

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

**By**

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**NSTA Learning Center**

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

**Session Strand: Teachers benefit from opportunities to learn from and with each other.**

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

Our professional learning community is an integrated online solution that is part of the NSTA Learning Center. It scaffolds rich discourse between colleagues on a myriad of topics they generate based on their unique professional learning needs. Peer-to-Peer learning occurs through direct links to individuals' personal profiles, where others may learn about and personally connect (via private message) with like-minded colleagues. Educators may choose to follow particular individuals, and see all their forum posts, their shared public collections, and virtual badges individuals have earned across the community for both participation and learning and reach out to them as they share solutions, strategies, and digital resources related to the topic within any one of 14 forums. Digital badges recognize "high flyers" in the community and mining the data on a weekly basis elevates the most prominent (most emailed/most viewed) digital educator collection to the homepage.

NSTA mines this crowd-sourced data and elevates the most prominent (most emailed/most viewed) digital educator collections on a weekly basis to the homepage and community forums section of our platform for the rest of the community to see. We also notify the teacher's local administrator if part of a formal district cohort so they may be recognized locally in their own physical community. Individual educators now have created more than 17,000 publicly available Collections of NSTA resources—which may include their own resources alongside ours—and made them available within the community via Learning Center search results. Community participants now have originated more than 7,000 unique topics and generated more than 68,000 responses across the 14 community forums topics, such as physical science, life science, Earth and space science, STEM, Elementary Educators, New Teachers, etc. Finally, the platform's ability for educators to upload files as part of their discussion, allows district and

university cohorts to share anonymous samples of student work as local groups implement strategies and practices in their respective classrooms and then circle back to reflect and iterate on their efforts over time.

**Describe the solution - the tactic, approach, or tool - that you plan to present in your session.**

Our professional learning community is an integrated online solution that is part of the NSTA Learning Center. It scaffolds rich discourse between colleagues on a myriad of topics they generate based on their unique professional learning needs. Peer-to-Peer learning occurs through moderated discourse tied to digital resource collections, and is facilitated via direct links to individuals' personal profiles, where others may learn about and personally connect (via private message) with like-minded colleagues. Educators may choose to follow particular individuals or a particular topic within any one of the 14 forums. For individuals they follow, they may see all their forum posts, collections the individual has made public, and the virtual badges an individual has earned for both community participation and learning as they share solutions, strategies, and digital resources. Digital badges recognize "high flyers" in the community and mining the data on a weekly basis elevates the most prominent (most emailed/most viewed) educator collections on the homepage. Our platform is integrated with district and university efforts in a blended fashion, where we seek to enhance and extend local onsite efforts.

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

We make the platform open to all. You do not need to be a member of NSTA to contribute to the professional learning community or use the platform. It is an integral part of our mission to improve excellence and innovation in science teaching and learning for all! We leverage this platform in a myriad of ways that include access to individual teachers, teacher leaders, administrators, and NSTA members. We also use the system with districts and school-based cohorts using the resources, forums, and micro-credentialing system to support their local blended strategic PD efforts. Cohorts have privately branded landing pages where they control the homepage content, which diagnostic tools, and digital learning content they desire to focus on for their groups, e.g., science and engineering practices like developing and using models, engaging in argument from evidence, using mathematics and computational thinking, or constructing explanations and designing solutions. Other areas of focus might be on how to teach difficult biology concepts, examples of integrated approaches to teaching STEM across the middle level or using picture books and reading to guide hands-on inquiries in physical, life and Earth/space science at the elementary level. Cohort groups include access to back-end web-based analytics that provide individual and group-based feedback on community participation and individual learning in the disciplinary core ideas of science linked to self-directed on-demand web modules in areas such as Force and Motion, Electricity and Magnetism, Cell Structure and Function, Rocks, Plate Tectonics, etc. Finally, university science method professors use the platform as an e-textbook for their pre-service teachers. A recent chapter in a book just out by Harvard Press about online teacher professional development (OTPD) highlights these models with several university mini-case studies included. Chapter one by Barry Fishman provides an overview of the book and highlights future trends in OTPD. See Byers, A., & Mendez, F. (2016). Blended professional learning for science educators: The NSTA learning center. In C. Dede, A. Eisenkraft, K. Furmin, & A. Hartley (Eds.), *Teacher Learning in the Digital Age: Online*

*Professional Development in STEM Education*. Boston: Harvard Press. Available: <http://hepg.org/hep-home/books/teacher-learning-in-the-digital-age>.

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

We'd like to mine our data via social networking and learning analytics to improve our overall performance and impact. With over 180,000 users, 70,000 posts across 8,000 topics in our forums, 72,000 user resources uploaded to personal libraries, and over 17,000 user generated public collections shared, 70,000 badges awarded to over 164,000 individuals etc., the NSTA Learning Center has a huge data exhaust. There are "signals" that may be mined to help guide future development, maximize social engagement and learning, surfacing the richest content and conversation. Dashboard tools like Domo.com are surfacing and organizations like SOLAR (Society for Learning Analytics Research) are organizing conferences focused on this. See: <http://lak16.solaresearch.org/>. We look to partner with an organization adept in social networking and learning analytics, as together we might conduct research and inform the larger community through publications/presentations gleaned from robust analysis and insights. Let's get a handle on the volume, velocity, veracity, and variability of all this rich data!

### **What is one aspect of this solution you want feedback on from partners attending your session?**

Recent professional learning standards and supports for STEM educators professional growth is emerging from institutions like the national academies and the Council of State Science Supervisors:

- Science Teachers' Learning: Enhancing Opportunities, Creating Supportive Contexts (National Academies of Sciences, 2015)
- Science Professional Learning Standards (Council of State Science Supervisors, 2016)

I see opportunity—and challenges—in what is called for in the literature. Locally-based professional learning communities and team-based efforts within schools and in support of district strategic initiatives are encouraged, and these seems at odds when juxtaposed against efforts that support personalized learning opportunities, differentiating professional growth based on the unique learning needs and preferences of individual educators, driving their intrinsic motivation for participation (teacher autonomy). We all know we should seek to avoid, the one-size-fits all, one-and-done, sale-and-bail approaches to professional development. That said, teachers have different content they desire to focus on, different preferences for consumption (mastery vs. task-focused, vs. procrastinator, synchronous vs. asynchronous, self-directed on-demand vs. social collaboration with others) and are different stages in their careers (early, mid and senior). How do we set up systems, structures and platforms that cater to these different individual needs and system-based drivers and mandates that provide coherence as local professional learning communities collaborate over time?

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