NYU Stern School of Business
Department of Information, Operations & Management Sciences
OPERATIONS MANAGEMENT RESEARCH SEMINAR

TOPIC: Education as a Complex Service System: From High School STEM Classes, to Production of PhDs, to Removal of Mandatory Retirement for Professors
SPEAKER: Richard C. Larson (MIT)
DATE: Wednesday, October 16th, 2013
TIME: 11:00 AM-12:00PM
PLACE: KMC 5-75

ABSTRACT

After health care, education is the next largest service sector in the United States. And yet little academic research has focused on education as a complex service system. We provide examples of recent research and practice in a variety of related areas. The first deals with the systemic effects of the doubling of NIH research funding over the period 1998 – 2003. Using simple linear and dynamic models we show how this huge increase in funding by the world's largest supporter of university research created major disruptions in research universities. The instabilities continue today with federal Sequestration. The second is in part an outgrowth of the first, a super abundance of Ph.D.s in certain fields especially life and biological sciences. We apply the basic reproductive number, R_0, usually applied in population studies and in epidemiology, to university professors and compute their "birth rates" of Ph.D.s over academic lifetimes. Third, exacerbating the difficulties of would-be new assistant professors is lack of mandatory retirement age for full professors. We apply Little's Law of queueing to analyze this situation. Finally, if there is time, we switch gears and describe and show a five-year-old project (BLOSSOMS http://blossoms.mit.edu) we are undertaking with nine countries on creating interactive learning videos for high school classes in science, engineering and mathematics.

Bio

Dr. Larson is MIT Mitsui Professor in the Engineering Systems Division. He is founding director of the Center for Engineering System Fundamentals. He has focused on operations research as applied to services industries, primarily in the fields of criminal justice, technology-enabled education, urban service systems, queueing, logistics and workforce planning. He is Past-President of INFORMS, INstitute for Operations Research and the Management Sciences. He is a member of the National Academy of Engineering, an INFORMS Founding Fellow, and a recipient of the INFORMS President's Award, Lanchester Prize and Kimball Medal.

His current MIT research includes disaster preparedness, especially pandemic influenza; K-12 STEM education as a complex system; home energy management; and Ph.D.-level workforce planning for the NIH.