

Insights into Professional Learning Communities and Teacher Learning Online: The NSTA Learning Center

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*Associate Executive Director, Services
National Science Teachers Association*

Teachers benefit from opportunities to learn from and with each other

- What is your best methodology for peer-to-peer learning?
- Describe the solution – the tactic, approach, or tool
- How do you or your organization use this solution?
- What is one aspect you are looking to improve about this solution?

**What is your best methodology
for peer-to-peer learning?**

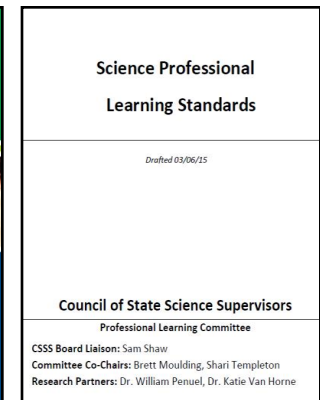
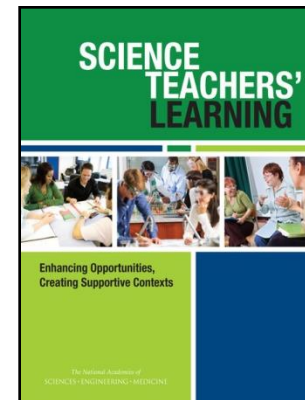
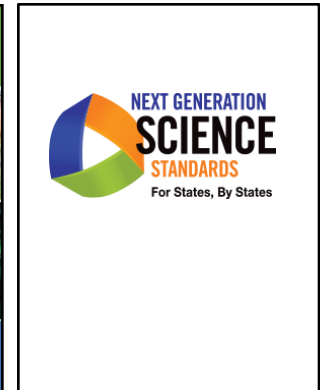
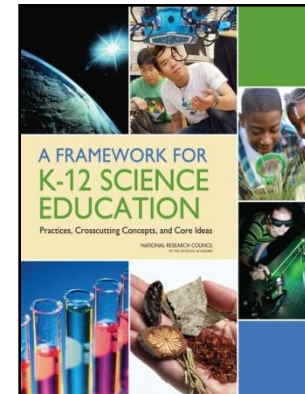
What are promising strategies for effective teacher professional learning (PD)?

- Job-embedded, aligned to local curriculum
- Informed by student learning data & work samples
- Part of local PLC-Building capacity from within
- On-going, iterative, of sufficient duration, intensity, and coherence (50-80 hours/year)
- Blended: Integrating onsite with online experiences
- Addresses teachers' beliefs, learning needs & preferences, and aligned with district initiatives (bounded autonomy)

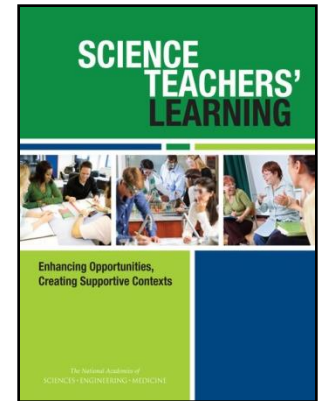
Science Education: Seminal Documents

Standards & National Reports

- K12 Framework for Science Ed (2012)
- Next Gen Science Standards (2013)
- Science Teachers' Learning: Enhancing Opportunities, Creating Supporting Context (2015)
- Council of State Supervisors: Science Professional Learning Standards (2016)



Science Teachers' Learning: Enhancing Opportunities [and] Supportive Context



- Enhance teacher practice through PL situated within the **context** of their schools and districts
- Teachers must **understand specific science content** areas they are charged to teach (especially at the elementary level)
- Teachers must **see examples** and **gain practice** in modeling new instructional strategies
- *Design a **portfolio of coherent learning experiences** for science teachers **that attend to teachers' individual and context-specific needs in partnership with professional networks...***

CSSS: Implementing and Sustaining a PD Infrastructure

- *Provide all educators with access to a variety of realistic, worthwhile, and extended learning experiences.*
- *Employ a variety of methods that promote educator collaboration within workshops, school-based teams, and in geographically dispersed networks.*
- *Cultivate collegial trust and a sense of professional responsibility for program success within school-based educator teams and across participants in professional learning networks*

Science Professional
Learning Standards

Drafted 03/06/15

Council of State Science Supervisors

Professional Learning Committee

CSSS Board Liaison: Sam Shaw

Committee Co-Chairs: Brett Moulding, Shari Templeton

Research Partners: Dr. William Penuel, Dr. Katie Van Horne

<http://www.csss-science.org/SPLS.shtml>

Describe the Solution

The tactic, approach, or tool



[Learning
Center Home](#)



[Explore All
Resources](#)

[Events &
Opportunities](#)

[Professional
Learning Tools](#)

[Forums & User
Community](#)

[My
Library](#)

[Cohort
Hub](#)

 **Join over 183,000 science teaching professionals.
Learn today, your way.**



- › Gauge your knowledge in 25 content areas
- › Explore thousands of resources: journal articles, book chapters, and more
- › Attend events, online and in-person
- › Track your professional learning goals and activities
- › Connect with others through 14 topical forums or via private messaging

Building a Vibrant Learning Community


Micro-credentials to recognize
community participation
and Learning



Participation in Community linked to Personal Profile where Credentials and Contributions are Showcased

You Have Ability to:

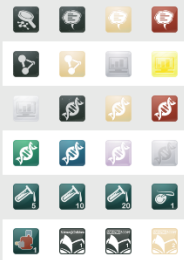
- Private Message Users
- See All Badges Earned
- See All Posts Contributed
- See All Reviews Provided
- See All Collections Shared


**AI Byers**
Edit Profile

PROFILECERTIFICATESMY LEARNING PLAN

Learning Center Activity:
71 Forum Posts
6 Public Collections
5 Reviews

Activity Points:
0
This Month
50
This Year
3820
All Time
[My Activity Log](#)

Badges Earned:


AI Byers


I help set, implement, manage, and evaluate the strategic vision for NSTA's high impact blended e-PD. This is done in cooperation with government agencies, state and local departments of education, universities, and foundations. This is possible with the expertise of a great team at NSTA and is materialized through the Learning Center. Prior to this I worked as an education specialist for the NASA Goddard Space Flight Center and prior to that I taught sixth and eighth grade physical science.

| Location | Affiliation |
|---------------|---------------------------------------|
| Arlington, VA | National Science Teachers Association |

Social Media

| Twitter | Skype Name |
|----------|------------|
| alsbyers | alsbyers |

Recent Posts by AI


Sat Apr 25, 2015 9:46 AM in [STEM Today for a Better Tomorrow](#)

Laura (and all) First, many thanks to Flavio Mendez, Sr. Director for the NSTA Learning Center in organizing today's virtual conference, and this asynchronous component. A shout out also goes to Don Boonstra, one of our leaders at NSTA for posting a great opening discussion question herein. Larua I think you ask a fair and relevant question. From a national perspective, we too review survey...

[View Full Post](#)

[View all posts by AI](#)

Recent Reviews by AI

**Coral Reef Ecosystems**

★★★★☆ Love the coral reefs sims


This guide contains a list of pertinent URLs as well as some nice lessons plans on reefs. What I think teachers will find cool is they can access simulations to use in their classroom that can be used full screen. The Create a Reef is one of my favorites!

[View all reviews by AI](#)

Recent Public Collections by AI

[Self-Directed Online Professional Development](#)
7 Resources

This series of research articles look at various theories, support strategies and interaction desired by adults completing self-directed e-PD

Online learning Learner characteristics and their approaches to learning.pdf
Type: User uploaded resource

Forums and Community Provide Opportunity for Connections, Contributions and Affirmation of Effort

You Have Ability to:

- Find Users with Similar Interests
- Follow Individual Users
- See Most Active Users
- See Most Recent Posts
- See Most Popular Topics
- See Most Viewed and Most Emailed Collections

Forums & User Community

Search
Posts & People
Search

Public Forums: Science Disciplines

- Chemistry
- Early Childhood
- Earth and Space Science
- Elementary Science
- General Science and Teaching
- Informal Science
- Life Science
- Physical Science
- STEM

Public Forums: Pedagogy and Research

- Evaluation and Assessment
- New Teachers
- Next Generation Science Standards
- Professional Development
- Research in Science Education

41 PEOPLE ONLINE 6482 TOPICS 65776 POSTS

Users with Similar Interests

- Eddie Hausknecht
- Walter Woolbaugh
- Patty McGinnis
- Alyce Dalzell
- Arlene Jurewicz-Leighton

My Discussions

Recent Posts by Me

Sat Mar 08, 2014 Ted I'm seeing some cool and rich questions being asked and discussed briefly in the live web seminar virtual conference, might you select a few you think that have "legs" and post them here, or encourage that individual to make the post here at a break during the live day. Might be cool to see if folks want to extend the conversation from synchronous to asynchronous. **Virtual Conference on NGSS Practices** | Posted in Next Generation Science Standards
» Visit forum to see new posts

Topics I'm Following

June Online Course for PreK-2 Teachers | Posted in Early Childhood
» Visit forum to see 6 new posts

Recent Posts

New to the standards | Posted in Next Generation Science Standards

Hi everyone,
I am just learning about the NGSS as of this semester and I have a really difficult time putting it all together and knowing what to incorporate into my lessons! Does anybody have any tips or ways that they are able to easily navigate the standards and plan for instruction?
Thanks!

Addison Johnson

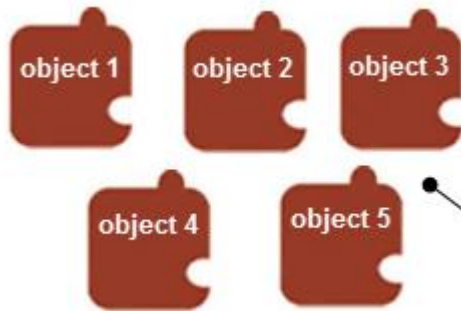
Popular Topics

- STEM
- NGSS
- Forces and Motion
- Lab Safety
- Engineering Practices
- Outdoor
- Science Notebooks
- Pluto
- Genetics
- Weather and Climate

Most Active This Week

- Jamie Leasen
- Alex Brinkstone
- Jordan Nulty
- Fabian Portly
- Scout Sager

NSTA SciPacks

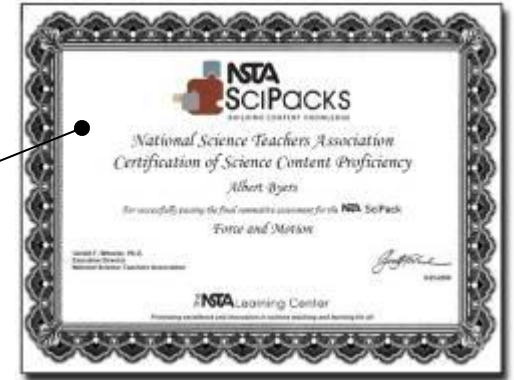


3-5 Science Objects



Content Mentor
Email Support

10-Hour,
self-directed,
inquiry-based
learning experience



Assessment
and Certificate



Pedagogical
Implications

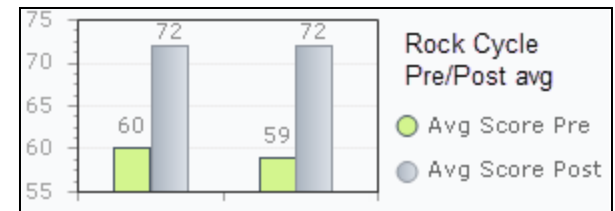
The NSTA Learning Center

Last six months: 200,000+ hours
of engagement as teachers complete:

- SciPack web modules
- Virtual conferences
- Web seminars

Community Sharing is strong:

- 92,000 personal resources uploaded
- 17,000 publicly shared user collections
- 69,000 posts across 6,800 topics in forums



Integrating high quality content with moderated discourse to improve personal practice:

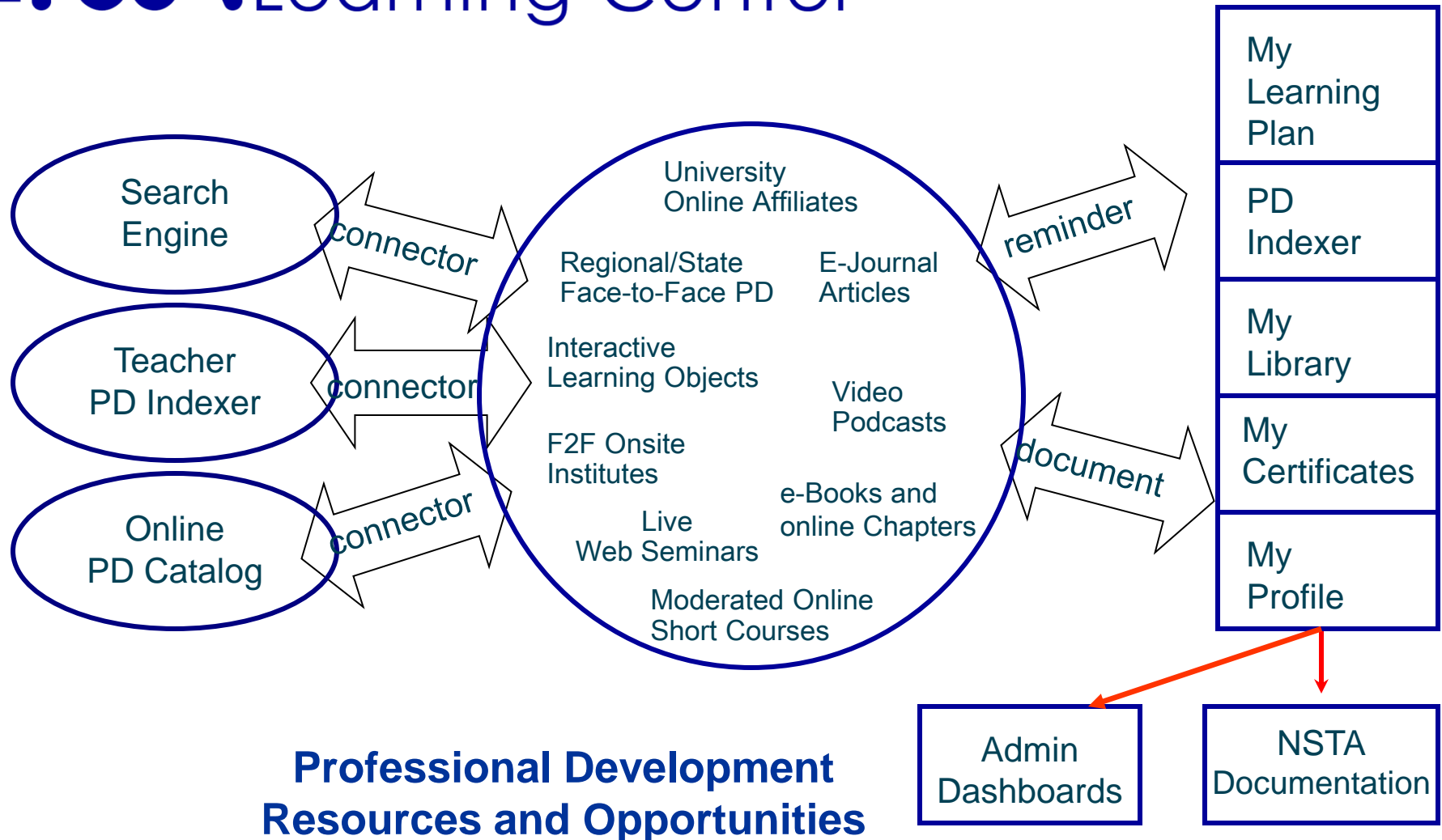
I use the Learning Center to ***share ideas*** that I have and ***learn more about the ideas of others***. What I've found in our practice is that, ***if you isolate yourself, it basically stunts your growth...*** there's no follow-up or conversation with other educators... ***So the opportunity to talk "education" in these forums is very valuable,*** you get insights from other people regarding these resources. In that way ***it has been very crucial to my growth*** as an educator...

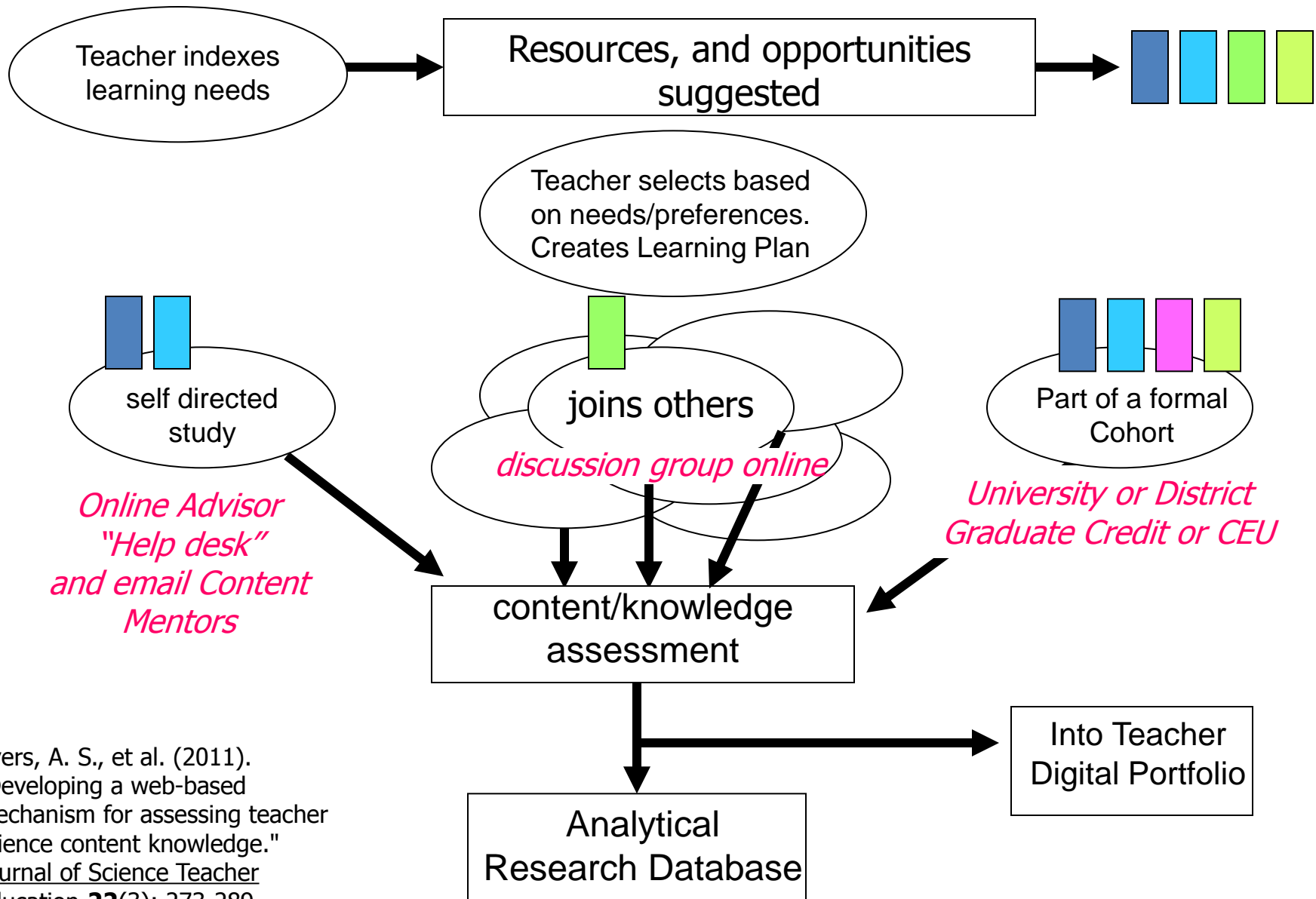


See: <http://learningcenter.nsta.org/impact/testimonials.aspx>

**How do you or your organization
use this solution?**

The NSTA Learning Center



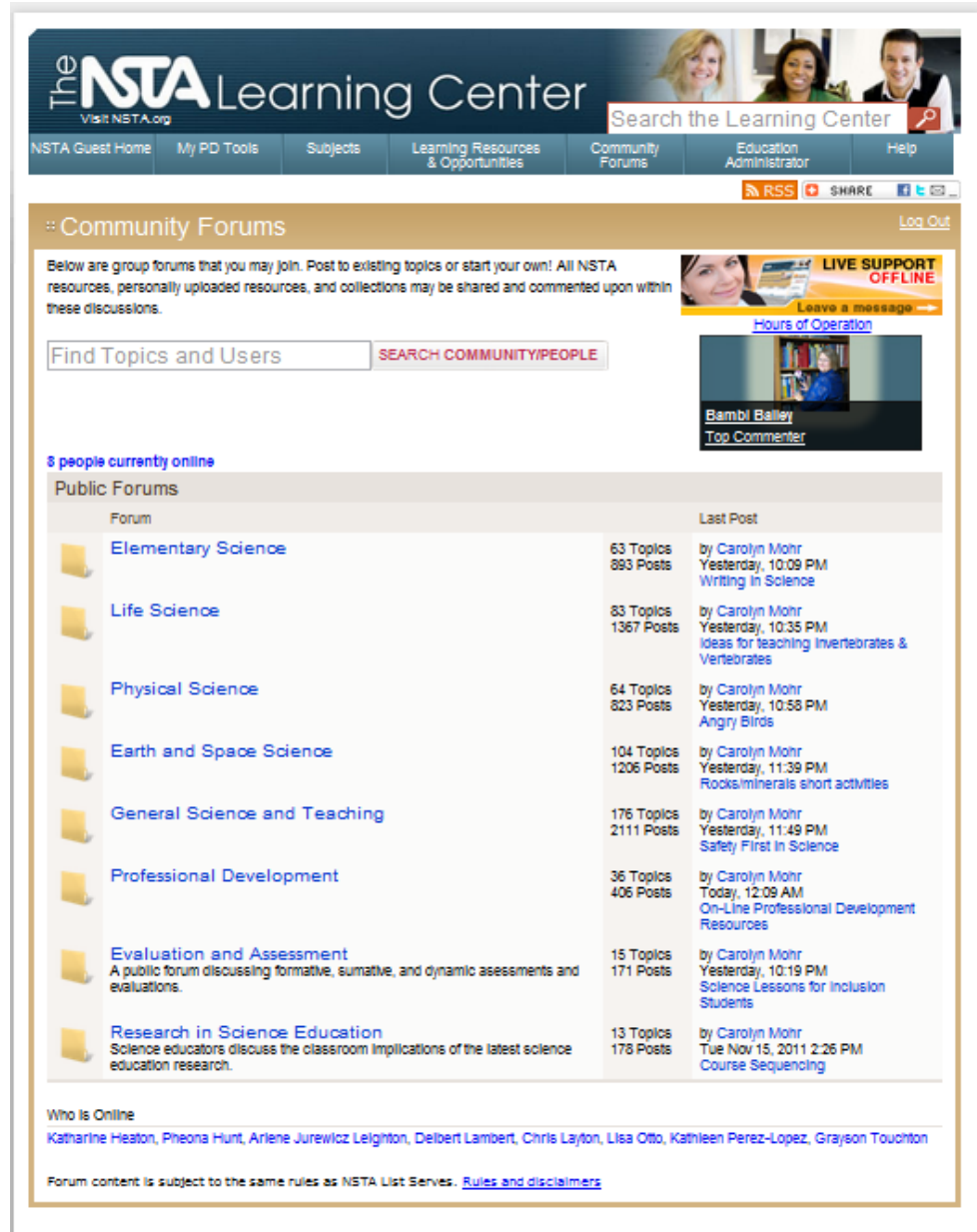


**What is one aspect you are
looking to improve about this
solution?**

Social Networking and Learning Analytics

National Science Teachers Association Learning Center

Cambridge, D. and K. Perez-Lopez (2012). First steps towards a social learning analytics for online communities of practice for educators. Learning Analytics and Knowledge 2012, Vancouver, Canada.



The NSTA Learning Center
Visit NSTA.org

Search the Learning Center

NSTA Guest Home My PD Tools Subjects Learning Resources & Opportunities Community Forums Education Administrator Help

RSS SHARE

Community Forums

Log Out

Below are group forums that you may join. Post to existing topics or start your own! All NSTA resources, personally uploaded resources, and collections may be shared and commented upon within these discussions.

Find Topics and Users SEARCH COMMUNITY/PEOPLE

LIVE SUPPORT OFFLINE
Leave a message
Hours of Operation

Bambi Bailey
Top Commenter

8 people currently online

Public Forums

| Forum | Topics | Posts | Last Post |
|---|------------|------------|--|
| Elementary Science | 63 Topics | 893 Posts | by Carolyn Mohr Yesterday, 10:09 PM Writing In Science |
| Life Science | 83 Topics | 1367 Posts | by Carolyn Mohr Yesterday, 10:35 PM Ideas for teaching Invertebrates & Vertebrates |
| Physical Science | 64 Topics | 823 Posts | by Carolyn Mohr Yesterday, 10:58 PM Angry Birds |
| Earth and Space Science | 104 Topics | 1206 Posts | by Carolyn Mohr Yesterday, 11:39 PM Rocks/minerals short activities |
| General Science and Teaching | 176 Topics | 2111 Posts | by Carolyn Mohr Yesterday, 11:49 PM Safety First In Science |
| Professional Development | 36 Topics | 406 Posts | by Carolyn Mohr Today, 12:09 AM On-Line Professional Development Resources |
| Evaluation and Assessment A public forum discussing formative, summative, and dynamic assessments and evaluations. | 15 Topics | 171 Posts | by Carolyn Mohr Yesterday, 10:19 PM Science Lessons for Inclusion Students |
| Research in Science Education Science educators discuss the classroom implications of the latest science education research. | 13 Topics | 178 Posts | by Carolyn Mohr Tue Nov 15, 2011 2:26 PM Course Sequencing |

Who Is Online
Katharine Heaton, Pheona Hunt, Arlene Jurewicz Leighton, Delbert Lambert, Chris Layton, Lisa Otto, Kathleen Perez-Lopez, Grayson Touchton

Forum content is subject to the same rules as NSTA List Serves. [Rules and disclaimers](#)

:: Activity

Overall Group Activity

9/1/2012 to 12/31/2012

75255 Total Points

1134 Add NSTA Resource
 88 Create Collection
 42 Complete Indexer
 0 Add Event
 1 Add Personal Resource
 33 Attend Web Seminar
 42 Complete SciPack
 43 Write Review
 10 Recommend Resource
 62 Post comment/question
 66 Share Collection
 33 Publicize Collection
 20 Create Portfolio
 390 Create Portfolio Goal
 298 Upload Evidence
 163 Complete Reflection
 39 Generate Report

:: Activity

Activity for Teacher name


9/1/2012 to 12/31/2012

3955 Total Points

69 Add NSTA Resource
 1 Create Collection
 1 Complete Indexer
 0 Add Event
 0 Add Personal Resource
 4 Attend Web Seminar
 3 Complete SciPack
 1 Write Review
 0 Recommend Resource
 3 Post comment/question
 2 Share Collection
 2 Publicize Collection
 1 Create Portfolio
 16 Create Portfolio Goal
 18 Upload Evidence
 9 Complete Reflection
 1 Generate Report


Horizon: Learner Dashboards


- Present data visually
- Users compare their participation to others in community
- Users connect to others learners on similar journey
- Suggest Action for next step based on comparative data

Jennie Salamoun
PROFILE

DASHBOARDMY PROFILEMY LEARNING PLANPROFILE MESSAGES (3)


ResourcesEventsLearning PlanCommunity

Activity Points: 345

Community Average: 500

Badges


Learning Progress

To-Dos



| | |
|----|----------------|
| 18 | Past Due |
| 14 | On the Horizon |
| 35 | Completed |

25 Completed


My Learning Journeys

Formation of the Solar System: Middle Collection


by Learning Center Online Advisors

This collection is intended to support teaching of the process of formation of the solar system. Basic understanding of gravitational force is strongly recommended


Percentage completed: 25%



27% of Teachers Have This in Their Learning Plan



Peers on this Learning Journey



+ 28 others

Similar Learning Journeys...

Learning Journey Title 1

Community Building: Grounded in Research

- Value creation in online communities for educators. British Journal of Educational Technology 46(1): 1-15 (2014).
- Personalized workplace learning: An exploratory study on digital badging within a teacher professional development program. British Journal of Educational Technology, 45(6), 1136-1148 (2014)
- The Role of On-line Communities of Practice in Promoting Sociotechnical Capital Among Science Teachers. AERA, Annual Conference (2014).
- First steps towards a social learning analytics for online communities of practice for educators. International Learning Analytics and Knowledge Conference (2012).
- Simple and Computational Heuristics for Forum Management in the NSTA Learning Center: A Role for Learning Analytics in Online Communities of Practice Supporting Teacher Learning. International Conference on System Sciences (2012).
- Social Network Analysis of Affiliation Networks to Promote Online Communities of Practice for Science Education, International Network for Social Network Analysis, Social Networks Conference (2012).
- Developing a web-based mechanism for assessing teacher science content knowledge. Journal of Science Teacher Education 22(3): 273-289, (2011).

<http://learningcenter.nsta.org/impact>

We have models that support individuals and dozens of Universities and Districts



Universities Using the NSTA LC with Science pre-Service Teachers:

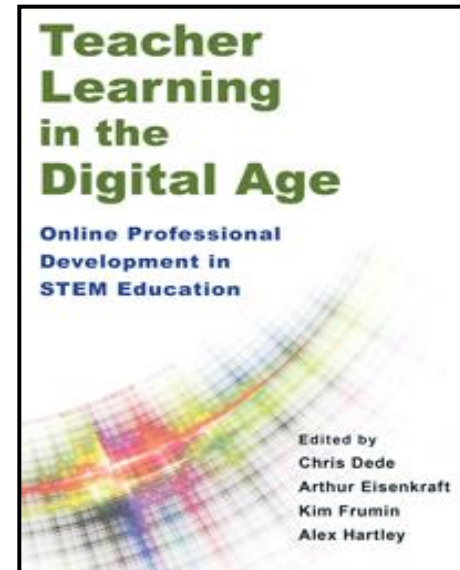
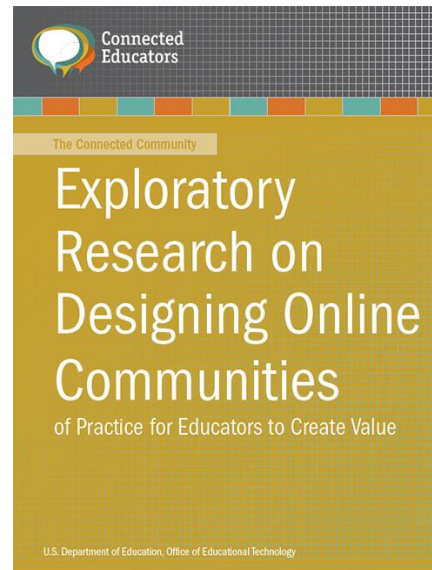
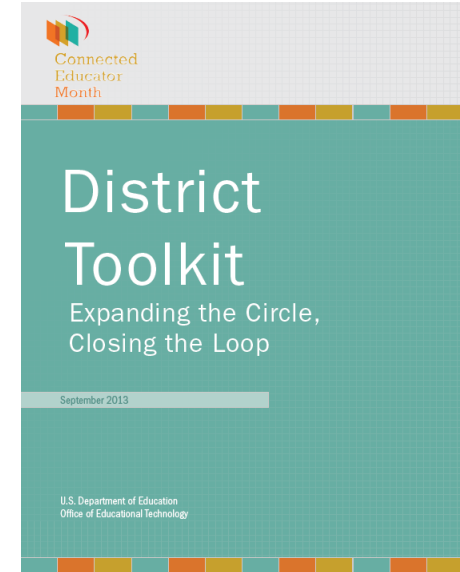
1. Appalachian State University, *fa14*
2. Bethany College, *sp15*
3. Boise State University, *sp16*
4. Brenau University, *fa14*
5. California Lutheran University, *sp15*
6. Carson-Newman University, *fa15*
7. Central Connecticut State University, *sp14*
8. Central Michigan University, *sp15*
9. College of Charleston, *fa13*
10. College of St. Benedict/St. John's Univ., *sp14*
11. Columbus State University, *fa14*
12. Cornerstone University, *fa15*
13. Dominican University, *su13*
14. Drexel University, *sp15*
15. Eastern Connecticut State University, *fa14*
16. Elizabethtown College, *fa13*
17. Florida Gulf Coast University, *fa14*
18. Florida International University, *sp12*
19. Fort Hays State University, *fa13*
20. Georgetown College, *sp15*
21. Idaho State University, *sp12*
22. Idaho State University in Idaho Falls, *sp15*
23. Indiana Univ.-Purdue Univ. Columbus, *fa12*
24. Indiana University South Bend, *fa13*
25. James Madison University, *fa15*
26. Keene State College, *fa15*
27. Kent State University, *fa14*
28. Lebanon Valley College, *fa15*
29. Louisiana Tech University, *sp16*
30. Martin Luther College, *fa15*
31. McLennan Community College, *su14*
32. Mercer University, *sp12*
33. Merrimack College, *fa14*
34. Midwestern State University, *sp14*
35. Minnesota State University Moorhead, *sp14*
36. Monroe Community College, *sp15*
37. Montana State University Billings, *sp13*
38. Mount Saint Mary's University, Los Angeles, *fa15*
39. New Jersey City University, *fa14*
40. New Mexico State University, *sp14*
41. Northeastern Illinois University, *sp14*
42. Northern Arizona University, *sp14*
43. Northwestern College, *fa14*
44. Oregon State University Cascades, *su14*
45. Penn State University, *sp15*
46. Plymouth State University, *fa12*
47. Purdue University Calumet, *sp15*
48. Rhode Island College, *sp16*
49. Queens University of Charlotte, *fa15*
50. Saint Mary's College at Notre Dame, *fa13*
51. Saint Peter's University, *fa15*
52. Saint Xavier University, *fa15*
53. Samford University, *sp15*
54. San Diego State University, *sp14*
55. Shippensburg University, *sp14*
56. Southern Adventist University, *su14*
57. Southern Illinois University Carbondale, *fa11*
58. SUNY Cortland, *fa14*
59. Tennessee Technological University, *sp16*
60. The College of St. Scholastica, *fa15*
61. The Ohio State University, *fa15*
62. The University of Alabama in Huntsville, *fa15*
63. University of Alberta, *fa14*
64. University of Central Missouri, *fa13*
65. University of Connecticut, *su14*
66. University of Delaware, *fa13*
67. University of Dubuque, *sp15*
68. University of Hawaii at Manoa, *sp15*
69. University of Hawaii at West Oahu, *fa14*
70. University of Houston, *fa14*
71. University of Houston Clear Lake, *sp16*
72. University of Louisiana Lafayette, *sp16*
73. University of Maryland Baltimore County, *fa12*
74. University of Michigan-Dearborn, *sp15*
75. University of Montana, *sp14*
76. University of Nebraska Omaha, *su14*
77. University of New Mexico, *fa14*
78. University of Ottawa, *fa15*
79. University of Portland, *fa14*
80. University of Regina, *sp14*
81. University of South Carolina, *su14*
82. University of South Carolina Aiken, *sp14*
83. University of Texas at Tyler, *fa11*
84. University of West Georgia, *sp16*
85. University of Wisconsin Oshkosh, *fa13*
86. Virginia Commonwealth University, *fa13*
87. Virginia Tech, *sp14*
88. Wayne State College, *fa14*
89. Western New Mexico University Gallup, *sp13*
90. West Liberty University, *sp15*
91. Western Illinois University, *fa15*
92. Wilson College, *fa14*
93. Wright State University, *sp14*



Highlighted in Multiple Publications

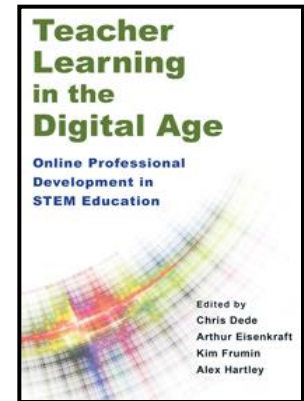
- Learning Forward
- US Department of Education
- Harvard Press

<http://learningcenter.nsta.org/impact>



Teacher Learning in the Digital Age

Online PD in STEM Ed Harvard Press



A comprehensive overview of online teacher PD and detailed examples of programs that illustrate the range of effective models.

A must-read for practitioners and policy makers responsible for planning professional development programs

An invaluable resource for university courses on teacher learning and professional development, and online educational innovations.

— *Hilda Borko, Professor of Education, Stanford University*

<http://hepg.org/hep-home/books/teacher-learning-in-the-digital-age>

Insights into Professional Learning Communities and Teacher Learning Online: The NSTA Learning Center

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