

LANL STEM Education Summit

FINAL REPORT

- April 11, 2013
- Los Alamos, NM

CONVENER

Los Alamos National Laboratory Community Programs Office

FACILITATOR

New Mexico First

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INTRODUCTION

Many federal organizations have a history of sponsoring science, technology, engineering, and math (STEM) education programs in order to enhance the nation's global competitiveness. The National Science and Technology Council has called upon these organizations to better align their activities and develop a plan for sustained monitoring of coordination and impact.

The Los Alamos National Laboratory (LANL) views its investment in STEM education as strengthening the lab's strategic direction and developing its current and future workforce. For these reasons, participants at the *LANL STEM Education Summit* reviewed the lab's commitments in improving STEM literacy and prioritized a number of key recommendations. The event was held April 11, 2013 in Los Alamos, NM.

The purpose of the summit was to:

- Align and coordinate LANL's STEM education efforts
- Strengthen the lab's strategic direction and workforce development
- Create a unified action plan that ensures the lab fills the employment pipeline

The summit produced a platform of eight recommendations. These recommendations will be reviewed by a working committee that will outline an action plan to guide LANL's STEM initiative investments.

Summit participants suggested a stronger branding and communication strategy to advance LANL's STEM initiative and linkage to national security. They also called for more coordinated volunteerism to enhance the lab's corporate culture. They viewed program prioritization, evaluation, and sustained funding as important to maximizing the impact of

LANL's STEM programs. These recommendations and more are outlined in the complete report that follows.

Summit Participation

With approximately 20 attendees, the event included representatives from over 11 different STEM education programs.

Summit Process

The event opened with a keynote address by Terry Wallace, LANL Principal Associate Director for Global Security.

Participants then worked in small groups to discuss the research on Collective Impact, an approach to large-scale change advanced through cross-sector coordination. Then, they identified recommendations that would have the most significant impact in reaching the summit goal. Finally, all summit participants reviewed and prioritized the work of the small groups.

About the Convener

On behalf of Los Alamos National Security, LLC (LANS), which operates LANL, the **LANL Community Programs Office** is committed to providing a positive and sustainable impact on the Northern New Mexico region by leveraging direct and indirect community investments in education.

LANS invests more than \$1 million each year to enhance educational opportunities in STEM education regionally and nationally.

About the Facilitator

New Mexico First engages people in important issues facing their state or community. Co-founded in 1986 by retired U.S. Senators Jeff Bingaman and Pete Domenici, the public policy organization offers

unique town halls and forums that bring together people to develop their best ideas for policymakers and the public. New Mexico First also produces nonpartisan public policy reports on critical issues facing the state. These reports – on topics like education, healthcare, the economy, and energy – are available at www.nmfirst.org.

Recommendation Summary

Summit participants saw the value of using insights from the collective impact research conducted by Stanford University in developing their recommendations. The list below offers a high-level summary of the eight recommendations. Additional details on each are provided in the complete report that follows.

- Create an effective communication strategy to advance initiatives.
- Promote volunteerism to improve STEM literacy.
- Develop sustainable funding for effective programs.
- Communicate a message that links STEM literacy to national security.
- Brand STEM education as a national security issue.
- Prioritize programs to maximize the impact.
- Establish an evaluation system to inform system-wide improvements.
- Develop an assessment and evaluation strategy to determine impact.

RECOMMENDATIONS

The following recommendations were developed by participants in small groups at the summit. The entire summit group considered all the recommendations and used electronic polling devices to indicate their perception regarding how impactful the recommendation would be in helping LANL reach the summit goal. The recommendations are listed in order of impact level.

| NUMBER | RECOMMENDATION | IMPACT LEVEL |
|---------------------------------|---|--------------|
| REC 1: Communication | <p>ACTION: Create an effective, continuous, two-way internal and external communication strategy to advance LANL's STEM education initiatives.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Internally, coordinate programs more effectively and leverage what each program is doing to address the common agenda. Tactics may include the establishment of internal networks, shared calendar, or information portal/database. 2. Externally, market programs and opportunities in STEM through new channels. This activity would have the goal to continuously improve the relationship and understanding between the Lab and the regional community. Tactics may include branding, community meetings, and broadening traditional definitions of STEM to include cooking, farming, water management, gaming, etc. 3. Engage community members and LANL employees in informing decisions about communicating, prioritizing, evaluating, and investing in STEM efforts. | 96% |
| REC 2: Volunteers | <p>ACTION: Promote vibrant, sustainable, coordinated volunteerism in the LANL workforce and culture to improve STEM literacy.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Engage all management levels to enhance a corporate culture and an expectation of corporate citizenship that promotes volunteerism. 2. Research best practices and successful volunteer models, both internal and external. 3. Adopt a set of applicable metrics to measure the impact of volunteer efforts. 4. Develop training programs for volunteers which are aligned with education needs. 5. Streamline and coordinate all LANL education programs and efforts. | 88% |

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| <p>REC 3: Investments</p> | <p>ACTION: Develop consistent, sustainable funding for STEM education programs.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Leverage community resources including churches, existing school programs, etc. 2. Don't reinvent new programs when solid ones already exist. Target working programs and scale up. 3. Leverage LANL resources. 4. Seek internal and external funding for STEM initiatives. Sources could include the National Science Foundation or other national funding sources. | <p>87%</p> |
| <p>REC 4: Communication</p> | <p>ACTION: Communicate a consistent, pervasive message that links STEM literacy to national security and personal opportunity.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Define target audiences and develop messages, strategies, and tools to reach each audience. 2. Develop a sustainable sense of urgency within the members of each target audience. 3. Make communication information flow easier (i.e., provide access to templates, streamline approval process, etc.). 4. Determine ownership and partnership parameters for STEM literacy messages. 5. Develop partnerships and coalitions with relevant stakeholders. | <p>87%</p> |
| <p>REC 5: Branding</p> | <p>ACTION: Brand STEM education as a national security issue.</p> <p>STRATEGIES</p> <ol style="list-style-type: none"> 1. Define and articulate the STEM literacy habits that we want this brand to promote. 2. Establish a LANL presence in the national STEM literacy conversation. 3. Create a tiered Ambassador program, both internal and external, to communicate consistent messages on behalf of LANL to local, regional, state, and national audiences. 4. Tell the stories and celebrate successes routinely (e.g., "STEM programs and volunteers that Inspire") throughout the life-cycle of the continuum (e.g., put a face on science). 5. Build a culture of continuous learning and development for all employees. | <p>84%</p> |

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| <p>REC 6: Prioritization</p> | <p>ACTION: Prioritize programs to maximize the impact of LANL's expertise and resources.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Concentrate on what LANL does that no one else can do because of our resources and expertise. 2. Focus on under-represented populations including females, minorities, children in poverty, and others who don't have access to STEM environments (e.g., include children who have not been introduced to STEM concepts in their social or family settings). 3. Use evaluation results to prioritize programs and develop investment strategies. | <p>71%</p> |
| <p>REC 7: Evaluation</p> | <p>ACTION: Establish a lab-wide STEM education evaluation system to inform system-wide improvements.</p> <p>STRATEGIES</p> <ol style="list-style-type: none"> 1. Use program evaluation to better meet LANL's mission and workforce needs and be more prudent with lab resources. Tactics include reporting results to stakeholders. 2. Gather long-term data on effects of LANL's programs on participants. Tactics could include a program alumni self-tracking system or surveying current program participants. 3. Ensure the quality and integrity of evaluation data. 4. Employ a feedback loop to continually assess effectiveness of the evaluation system. 5. Establish and use metrics that are meaningful, understandable, and actionable. | <p>68%</p> |
| <p>REC 8: Evaluation</p> | <p>ACTION: Develop and deploy an assessment and evaluation strategy to determine the impact of the STEM literacy initiative.</p> <p>STRATEGIES:</p> <ol style="list-style-type: none"> 1. Research reliable and relevant measures and assessment instruments for STEM literacy used by other organizations (e.g., Learning Mathematics for Teaching from University of Michigan for assessing teachers). 2. Conduct background research to establish a baseline of current STEM literacy. 3. Build in metrics to communicate early wins. 4. Utilize evaluation results to adjust and improve STEM literacy efforts. | <p>56%</p> |

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