Network for Sciences, Engineering, Arts and Design (NSEAD)

The National Science Foundation Computer, Information Systems and Engineering directorate Intelligent Systems division sponsored three workshops in 2010-11 bringing together artists, scientists and engineers from across the United States to address needs of the burgeoning community of researchers and research practices that bridge Computer Science, Engineering and Creativity:

- The first workshop, Re/Search: Art, Science, and Information Technology, was co-sponsored with the National Endowment for the Arts and held at NSF headquarters. This workshop convened a group of sixty stakeholders in a highly interactive forum to discuss a broad range of topics about interdisciplinary research and pedagogy connecting the arts and sciences.
- The second NSF sponsored workshop, Bridging STEM to STEAM: Developing New Frameworks for Art-Science-Design Pedagogy, was held at the Rhode Island School of Design. This workshop focused on the ways that teaching and learning in the arts and sciences can benefit from increased collaborations and understanding of synergies among diverse disciplines’ concepts and methods.
- The third workshop, Establishing a Network of Excellence for Art + Science + Technology, was held at the Experimental Media and Performing Arts Center at Rensselaer Polytechnic Institute (RPI). This workshop addressed issues of creating and sustaining interdisciplinary research networks, bridging creative practices to research practices.

The workshop at RPI was the genesis of two working groups, now continuing efforts toward formalizing the results of the three meetings. The first group, called the “Virtual eXchange to Support Networks of Creativity and Innovation amongst Science, Engineering, Arts and Design (XSEAD)” aims to study the research community and perform a needs assessment for a digital archive and resource for stakeholder researchers and educators. The second group, represented in these two workshops, and called “Network for Sciences, Engineering, Arts and Design (NSEAD)” will catalyze formation of a pilot network that includes innovative methods for connecting and supporting this research community across academia, non-profit organizations, industry, and funders.

This national network will serve as a junction for elements such as research community development; collaboration and project matchmaking; expertise referrals; large-scale inter-instructional collaborations; forums to share best practices in “PK to gray” STEM learning in formal and informal settings; and philanthropic opportunities for public and private funding organizations. The network will be designed for inclusivity. In these two workshops we will work with participants to articulate a range of different models for organization, with the goal of finalizing an implementation plan for the one that achieves consensus.

Long-term fiscal sustainability will be a critical focus of discussions. The NSEAD group will consider examples of for-profit, nonprofit and hybrid support models, including partnerships with federal agencies, private foundations, industry sponsorships and inter-institutional collaborations. We are particularly interested in discussing how innovative economic models such as microfunding, knowledge transfer, and social networking can be harnessed to support network activities.

The first workshop hosted by Carol Strohecker, Director, Center for Design Innovation, will interrogate example models of organizational structures, using these as the basis (or not) for constructing an optimal plan. Fiscal advisor Michael Lord, from the Wake Forest University Babcock Graduate School of Management, will describe how fiscal models can dovetail with these examples. By the end of this workshop the group will have identified an optimal model along with issues and criteria critical for its implementation.

After the first workshop, NSEAD will research issues identified and organize key points. The second workshop held at the Maryland Institute College of Art, November 14-15, will be hosted by Gunalan Nadarajan, Vice Provost for Research and Graduate Studies. In order to thoroughly evaluate the NSEAD structure, working groups will interrogate the organizational model from many different viewpoints. The goal for the second day of this workshop is to arrive at consensus on a pilot organization, secure leadership commitments, and develop an implementation plan. This plan will identify key elements (personnel,
membership, resources, etc.); define key actions and responsible entities / individuals; establish milestones; list indicators for success; and outline initiatives to mobilize the network in its first year.

Following adoption of the pilot network, content developers from NSEAD will work with XSEAD site designers to test and optimize the online presence for the remainder of the year, and in collaboration with new leadership, will contribute to key milestones.

A plan for sustaining the pilot network will involve securing a minimum three year commitment from leadership and contributing stakeholders. Follow-on proposals to relevant funding sources for subsequent initiatives to be developed might include:
- A summit to evaluate outcomes and suggest improvements
- Periodic future meetings
- Support for management and staffing
- Continued research and evaluation
- Continued support for an online moderator
- Support for the network on mirrored servers in one or more physical locations

**NSEAD**

PI Carol LaFayette, artist, is Associate Professor in the Department of Visualization, College of Architecture, Texas A&M University. Co-PI Gunalan Nadarajan, art theorist and curator, is Vice Provost for Research and Graduate Studies at Maryland Institute College of Arts (MICA). Co-PI Carol Strohecker, learning researcher and tools/environments designer, is Director of the Center for Design Innovation, Professor at Winston-Salem State University, and Chief Research Officer and Instructor at the University of North Carolina School of the Arts. Senior Advisor Chris Chafe is Director, Center for Computer Research in Music and Acoustics, Stanford University. Senior Advisor Brian Smith is Dean of Continuing Education at Rhode Island School of Design.

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