

SEMINAR SERIES
Department of Quantitative Analysis and Operations Management
College of Business Administration
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Pedagogical Ideas for Simulation on the Web

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Friday November 12, 1999
12:30 p.m.
214 Lindner Hall

The development of the Web-based simulation system WebGPSS (at the site web.gpss.hk-r.se) is based on the experience of teaching simulation with GPSS since 1976, mainly in a course of 10-12 classroom hours, taught over the years to some 5000 business students. We have kept the easy-to-learn aspects of GPSS, but we have had to take our students' poor background in computing and statistics into account. Inspired by student feedback, we have gradually changed GPSS, leading to micro-GPSS. Using only 22 block types, with one block type replacing several of "old GPSS," micro-GPSS is yet powerful enough that 99 percent of programs in GPSS textbooks have been rewritten in micro-GPSS with roughly same amount of code. A thoroughly simplified syntax has furthermore proved to halve learning time.

Due to the advantages of Web-based systems in ordinary, as well as distance-learning, self-study, courses and a concrete demand for a simple Web-based tool for Swedish high school seniors' project-work, we have on the basis of micro-GPSS developed WebGPSS. We have focussed on the student's rapid mastering of basic simulation techniques, so that the student can be ready to work on the simulation project after only a couple of days spent learning WebGPSS. Besides being available free of charge on the Web, WebGPSS has the advantage of further pedagogical simplifications. We have focussed on the 16 most basic block types. We have made it easier to get block graphics and histograms. The definition of random functions based on empirical distributions has been greatly simplified, as has the carrying out of experiments, with automatic estimation of the limits of the universal average.

Ingolf Stahl is a Professor at the Stockholm School of Economics, Stockholm, and has a chair in Computer Based Applications of Economic Theory. He was visiting Professor, Hofstra University, N.Y., 1983-1985, and leader of a research project on inter-active simulation at the International Institute for Applied Systems Analysis, Vienna, 1979-1982. He has taught GPSS for twenty years at universities and colleges in Sweden and the USA. Based on this experience, he has led the development of the micro-GPSS and the WebGPSS systems. He is also consultant in simulation to Swedish banks and industry.