NBER Science of Science Funding Initiative Proposal:
Cultivating Future Inventors: Evidence from the Lemelson-MIT Student Prize

Ina Ganguli
University of Massachusetts Amherst

Stephanie Couch
Executive Director, Lemelson-MIT Program

I. Partner Organization

This proposal is in partnership with the Lemelson-MIT Program (LMIT) at the Massachusetts Institute of Technology, which is funded by The Lemelson Foundation and administered by MIT's School of Engineering. The program "celebrates outstanding inventors and inspires young people to pursue creative lives and careers through invention", and awards a cash prize for student and mid-career inventors. The program also encourages youth to invent and develop STEM skills through grant initiatives. The Lemelson Foundation was founded by the prolific inventor Jerome H. Lemelson and his wife Dorothy, and has the goal of "cultivating future generations of inventors to create a better world."

II. Proposed Project

The proposed project is focused on the Lemelson-MIT Student Prize, which honors a small number of promising student inventors in the United States each year. The Student Prize is open to teams of undergraduate students and individual graduate students who have technology-based inventions in categories that represent significant sectors of the economy (healthcare, transportation and mobility, food/water and agriculture, and consumer devices). The Student Prize has been awarded annually since 1995. To attract a broad, diverse pool of applicants, the program currently conducts an active marketing campaign by advertising in student newspapers and contacting approximately 1,200 promising student candidates to provide more information about the prize in advance of the application deadline.

One focus of the proposed project is on exploring the potential for analysis of archival data on the Student Prize applicants, winners and finalists from 2014 to present, when the program was expanded to all universities in the nation. Plans would include analyzing who chooses to apply (from those contacted), who advances in the competition, and then the subsequent education, career choices and inventive and scientific activities of winners, finalists, and applicants. A second focus of the potential analysis is on the program's pre-competition efforts to attract applicants to understand if there are ways to increase diversity in the applicant pool. This could involve, for example, exploring the possibility of a randomized control trial that would estimate the effectiveness of different framings of the program and/or invention on increasing the diversity of the applicant pool in terms of gender, race and geography.

III. Funding

Total funding requested is $4,500. Funding would primarily be used to convene 2-3 small meetings in Cambridge, MA between the Lemelson-MIT Program and the academic researchers ($2,000). Funding would also support a meeting with The Lemelson Foundation in Portland, Oregon ($1,500). If archival program data are made available, funds may be used to either support infrastructure that would allow secure analysis of the data off-site or funds to support additional travel to Cambridge to analyze the data on-site ($1,000).

LEMELSON-MIT

Celebrating invention, inspiring youth

October 14, 2019

Dear reviewer(s):

I am writing on behalf of the Lemelson-MIT (LMIT) program to express our strong support for the proposal submitted by Dr. Ina Ganguli of the University of Massachusetts, Amherst. LMIT has administered a student prize program for collegiate inventors since 1995. The rules governing prize eligibility have changed across the program's twenty-five-year history. In 2014, changes to the prize rules and operational procedures expanded access to all colleges and universities across the nation. Staff working for LMIT currently visit college websites to identify potential student recipients and build a database of those who may be eligible. We aim to identify at least 1,800 students. Communications are then distributed to students in the database, college faculty and staff to generate prize applications.

LMIT staff make every attempt to administer the Lemelson-MIT Student Prize program in a way that is free from bias. We must, however, remain vigilant in our efforts to ensure that outcomes are not impacted by unconscious bias through factors such as the wording of communications. The eligibility and applicant data collected for the prize program provides an opportunity to explore potential differences in the take-up of the prize announcement. Theories generated by examining data from the prior years will provide a foundation for exploring possibilities for program improvement through the design of randomized controlled trials during our administration of the prize in subsequent years.

Thank you in advance for your consideration.

Sincerely,



Stephanie Couch, PhD
Executive Director
Lemelson-MIT Program