

What are the 'Hard Problems' in the social sciences?

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(PhysOrg.com) -- Just over a century ago, one of the world's leading mathematicians posed this question to a number of his colleagues: What are the most important unsolved questions in mathematics?

The answers - which David Hilbert then ranked in what he believed to be their order of importance - produced a list of 23 mathematical problems that shaped mathematics for 100 years.

This past Saturday, Stephen Kosslyn, dean of Harvard's Division of Social Science, posed a Hilbert-like challenge to a diverse group of social scientists he had spent two years gathering:

What, he asked, are the great unanswered questions in the social sciences?

Hilbert selected and ranked the final problems himself, but Kosslyn, the John Lindsley Professor of Psychology in Memory of William James, is using technology to revolutionize, and democratize, the process. Selecting the important issues in the field isn't just his job - it's everyone's.

And while Hilbert used a conference to present his list of problems, Kosslyn convened last Saturday's Hard Problems in Social Science Symposium in Harvard's Northwest Science Building to provide a setting in which his invited colleagues could suggest what are being termed the "hard problems" in the social sciences.

Rather than being a concluding summit, “this is actually a kick-off event,” Kosslyn explained in an interview. “What we’re trying to do is collect as many problems as we can and then have people vote on them in terms of two dimensions: that is, what’s most difficult and what’s most important, which may not be the same.

Over the next two months, the University’s Division of Social Science will collect online submissions at Hard Problems web site and at a Hard Problems Facebook page. Anyone, anywhere, regardless of their field of expertise, is encouraged to submit questions for consideration until May 31.

The conference and list were the brainchild of Harvard College graduate Nick Nash ’00, a joint chemistry and physics concentrator who has been thinking for some time about what he perceives as the need to improve awareness and understanding of the social sciences. “These are the sciences of our shared humanity,” he told a reporter. “But these sciences are much more in their infancy relative to physics or chemistry.”

“Because the social sciences are ultimately about people, we felt very strong that this be a democratic process and global process,” said Nash, who proposed the idea of creating a “Hilbert’s Questions” list for the social sciences and the conference, to Kosslyn. “We really want people around the world to view these videos, read the transcripts, and then vote on what they think is important,” said Nash, a member of the Indira Foundation, the charitable foundation that sponsored the symposium,. “and even add more questions.”

Saturday’s symposium, broadcast live via the Internet, featured 12 speakers, including, among others, experts in philosophy, medicine, history, political science, psychology, and economics from the University of California, Berkeley, the University of Chicago, the University of California, San Diego, Oxford University, New York

University, and Harvard. In addition, there were about 100 attendees of diverse backgrounds, ranging from Harvard undergrads to Ridley Pledger, the grandfather of a member of Harvard's women's softball team.

Pledger, who was visiting from Friendswood, Texas, said he decided to attend the symposium because he wants to learn more about economic issues. Pledger said that although he was trained as a chemical engineer, he doesn't feel out of place among [social scientists](#) because "money is basic to everybody. It doesn't matter how you earn it. It's what happens to it, or where is the money going to come from, that's important."

The questions posed by the speakers during their allotted 15-minute presentations ranged from why gender differences in economic outcomes persist, posited by Claudia Goldin, Henry Lee Professor of Economics at Harvard and director of the Development of the American Economy Program at the National Bureau of Economic Research, to how to get people to make positive changes in their health behaviors, asked by Emily Oster, assistant professor of economics at the Booth School of Business at the University of Chicago, to how to close the achievement gap, which Roland G. Fryer called the new problem of the 21st century. "The problem of the 21st century is no longer a problem of the color line, the problem of the 21st century is how do we get eighth-graders to achieve at the same level, across the country, regardless of their race?" said Fryer, Robert M. Beren Professor of Economics at Harvard, director of Harvard's Educational Innovation Laboratory, and a faculty research fellow at the National Bureau of Economic Research.

Ann Swidler, a sociology professor at the University of California, Berkeley, spoke about nation building and what creates effective and resilient institutions. She presented questions as well as possible solutions. "One of the crises in contemporary American life is a kind of massive disinvestment from our basic institutions, especially our political

institutions,” Swidler said during her presentation. “You can think of this in terms of particular political interests, and you can think of it in terms of the larger problem of whether the willingness to have effective, powerful institutions that can address collective problems exists at all.”

Swidler suggested that status and a strong cultural knowledge of a particular institution might contribute to the institution’s strength. But like the other speakers, Swindler focused more on concisely framing her “hard problem.” “It’s the questions, not the answers, I have right now that matter,” she said.

At the completion of the presentations, attendees were given a chance to question the speakers. “Is it, in a sense, a false question to talk about hard questions in the soft sciences?” asked audience member Hans Bakker, professor of sociology and anthropology at the University of Guelph, in Ontario.

“I don’t think that these are the soft sciences. If they’re so soft then why don’t we have the answers?” James Fowler, an associate professor of political science at the University of California, San Diego, responded.

“It’s interesting because that question is about language really,” Fowler continued. “It would be easier if we did speak the same language, but I think the problems that we face now are not going to be within [disciplines]. . . . They’re going to be between disciplinary problems. This is part of the problem that we’re all expressing, that we’re going to have to reach out and figure out common signs that we can use to talk to one another,” Fowler concluded.

During one of the coffee breaks, presenter Gary King, Harvard’s Albert J. Weatherhead III University Professor based in the Department of Government, professor in the Department of Biostatistics, and director of Harvard's Institute for Quantitative Social Science, reflected on the

symposium's comparison with the Hilbert questions. "A lot of the mathematical [Hilbert] problems, it was later proven, can never be answered. So surely some of these problems cannot be answered, but it's not really different," King said.

The so-called soft sciences have become progressively "harder" over the years, King said, especially in their use of data collection and analysis. The computer revolution - including the development of online social networking - will further those developments, he said. He went on to say that there is a need to develop much more infrastructure in the social sciences, allowing researchers to share information as they would in a wet lab setting.

If comments from both the presenters and audience are any indication, one of the hard problems will inevitably be creating definitions within social science studies, and even defining the field itself. "One of the most interesting parts of this conference was the very first words that the moderator (Kosslyn) said. He said, 'What is social science? What is a [social science](#) problem? What is a solution?'" said Harvard Class of 1956 economics alumnae Ruth Bruening. "I think those are the real questions," she said.

Kosslyn perhaps summed the day up best in his response to one of the final questions asked: What do the questions about hard problems suggest about the answers? Kosslyn judged that depending on what question you ask, different things count as answers. "So getting the questions straight, in this case the problems, is an absolutely necessary first step to forward a position to even start thinking about the solutions," Kosslyn said.

King agreed that the questions are vital. "Sometimes just listing the big problems is enough to inspire somebody to come up with a good solution, or a way around something, or a way to redefine the question so

that you can get past it,” King said. He reasoned that the answers to these particular problems would undoubtedly affect everyday people.

As the attendees departed, Jennifer Shepherd, the special initiatives program manager in the Division of Social Sciences, looked into a cardboard box containing the “hard problems” submissions from the day. Nash talked to the final attendees and speakers heading out. He loosened a red tie with multiple Harvard crests embroidered on it, looking tired, but pleased.

The panelists were a phenomenal group, and the attendees were thoughtful and willing to take a stand, Nash said, adding that he’s ready for the voting to begin. He’s also ready looking forward to seeing what impact the symposium will have on the field.

Once a core list of questions is collected from across the globe, the conference presenters will be charged with selecting and ranking the most important issues in social sciences. Each panelist was selected by Kosslyn for his or her expertise and to represent different fields, perspectives, and backgrounds.

Hilbert felt that unsolved questions were “the hallmark of a discipline with vitality,” Nash said. “This exercise today is an exercise in the vitality of social sciences. Knowing what the mountains are encourages climbers,” he added. “There’s nothing more inspiring for a first-year grad student than knowing that no one’s climbed Everest.”

Provided by Harvard University

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