

SOCR Events NCMT 2012

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[SOCR News](#) - SOCR Session at the 2012

[National Council of Teachers of Mathematics \(TCTM\) Meeting](#)

2012 National Council of Teachers of Mathematics (TCTM)	
Session ID	7127, HIGHER EDUCATION SESSION
Date	April 26, 2012
Time	3:30 PM-4:30 PM
Place	Philadelphia Convention Center (PCC), Room 117
Venue	Philadelphia Convention Center
Presenters	Ivo Dinov and Nicolas Christou

SOCR Presentation

[SOCR Products](#)

- **Title:** *Technology-Enhanced Mathematics and Statistics Education.*
- **Abstract:** We will present data, tools, materials and the pedagogical approach of the Statistics Online Computational Resource (SOCR) for technology-enhanced probability and statistics education. Following a review of the different types of SOCR online resources, we will go over two specific classroom utilization examples. The first one provides a hands-on demonstration of a statistical concept ([CLT](#)) using interactive virtual experiments and simulations. The second example will showcase the use of SOCR resources to address interesting social, health, environmental, scientific, and engineering challenges. In this case, we'll focus on the [Ozone pollution in California](#), formulate health-related hypotheses, identify appropriate data and employ web-based exploratory and statistical data analysis tools.



What is [SOCR](#)?

- The [Statistics Online Computational Resource](#) provides portable online aids for probability and statistics education, technology based instruction and statistical computing. SOCR tools and resources include a repository of interactive applets, computational and graphing tools, instructional and course materials.
- SOCR aims to develop new Java applets, design diverse extensible SOCR learning activities, develop XML/HTML navigation/search tools for interactive materials, and validate and assess technology-enhances pedagogical techniques.

SOCR Products

- Tools/Applets: [Distributions](#), [Experiments](#), [Analyses](#), [Games](#), [Modeler](#) & [Graphs](#).
- Multilingual instructional resources: [EBooks](#), [continuing statistics education workshops/seminars](#)
- Learning activities: [interactive, data-driven and technology-enhanced learning activities](#)
- Examples:
 - [Central Limit Theorem](#)
 - [Hands-on California Ozone Data Activity](#)
 - [Polynomial Model Fitting](#)
 - Stochastic estimation of transcendental numbers: [Natural number \$e\$](#) and [\$\pi\$](#)
 - Hands-on [Wavelet](#) and [Fourier](#) representation and signal denoising
- Data: [Diverse publicly accessible datasets for copy-paste/download utilization](#)
 - Example: [Latin Letters Frequency Distribution](#)
- Dissemination: [papers](#), [conferences](#), [workshops](#), etc.

SOCR Assessment and Efficacy

We have conducted several control-based studies of the efficacy of technology-enhanced statistics education. Using IRB-approved studies, quantitative and qualitative measures of student performance were recorded in classes using traditional (control) instruction (R or Stata based) and classes using SOCR resources and tools. Non-parametric analyses of the data showed very statistically significant (SOCR) treatment effects ($p < 10^{-4}$) on student performance and perception of the material. The practical significance of these treatment effects were more modulated. [More details about these studies are available here](#).

Summary

- [Main SOCR server, applets](#).
- [Data, activities and EBooks](#).
- [Feedback](#) and [Forum](#).
- SOCR Navigators: [Hyperbolic Graphical Viewer](#) and [SOCR Carousel](#).

Session Evaluation

Please [complete this brief \(1-page\) survey](#) and provide your anonymous comments, ideas and critiques regarding the workshop organization and the presented SOCR materials. The organizers appreciate your time and effort to [complete this survey](#) and help us improve our education and training efforts.

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- SOCR Home page: <http://www.socr.ucla.edu>
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