OAS-ARTCA PROJECT

TITLE: Radical Innovation Summit

Countries: The National Science Foundation (NSF) and the University of Illinois (United States), Costa Rica, Guatemala and Trinidad and Tobago.

Institutions: The National Science Foundation, the University of Illinois, the Organization of American States (OAS) and the Advanced Research and Technology Collaboratory for the Americas (OAS-ARTCA)

Type of Institutions: Public

Other institutions involved: The Institute for Computing in Humanities, Arts and Social Science (I-CHASS) of the University of Illinois; the College of Education of the University of Illinois; The National Center for Supercomputing Applications (NCSA); the Beckman Institute for Advanced Science and Technology; The Illinois Foundry for Innovation in Engineering Education (iFoundry); online application services provided by National University.

Webpage: http://artcaonline.org/

Context
The increasing pace of global competition, the rise of new players across new and traditional industries, and the increasing need for creative thinking to support innovation are forcing significant changes on the economy of the Americas and presenting a major challenge to educational institutions, curriculum, educators, researchers and students. Moreover, higher educational and institutional silos are in need of innovative teaching methods. Innovation happens when disparate or unexpected ideas are brought together and through collaborations within intellectual and social networks. The National Science Foundation has been at the forefront in promoting a more innovative R&D culture through its crosscutting and transformative interdisciplinary (CREATIV) research funding opportunities. However, higher education and K12 schools continue to struggle with how to *do* innovation, in teaching and learning. In order for our educational institutions to *produce* innovators, they need to *practice* innovation. Creative thinking and innovation go hand-in-hand, so teaching those skills involves more than an educational system based on traditional ideals of knowledge transmitted by experts and absorbed by novices (students). In order to collectively "brainstorm" on how to integrate innovative practices into education, The National Science Foundation of the United States of America (NSF) funded "The Radical Innovation Summit", a two-day event that took place at the Organization of American States Headquarters in Washington DC on June 13 and 14, 2013. The summit brought together around 40 leading practitioners

and scholars of innovation– professors, researchers, writers, authorities, engineers and other experts – from across the Americas to jointly analyze how education might be reconfigured to both support and teach innovation as a core curriculum mission with a focus on Science, Technology, Engineering and Math (STEM). The summit participants also reflected on what capacities are necessary to promote innovation, what kind of policies would allow innovation to grow and how innovative thinking and pedagogy could be integrated.

Participants came from the following Latin American and US institutions: the Ministry of Science, Technology and Telecommunications of Costa Rica (MICIT); the National Institute of Standards and Technology of Trinidad and Tobago (NIST); the National Council of Science and Technology of Guatemala (CONCYT); the Centro de Investigaciones Biológicas del Noroeste S.C. (CIBNOR) of Mexico; the University of Costa Rica; Clemson University; Colorado State University; George Mason University; San Diego State University; University of California in Santa Barbara; University of Southern California and University of Central Florida, among others.

Objectives

The objective was to identify and articulate strategies to encourage the creation of creative and open learning environments that allow the development of innovative thinking skills, behaviors and dispositions that reward students, teachers, faculty and administrators for practicing and tuning these skills.

Relevance

A significant challenge is that in today's literature, research-backed insights about how innovation happens tend to collide with how education is currently structured, delivered and assessed. Twentieth century education institutions were built around disciplinary silos that produced proprietary information and resources, valuing professors who transmitted their knowledge (and evaluations) to students. Yet being competitive in the 21st century increasingly requires that both students and institutions embrace and practice innovative thinking.

Although there is a growing recognition that educational institutions and models need to change in order to prepare students and workers to contribute and be successful in a culture of innovation; creativity is often blunted by the rigid educational systems we have today.

The Radical Innovation Summit is relevant since it seeks to leverage current ideas around innovation to collaboratively think about how to operationalize these ideas and practices in education, from pre-K to college spectrum, in order to create an educational system that is better adapted to the needs of the 21st Century. Other Editions of the Summit should take place in the future in order to promote best practices and maintain discussion on ways to integrate innovative practices into education.

Implementation

First, the Call for Proposals of the Radical Innovation Summit was disseminated throughout the Americas, using the OAS-ARTCA Network, the University of Illinois Network and the OAS National Offices network in the Americas, for a period of approximately 3 months.

Then, prospective participants were encouraged to apply through an online application system hosted at the National University in San Diego, California. Disruptive education innovators from academia, industry, and government were also invited to bring a broader view of innovation to the Summit.

The final selection of candidates was made by a Selection Committee composed by representatives

from both the University of Illinois and the Organization of American States. Decisions were based not only on the applicants' curriculum and experience, but also on their willingness for interdisciplinary collaboration and openness to innovative methods in research and education. Special attention was given to include representatives from small economies, as well as to ensure that the principles of gender equity and equality were respected.

In accordance with the objective of the summit – to find strategies to promote creative and open learning environments -- the event was carried out as a so-called "unconference". Unconferences are non-hierarchical, non-disciplinary, and inter-professional gatherings where attendees can reflect freely, without having structural, cultural or disciplinary boundaries. On the first day each participant offered a short presentation of their current work and group brainstorming sessions took place on the second day.

Key contacts involved in the design, implementation and evaluation of the project

Dr. Anne Balsamo, Dean of the School of Media Studies at The New School for Public Engagement in New York, moderated the event and favored the environment by encouraging the group to think outside the box and formulate innovative suggestions.

Keynote speakers included Dr. Vernon Burton, Director of Clemson CyberInstitute at Clemson University and Dr. Kenneth Kosik, Co-Director of the Neuroscience Research Institute at University of California in Santa Barbara.

Some representatives from the organizing institutions gave welcome or closing remarks and assisted to the summit as observers. They were: Dr. Arlene De Strulle, Program Director for Educational Technology Research and Development at the National Science Foundation; Dr. Elizabeth VanderPutten, Program Officer, Research on Learning in Formal and Informal Settings at the National Science Foundation; Dr. Alan Craig, Associate Director for Human-Computer Interaction at I-CHASS and Principal Investigator of the Workshop; Dr. Sharon Tettegah, Associate Professor, Math, Science and Technology Division, Educational Psychology, The Beckman Institute of Advanced Science and Technology; Dr. Kevin Franklin, Executive Director of I-CHASS; Dr. Maryse Robert, Director of the Department of Economic and Social Development of the OAS and Mr. Jorge Duran, Chief of the Office of Science, Technology and Innovation of the OAS.

During the closing ceremony of the Summit, special thanks were addressed to Ms. Aryanne Quintal, Project coordinator of the Advanced Research and Technology Collaboratory for the Americas at the Organization of American States (OAS-ARTCA) for the coordination of the all logistical, financial and technical aspects of the meeting. Ms. Quintal is also in charge of follow-up activities with participants.

Finally, Dr. Linda Vigdor, Researcher, Evaluator and Writer at University of Illinois was in charge of producing the final evaluation report of the Radical Innovation Summit to be presented to the National Science Foundation. Dr. Vigdor sent electronically pre and post-surveys to all participants in order to collect information on their expectations prior to the summit and their appreciation and suggestions after the summit was completed.

Good practices and concrete lessons

The Radical Innovation Summit left a set of good practices and next steps:

1. A report on the Summit was produced with the main recommendations and follow-up steps.

2. An online network was created to allow participants and other professionals of education to continue discussions on the ideas generated at the summit and to create cross-disciplinary research networks. Conference presentations, journal articles, white papers and other creative venues are still being exchange by participants through this media.

3. An independent study was carried out after the Summit to produce a mapping of social networks and to provide insights on how innovation practices are shared and spread across relationships and networks.

4. Some of the most radically innovative ideas that emerged during the summit were: teaching through avatars in virtual environments; reduce significantly the number of students per professor to allow more mentoring; and replace traditional evaluations (exams) by a constant observation of students' know-how.

5. Ideas developed during this encounter are now being explored among larger teams of researchers. The publication of a portfolio on best innovative practices in education and the organization of a Second Edition of the Radical Innovation Summit in 2014 are projects that were recommended.

Recommendations

In light of this experience, it is recommended that the Radical Innovation Summit be replicated at a national level in the OAS member states in order to promote the exchange of good practices among institutions and discuss ways to implement innovative teaching methods at a national level to better reflect the realities of the students of the 21st century.

It is also recommended that countries that have implemented innovative teaching methods that produced results also share their practices and know-how with the other countries of the Americas. To this effect, an inter-American online portal could be created to encourage the sharing of ideas and promote cross-country collaboration.

Human and institutional capacities to share this experience with other institutions from member countries of the RIAC

The organizing institutions of the Radical Innovation Summit are willing to share this experience with other institutions from member countries of the RIAC in many ways:

- Sharing of information
- Visit from experts
- Videoconferences
- Journalistic and scientific articles
- Peer review

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