

A Randomized Controlled Trial of the Effectiveness of the American Lung Association Reactive Anti-Smoking Telephone Help Line in Illinois

Primary Investigator: Akshay Sood, M.D.

Funding Agency: American Lung Association

An estimated 47 million adults smoke cigarettes in the United States. The American Lung Association has launched a reactive telephone help line, The Tobacco Quitline, to assist smoking cessation. This study of 600 subjects will evaluate the effectiveness of this reactive antismoking help line in a randomized controlled trial design involving active smokers across the United States who call the help line. Eligible callers will be randomized into two groups: those who receive additional reactive telephone counseling (the study group) and those who receive self-help literature only (the control group). Detailed information will be collected proactively by an independent research calling specialist from all subjects who enroll into the study by way of follow-up telephone calls at one, three and six months following the screen date. Extent of smoking-related behavioral stage and cost effectiveness outcomes will be compared. This study could help establish the importance of a reactive telephone help line as a low-intensity and low-cost interventional smoking cessation tool.

Coupling Theories of Learning and Research on Practice

Primary Investigator: Tim Koschmann, M.D.

Funding Agency: National Science Foundation

In recent years, assessment of

learning has become the focal point of public discourse on education. Such an agenda is incomplete. It must be augmented with studies of existing practice to serve as the basis for design, carefully conducted studies of changing practice as means of supporting reform initiatives, and fundamental research to document the methods by which participants produce instruction in classrooms and elsewhere as a form of artful accomplishment. This project will ask experts in three panels to focus on a single position paper related to the one of three conceptual frameworks for studying learning practices, participation/identity theory as developed in the writings of James Greeno, the dialogic theory of learning discussed in the work of Jim Wertsch, and transactional inquiry, as described by Bill Clancey. The goal of the research will be threefold: to summarize a particular framework in such a way as to facilitate comparison, to demonstrate how the framework might be applied to the analysis of interaction within a concrete setting and to illuminate how the framework might contribute to a larger practice-based program of research.

3-D Neural Networks

Primary Investigator: Gregory Brewer, M.D.

Funding Agency: Georgia Institute of Technology

The goal of this project is to advance understanding of how small neuronal systems process and store information. Three technological developments will accelerate the investigations: the creation of an instrumented 3-D neuronal cell culture environment; introduction of multiple microfluidic pipes (a micropipette array) for regulation

and delivery of fluids at the micrometer scale; and a significant increase in the number and density of electrical recording and stimulation sites.

Dr. Brewer and his staff and students are working with staff from Georgia Tech. SIU leads in the areas of neuron cell culture and evaluation of morphological development of neuronal networks. These activities include developing new and modified techniques for culturing neuronal and glial cells and assessing the state of cultures using immunocytochemical and histological techniques.

The techniques will include fabrication of 3-D microtower arrays at Georgia Tech. These arrays will be evaluated for neuro-compatibility and development. Dr. Brewer will plate embryonic hippocampal neurons randomly onto these microtowers and evaluate them for development and activity. He will compare these 3-D cultures to cultures on planar arrays for rate of development. His team also will evaluate the effect of glial cells on this development. After developing micropatterning techniques with UIUC, he will evaluate the development of micropatterned circuits to those of randomly patterned circuits.

After microfluidics and microelectronics are sufficiently developed, the team will evaluate the activity of neurons randomly plated onto partially and fully-integrated microtowers.

Dr. Brewer and the team will fully test their hypotheses of neuronal coding on stimulated convergent and divergent circuits in 3D with attempts to alter plasticity, learning and memory.

For more information about these projects, contact the Office of Research and Faculty Affairs at 217-545-7936.