surprised to find that it was listed as in the Questionable Projects" section in that the statement associated with it (as well as the 2 other projects listed with it) did not contain any negative comments about the project itself.

3. Did anyone from Senator Coburn's office contact you to inquire about the nature of your research or how the NSF funds were being spent? If "yes", can you summarize who contacted you, what they asked and were told?

No.

4. If you have seen the report, do you feel that the characterization of your work by Senate staff was accurate? If you feel that it was not accurate, please provide a brief summary of what they got wrong.

A. We reviewed "Under the Microscope" and found the statement, "How to improve the quality of wine?" as one topic that he included in his cover letter on page 4 of the report. Two issues are of concern in this paragraph. First, he and his staff appear to believe that NSF's mission should only focus on research, when in fact there are several NSF programs that focus on education. The VESTA program is funded under the Advanced Technological Education program of the Division of Undergraduate Education. Second, the statement that taxpayers may question the value of an investment in VESTA is surprising because NSF invests in research and educational programs across industrial sectors that include agriculture, bioscience and biotechnology. Its research programs produce new knowledge and technological advances that will have impact across these industrial sectors. From an educational perspective, a search of the ATE funded projects

using the term "agriculture" found that 38 grants were issued to improve educational opportunities for persons pursuing careers in this area.

B. Inclusion of the VESTA program under the title, "Can the National Science Foundation boost the wine-making industry?" was surprising because it appears to single out an industry that is becoming increasingly important throughout the U.S. While this industry has been an important economic factor in several states for several years, e.g., California, Oregon, Washington, and New York, the industry is growing rapidly throughout the U.S. and there are now commercial operations in all 50 states. While grapes are the primary source of raw material for the wine industry, northern tier states have learned that their small fruit production can have added commercial value through the production of fruit wines. Moreover, the grape and wine industry provides a major impetus for the tourist industry in many states. Details on growth of the industry across the country and its economic impact can be found in the attached Fact Sheet which is described in Section E below. Lastly, it should be noted that the VESTA grant is equally focused on viticulture (grape production) and enology (wine production). While the former focuses on the production of grapes for wine production, it should not be neglected that the course material and field experiences are applicable to the production of table grapes, and in some cases a good foundation for anyone seeking entry into the small fruit industry.

C. The statement about the states directly impacted by the program is inaccurate. The $3 million grant, for the period 2007 – 2011, enabled the NSF Regional Center of Excellence to expand viticulture and enology in 2-year colleges located in 12 states - Missouri, Arkansas, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, North Carolina, Ohio, Oklahoma and Wisconsin. The original VESTA project grant which was funded from 2003 to 2007 had provided support for 2-year colleges in Missouri, Illinois and Iowa. Redlands Community College in El Reno, OK found that this program would be important for its state's grape and wine industry so became an unfunded participant in the VESTA project in 2004. In 2007, Redlands Community College became a funded partner in the VESTA Regional Center of Excellence.

D. The statement describing the purpose of the program is accurate, but does not fully explain the innovative approach that is used to enable persons to receive this education and training even they are geographically distant from one of the available class-room based programs.

5. Do you have any other comment you would like to make regarding the Coburn Report, its treatment of your work, or NSF support for the Social and Behavioral Sciences?

As stated previously, this project is supported under the NSF Advanced Technological Education program which is under the Division of Undergraduate Education. This division is part of the Directorate for Education and Human Resources and it not part of the Directorate for Social, Behavioral and Economic Sciences.

May we quote from your responses? (X) Yes. ( ) No.

May we use your name if we quote from your responses? (X) Yes. ( ) No.

Sincerely,

Michelle Norgren
Director,
VESTA Regional Center of Excellence
http://www.vesta-usa.org