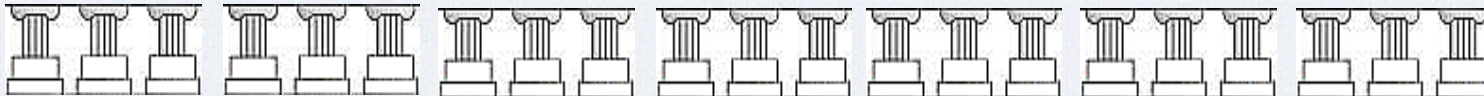
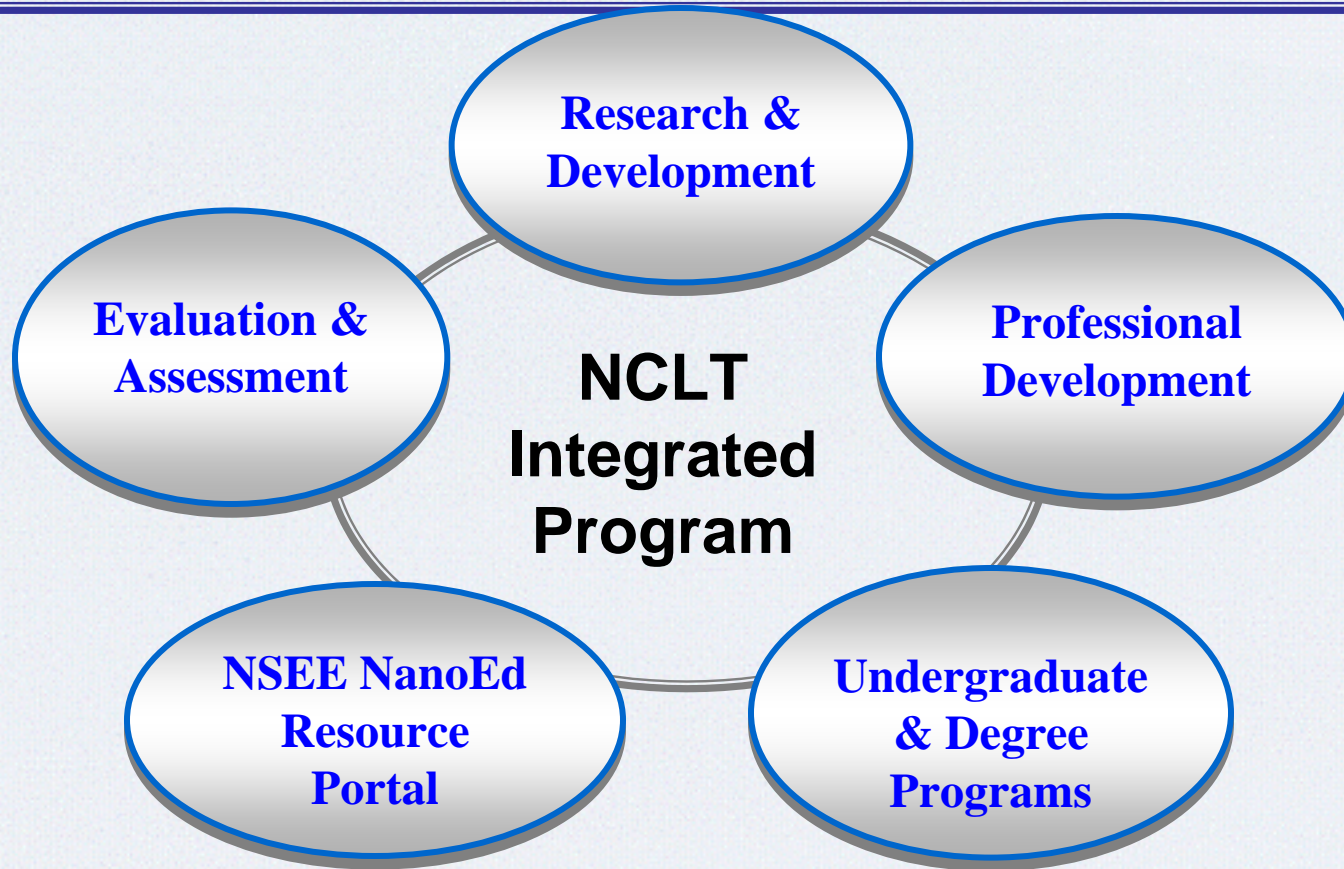


Building Connections

R.P.H. Chang

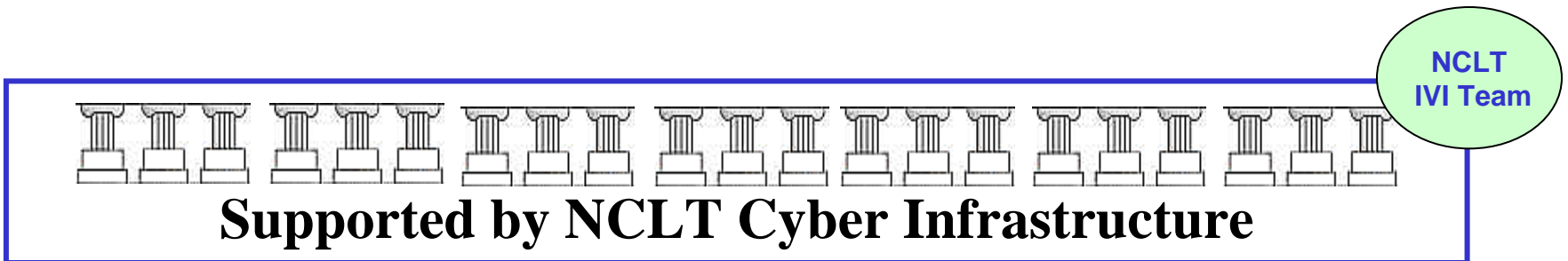
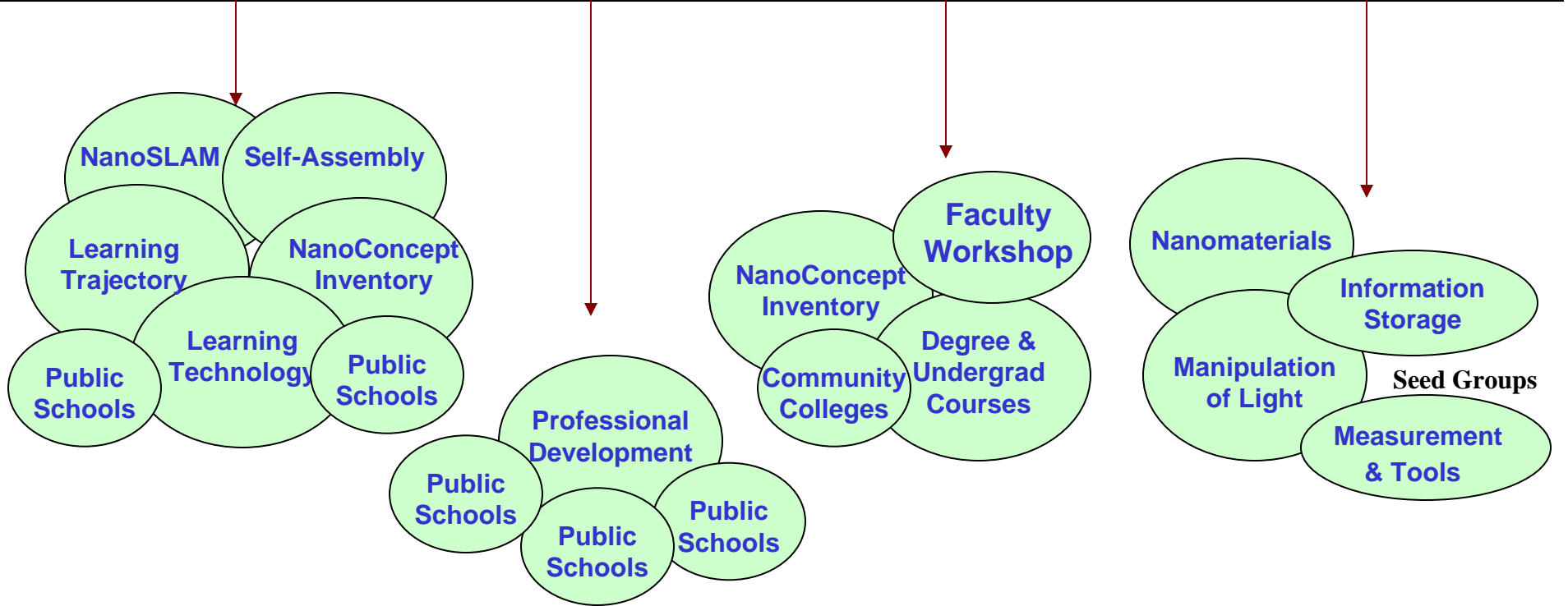
May 25, 2007

NCLT Strategy



Supported by NCLT Cyber Infrastructure

NCLT Operational Units & Work Circles



R&D in Learning & Teaching

What are we doing?

- Research Studies on best practices, learning progressions & motivations, and learning technologies
 - Study: An investigation of Secondary Students' interests in and understanding of NSE
 - Size and Scale: An Investigation of Student Conceptions of Size
- Presentations/Papers at Regional & National Education Meetings
- Big ideas in Nanoscience monograph and presentations

Opportunities for integration:

- Providing their research findings to PD and concept research development on what students are able to learn @ various levels
- Share with other work circles about student interests in science in general and nano in particular
- Share appropriate learning progressions and technologies with other work circles
- Share best practices & approaches to teaching NSE

Higher Education

What are we doing?

- Design & Delivery of Faculty Workshops (Mason)
- BS, MS & PhD programs developed on NCLT & affiliated campuses
 - Nanoconcentration in Physics at NU (Chandrasekhar, Ketterson, and Cao)
 - Certificate Program in NSEE at Purdue (Bodner)
- Courses & Units to upload on NanoEd Resource Portal (Mason, Hersam & Chang)
 - NanoEDC (Chang) – 32 freshman students field-testing with over 200 Middle schools students working with 4 Teachers
- Programs & activities for grad students & post docs offering multidisciplinary research training (Moher, NCLT faculty)

Opportunities for integration:

- Developing Nanoconcept Inventories with other work circles
- Evaluation and Assessment findings from Higher Education could impact secondary schools
- Resources from courses and units that could impact development of activities with other work circles

NanoConcepts Research & Development

What are we doing?

- Completion of units of nanoconcepts
- Development of simulations and online animations for NCLT NanoEd Resource Portal
- Incorporation of these concepts into courses and STEM curriculum (grades 7-16)

Opportunities for integration:

- Work with learning scientists to develop appropriate levels and learning goals for activities
- Field-testing activities and concepts through PD programs and incorporating teachers feedback
- NISE network and other external partners to package contents for the classrooms

Evaluation & Assessment

What are we doing?

- Developing work circle plans, developing protocol and foci for evaluation & assessment
- Creating reports & plans for feedback from external evaluators
- Providing training and support through Jim Pellegrino and Greg Light

Opportunities for integration:

- Share resources and protocols
- Share reports and best approaches to evaluation and assessment
- Finishing a working report to our external evaluators

Professional Development

What are we doing?

- Developing a prototype of PD program designs & materials to share with NSEE community
- Training Master teachers to lead and train other teachers in NSE
- Integrating activities and concepts into the classroom
- Interacting with 5 or 6 other partner institutions to deliver quality PD programs that will be sustainable

Opportunities for integration:

- Incorporate NCLT developed contents into PD program activities and resources, plus evaluation and feedback from the teachers on these materials
- Working with other institutions and provide feedback on integration of techniques and transferability of programs
- Best practices and approaches for PD to other work circles

External Networking & Expansion

What are we doing?

- Developing Partnerships to advance STEM education through NSE linkages to applications:
 - Puerto Rico – curriculum and teacher workshops
 - Rensselaer Polytechnic Institute – integrating content
 - NISE Network - packaging curriculum w/ informal learning)
 - NCN: Nanohub – sharing resources and technology services
 - NNIN & NNN collaborations
- National & International partnerships, creating workshops to inform and engage others in NSEE
- NanoEd Resource Portal – outside contributors (20% of current resources)
- Community Colleges – providing units and courses, creating lecture series for regional dissemination
- Develop plans for the future

NCLT Collaboration Suite

What does it do?

- A secure virtual shared space to facilitate information dissemination, communication and collaboration

Advantages

- Customizes display, shared access of personal workspaces
- Facilitates project management for Work Circle Leaders
- Integrates with MS Outlook: synchronized calendar, emails, tasks & notes

NCLT Collaboration Suite

Services & Resources

- Calendar – announcements, notes, shared schedules
- Workspaces
 - Library – archive, share files
 - Meetings – use scheduler to arrange meetings
 - Tasks – keep track of work-in-process, scheduling
 - Announcements – disseminate forthcoming activities
 - Discussions – discussion threads for invited members
 - Member List – communication and notification
- Discussion Forum: open to all registered members
- Web Conferencing: shared desktop, white board, slideshow, chat
- Email: portal email forwarding

Connections + Contributions

NanoEd Resource Portal

How does it work?

- Collect contributions and uploads that are “publishable” and packaged for uploading
 - Packaging resources:
 - Science and Education accuracy in content
 - Relationship to NSEE
 - Images, graphics & simulations display accurately on dual platforms (MAC + PC)
 - Attributed appropriately to classroom level and subject area
 - Sign copyright release form & information sheet

Connections + Contributions

NanoEd Resource Portal

How can you contribute?

- Contact Melinda Wong
(nclt@northwestern.edu) for a ticket to upload resources

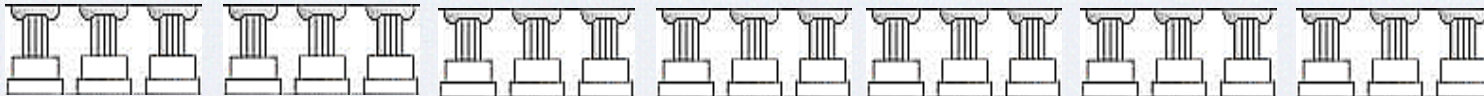
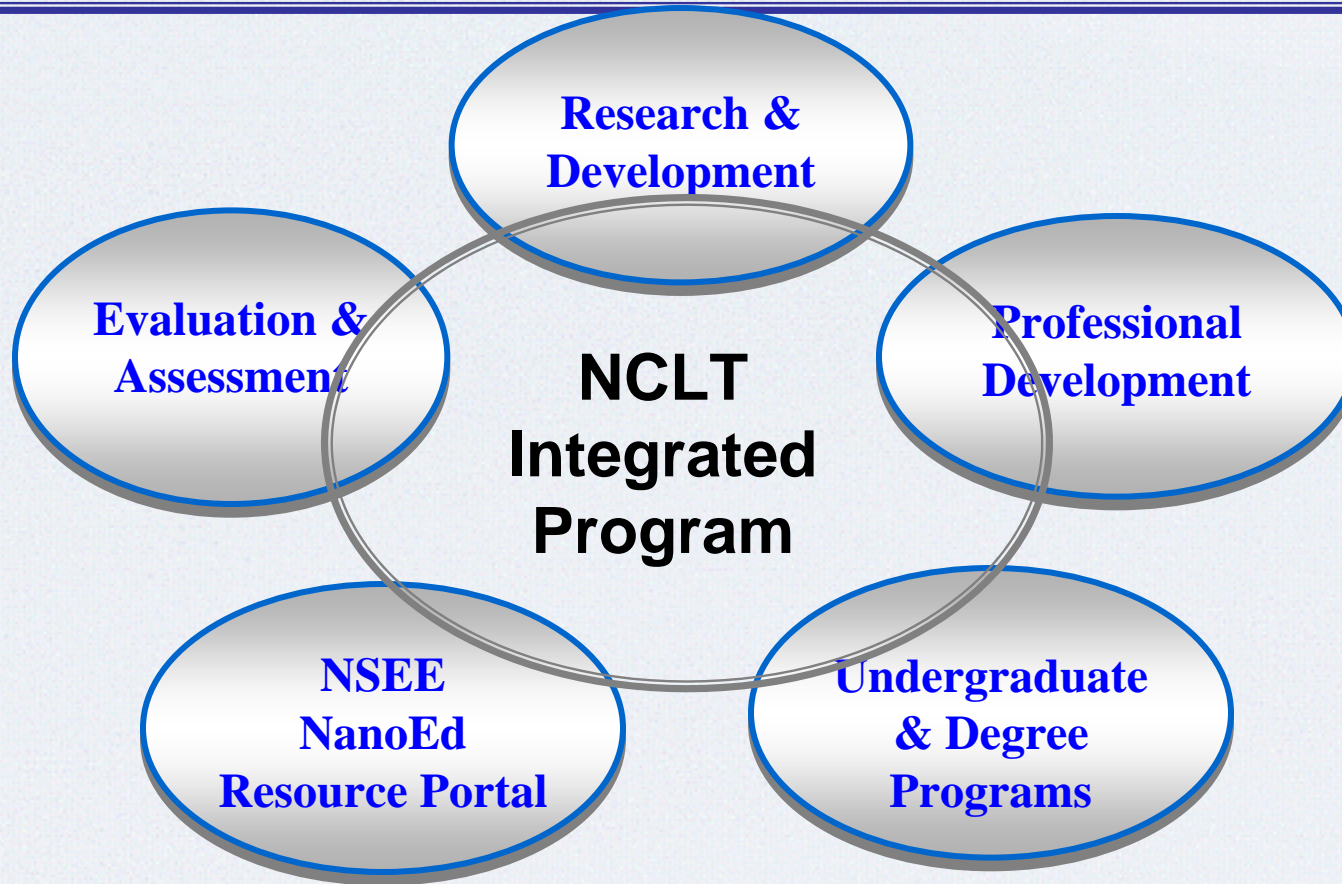
How to recruit others to contribute?

- Contact NCLT for Flyers & promotional materials available
- Send nclt@northwestern.edu contacts for recruitment

NCLT Concerns

- Near Term
 - Annual Report
 - Each faculty responsible to submit reports to Work Circle leaders and NCLT by June 10
 - Work Circle Leaders provide consolidated report to Melinda for compilation by June 15
 - Final Report due by July 2
- Long-term
 - Site Visit
 - Application for Renewal

NCLT Center Strategy



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