

Developing an Online Community of In-Service Teachers

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Abstract

Establishing an online community of professional learners was one component of a multiyear professional development project with an overall goal of improving the ability of career and technical educators to use and interpret technical assessment data. Educators from five states and nine different schools participated in a research-based workshop and were mentored for several months as they developed a data-driven action plan. Few of the project participants engaged in substantial exchanges using the website that was established to enhance communications among the educators at a distance from each other. The principal investigators discuss and present design elements of online communities used to revise the website and its facilitation.

Web-based media are changing the way individuals communicate and form relationships, but the use of such media for structured learning is new. Today almost every faculty member in a higher education institution has the ability to build a course website that enables interaction between students and faculty (Dornish & Land, 2002). The course development systems Blackboard, Drupal, and Moodle enable discussion forums and the posting of resources to support traditional instruction. Many of these websites have a section for student interactions with a structure similar to that of social media. Online learning communities are of growing importance because they are being used as part of a comprehensive learning environment that optimizes engagement for both preservice and in-service teachers (Davis, 2011; Sheninger, Carr, & Davis, 2011; Vander Ark, Revenaugh, & Hite, 2011).

To form a productive online community, several important design elements must be incorporated. The basis of this article is experience gained with an online learning community developed as part of a pilot project that followed a national research study of in-service career and technical education (CTE) administrators and teachers (Foster, Pritz, & Kelley, 2009). The research project was supported by the National Research Center for Career and Technical Education.

The purpose of this study was not only to investigate the interactions that occurred among the professional educators who participated in the pilot project, but also to ascertain the design elements that are conducive to eliciting appropriate interactions. The principles that evolved from this project apply to fostering productive professional development at any level, whether preservice or in-service.

The Pilot Project

A research-based intervention workshop on the topic of data-driven instructional improvement was piloted in winter and spring 2010 with 48 in-service career and technical teachers and administrators (National Research Center for Career and Technical Education, 2010). Development of this intervention was informed by a multistate survey conducted in 2008 that defined the prevailing practices and status of CTE educators' ability to use technical assessment data. The nine pilot sites were in five different states, encompassing rural and urban locales, and schools of various sizes and configurations. Each state had its own trained facilitator; national facilitator training was held in December 2009. Each pilot site had a school-based team of educators that included one administrator and three or four teachers.

The complete intervention consisted of a 1-day workshop followed by a 3-month mentoring period to sustain the workshop's momentum and apply what was learned. Prior to this workshop, students took an online pretest in a technical area related to each teacher's curriculum, and these results were the basis for the individual analysis and planning, improving teachers' ability to meet accountability goals. Content of the pilot workshop consisted of group activities and case studies to highlight challenges for today's educators, demonstrating methods of data analysis, analyzing data generated by the teachers' own students, identifying specific strengths and weaknesses that may relate to curriculum, and developing an action plan for instructional improvement to be implemented in the classroom. A sample of a technical test data report is shown as Table 1 (NOCTI, 2011).

To extend professional learning after an initial workshop, the educators were mentored by their workshop facilitator for several months as they developed and implemented a data-driven action plan; all participants were encouraged to communicate with other educators at the participating pilot sites via a professional development Sharing Center, which was a website developed for this project. This website's features were basic: All pilot participants could post comments, have a threaded discussion, and upload or download documents. On the Sharing Center, participants could share resources and strategies or discuss barriers and challenges as they were encountered.

Table 1
Example of Classroom Data from Carpentry Class Test Results

Test Areas	Student	Group(class)	Site (School)	State	Nation
Safety	100.0	86.4	79.5	72.5	75.5
Tools and Accessories	91.7	79.2	78.2	70.7	70.6
Blueprint Reading and Estimation	100.0	95.0	83.8	64.3	66.4
Foundation, Forms and Concrete	92.3	69.2	65.8	51.6	52.9
Rough Framing	97.4	71.8	69.8	63.1	64.1
Exterior Finish	91.7	64.6	67.6	58.1	57.8
Interior Systems Installation	87.5	53.1	61.9	55.6	56.5
Interior Finish	87.5	79.7	75.6	66.6	67.0
Carpentry-Related Mathematics	100.0	56.3	68.2	66.1	67.0
Total	94.3	72.0	71.4	62.7	63.4

The goal of the postworkshop period was to share ideas, solve problems, and ultimately form an online community of learners around the topics of data and instruction from this diverse group. Although every participant posted some sort of message on the Sharing Center, most messages were simple greetings like, "Great Workshop, Glad to be on board." In another example, an administrator submitted the message, "Great Workshop! I am learning right along with the teachers!" The message received the following response from a teacher: "It is nice to have an administrator that works along side of the teachers."

Only about half of the teachers and administrators shared information (e.g., asking for teaching content or mentioning a specific resource). One simple exchange follows:

Teacher 1: "I just finished a workshop today. I'm looking forward to working on this project."

Teacher 2: "It has been a long day. I am interested in how you use your pretest info."

After 3 months, only five threaded discussions on the Sharing Center consisted of information exchanges about resources for specific areas of the curriculum. The problem, therefore, was how to refine the structure of the online community to encourage and enable appropriate professional development activity that reflects a higher level of engagement and thought.

Project Evaluation

An iterative review process was the method of evaluation for the workshop materials, which consisted of a participant workbook, facilitator manual, and a facilitator guide. Throughout the pilot testing, which occurred during spring semester 2010, data on the program's process and effectiveness were collected at several levels and intervals during

the pilot project (National Research Center for Career and Technical Education, 2011). The first round of evaluation of the workshop materials was done by a national sample of career technical administrators who gave opinions on an open-ended form; these reviewers had the following expertise:

- Content experts in standardized testing and data analysis and presentation
- Subject matter experts in training development and delivery
- Subject matter experts in beginning and fostering small learning communities or “communities of practice”
- Educators familiar with using data from standardized assessments
- Educators not familiar with using data from standardized settings

For the materials review, the main evaluation questions were as follows:

Please give your opinion and comments on the overall package. Are the materials:

- Suitable for a one-day workshop?
- Targeted at the right level for secondary CTE administrators and teachers?
- Appropriate in tone?
- Anything else?

The research team solicited further opinions and ideas for improvement from both participants and facilitators during the pilot process. Each state facilitator and pilot participant completed a more detailed evaluation form. The pilot workshops were divided into two rounds; evaluation forms were compiled at the end of Round 1 (five schools), and changes and improvements were incorporated into the materials before Round 2 (four schools). At the conclusion of Round 2, the evaluation data were reviewed, and several structural changes were made to the intervention. The following components were added to the materials: more stringent criteria for workshop participants, a better defined role for the school administrator, more structured mentoring in the postworkshop phase, tools for monitoring student learning, and a series of postworkshop activities using the Sharing Center to develop an online professional community (National Research Center for Career and Technical Education, 2011).

After the school year ended at all nine pilot sites, researchers conducted a web-based conference call with the state facilitators to discuss their overall perceptions about refinements and improvements needed. By the completion of the pilot program, a systematic process had been established to make iterative changes and improvements based on information gathered in the field from participants and facilitators. In addition, several new schools in states that were not a part of the pilot project provided a review of the intervention workshop materials during fall of 2010.

The evaluation questionnaires compiled during the pilot testing and review experience revealed that such a professional development Sharing Center needed to be structured to elicit more substantial interactions from the teachers and administrators who participated in this intervention. The remainder of this paper documents the design elements for a professional development learning community that may produce more substantial interaction in an effort to optimize professional learning.

Discussion

Models of Professional Development

Educators at all levels need high-quality professional learning. A main problem with most professional development offerings is that their duration is insufficient to follow the researched concepts that ensure retention and change in practice for the long term (Banilower, Boyd, Pasley, & Weiss, 2006; Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Dembosky, Pane, Barney, & Christina, 2005; Guskey, 2003; Lewis, 2000; Smith, Hofer, Gillespie, Solomon, & Rowe, 2003; Sparks, 1994). Although the full-day workshop is still the mainstay of professional development (Bruening et al., 2001), new models of professional development have been emerging, which include strategies that extend learning through collaborative problem-solving groups, coaching, and study circles (Smith et al., 2003), all of which better ensure that teachers implement the changes needed to improve classroom instruction.

The learning community has become a strategy to help promote skills of collaboration and reflection and support deeper levels of learning (Digenti, 1998; National Research Center for Career and Technical Education, 2010); however, Morrissey (2000) noted that creating a professional learning community does not occur quickly or spontaneously but is the result of an intentional effort on the part of an administrator or a facilitator.

For in-service teachers, membership in a learning community involves a paradigm shift from the short duration “drive through” workshop to a sustained professional learning experience intended to bring about an overall change in the way teachers view the teaching process. In addition, an online community is designed to help teachers move from a formal learning environment to an informal one. As Morrissey (2000) stated, “One cannot assume that schools can transform themselves into productive and successful places of learning for students without first addressing the learning that must occur among teachers” (p. 24).

Social and Pedagogical Elements

Both pedagogical and social factors interplay in an online community (Ryman, Vine, & Richardson, 2009). An online community is social, and these factors should be addressed first. To become a true community of learners, community members must take time to form relationships with each other (Ryman, Hardham, Richardson, & Ross, 2009; West, 2010). These relationships are especially important when the community members have never held a face-to-face meeting. Thus, the first types of interactions are introductory and exploratory, often following a specific template to post a user profile (E. Sawicki, personal communication, November 15, 2010).

Learners must get to know each other and establish relationships based on trust where each member’s comments are valued. The sense of shared values and goals gives an online group their sense of community. As the community progresses, sharing and reflection should dominate the dialog; when the community matures, facilitators guide the group into activities involving higher level thinking.

Popular social media sites (e.g., Facebook) have changed the way people communicate and form relationships, often giving users a false sense of security. To have a fully functional online learning community, user security and privacy of communications are essential, as there must be an atmosphere of mutual trust. The community’s website also should be designed with sections available for different types of individuals. For example,

a facilitator-only area or a dedicated space for the learners will help build independent relationships and trust (Ryman, Hardham et al., 2009).

Private space where members of an online professional community can discuss and reflect on topics of interest is essential to the development of the relationships required to form a true community of trust. Thus, the website should be password protected and available only to approved community members. Digenti (1998) mentioned that participation in a learning community involves cognitive skills but also involves skills in the affective domain as new relationships develop. Cultural differences may also play a role when different geographic regions are involved and members are expected to interact without understanding each others' regionalisms.

The online community's pedagogical factors should include contextualized authentic learning tasks (Hur, Cullen & Brush, 2010) and critical discourse among the learners. Critical discourse is the primary process by which the learning community members grow professionally, moving from basic knowledge to deeper understanding, restructuring knowledge, and ultimately becoming leaders in their own right (Ryman, Hardham et al., 2009).

A facilitator or instructor must maintain a task-oriented atmosphere. Facilitators play an integral role in promoting and sustaining critical discourse and constructive social dynamics; they manage both learning (e.g., promoting higher level thinking) and the social aspects (e.g., maintaining an appropriate flow of discussion and timely submission of assignments) in an online learning environment. Access to help, communication of trust, and active empathy should be used by facilitators to increase dialog (Ryman, Vine et al., 2009). As the dialog builds, facilitators need to encourage the type of reflective thought that promotes learning, and be aware of the types of problems being presented and the order in which they appear (Land & Zembal-Saul, 2003).

Learning Communities and Technology

Technology plays a prominent role in today's professional development. Guidelines for technology integration were developed by Hodes (1998) that apply to professional development and also to learning communities. First, a technology-based system needs to meet the learners' needs for communication. The design must enable interactions between the learner, other learners, and the content of the workshop. If a high amount of communication is required for tasks, for example, analyzing and critiquing another's work, participants in the community must understand how to post responses and work products.

Another challenge is that teachers who are considered computer literate for their own purposes are often not trained in using technology to promote higher levels of learning (Martinez, 2010). For one technology integration effort, Hur et al. (2010) developed a model to improve teaching practice with preservice teachers to teach technology integration through concrete experiences, reflection, knowledge application to actual practice, and experiencing a community of learners.

Unfortunately, teachers who are able to use one type of software often cannot transfer those skills to a website that has a different appearance and features (Friedman, 2006). For these reasons, web-based professional learning is not commonplace, and productive professional learning communities, where teachers engage in or extend professional learning, are even less common. It is not simply a matter of providing the ability to

interact using technology. If teamwork and collaborative learning are desired, then educators need a structured orientation.

Several factors interact when team learning is mediated by technology, including the content, the social relationships, and the technological environment (Andres & Akan, 2010). Team members need to exchange facts and concepts, experiment with ideas, and ultimately participate in joint reflection and restructuring of ideas, regardless of their geographical distribution. An effective structure of the learning process is essential to facilitate problem-solving interactions and maintain focus on the main tasks.

If technology is to benefit education, design of the learning environment must enable educators to harness its potential (Mishra, Koehler, & Kereluik, 2009). Unfortunately, even after decades of computer use in schools, use of computers is insufficient to promote the type of work that requires higher level cognitive skills: collaboration, teamwork, and problem solving. Thus, the design and structure of an online learning environment may be the main vehicle that not only helps to optimize participation, but also advances the type of thinking that occurs.

Congruence

An essential dimension of an online learning community is congruence between the goals of professional development and the activities. If the goal is to share instructional strategies or solutions to specific problems, then the professional community needs to have areas for threaded discussions or sections for different topics that allow the learners to post, for example, documents, lesson plans, or resources, as well as critiques of other's work. By enabling these conversations, the professional learning is extended and provides the longer duration that many researchers advocate.

Main Design Considerations

The five main functions of a community of practice are building relationships, sharing, learning, creating knowledge, and collaborating (based on Cambridge, Kaplan, & Suter, 2005). Additionally, Wenger, McDermott, and Snyder (2002) stated that characteristics of such a community should be excitement (novelty), relevance, and value. These factors will help the community sustain itself over time by inviting substantial interactions in order to avoid becoming little more than a network of friends. The website should not be used to regurgitate concepts and thoughts that have been discussed in other venues (E. Sawicki, personal communication November 15, 2010). In the National Research Center for Career and Technical Education study, the main community-building strategy was to require community members to participate. Once the introductory activities are complete, the pedagogical and social aspects of the online community will determine the productivity of the site.

To summarize the most salient points when designing a learning community website, the following features need to be in place to promote interaction:

- **Goals.** Clarify the goals of the website, its function and limitations.
- **Password Protection.** Ensure privacy from the outside and a psychologically safe environment; separate areas of the website need to be available to interest groups.
- **Orientation.** Ensure that community members understand the features of the website, for example, where to find documents and resources, and especially, how to post messages and have a threaded discussion.

- **Aligned Activities.** Structure authentic learning tasks, dialog, and posting activity to match the goals of the course.
- **Build Trust.** A facilitator or moderator should encourage and reinforce the initial postings, especially from novices; the basis for interactions is mutual trust, active empathy, access to help, and lenience in judgment.
- **Cluster.** Encourage threaded discussion groups to form (either naturally or by mandate) according to problem topic or academic area.
- **Timeframe.** Activities will need to have time limits. For example, the facilitator should give a time limit for posting a critique or discussion about an article.

Summary

Today's teachers need an understanding of assessment data, including its interpretation and uses. Those who have used data for classroom improvement should continue to do so and help those who have not used these practices see the value in using test data as part of a cyclic process of classroom improvement through participation in school-based teams, as well as a larger online community. The online community allows teachers to share resources quickly (Davis, 2011) and can bring different perspectives and support for educators. However, more research is needed that documents educators' professional learning in online environments and shows how an online community can function as a tool that connects teaching and learning.

The overall goal of this effort is to promote higher level thinking skills that will improve instruction through an environment designed to provide a deeper learning experience. As stated earlier, a successful online learning community is not an accident but is the result of structure, facilitation, and planning (Morrissey, 2000). An ancillary issue regarding teacher training surfaces because it is evident that teachers are considered computer literate for the majority of their personal functions (e.g., e-mail and lesson planning), but they are often unfamiliar with using technology to promote high-level learning.

References

- Andres, H. P., & Akan, O.H. (2010). Assessing team learning in technology-mediated collaboration: An experimental study. *Journal of Educational Technology Systems, 38(4)*, 473-487.
- Banilower, E. R., Boyd, S. E., Pasley, J. D., & Weiss, I. R. (2006). *Lessons from a decade of mathematics and science reform: A capstone report for local systemic change through teacher enhancement initiative*. Chapel Hill, NC: Horizon Research, Inc.
- Bruening, T. H., Scanlon, D. C., Hodes, C. L., Dhital, P., Shao, X., & Liu, S. (2001). *Characteristics of teacher educators in career and technical education*. Minneapolis, MN: National Research Center for Career and Technical Education.
- Cambridge, D., Kaplan, S. and Suter, V. (2005). *Community of practice design guide*. Denver, CO: EDUCAUSE. Retrieved from <http://net.educause.edu/ir/library/pdf/NLI0531.pdf>
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Retrieved from http://www.srnleads.org/resources/publications/pdf/nsdc_profdev_short_report.pdf

- Davis, M. (2011). Safe social networking tailored for K-12 schools. *Education Week, 30(35)*, 17-18.
- Dembosky, J. W., Pane, J. F., Barney, H., & Christina, R. (2005). *Data driven decision making in southwestern Pennsylvania school districts* (RAND Working Paper No. WR-326-HE/GF). Retrieved from http://www.rand.org/pubs/working_papers/2006/RAND_WR326.pdf
- Digenti, D. (1998). Toward an understanding of the learning community, *Organization Development Journal, 16(2)*, 91-96.
- Dornish, M., & Land, S. (2002). A conceptual framework for the integration of multiple perspectives with distributed learning environments. *Journal of Computing in Higher Education, 14(1)*, 3-27.
- Friedman, A. (2006). K-12 teachers' use of course websites. *Journal of Technology and Teacher Education, 14(4)*, 795-811.
- Foster, J., Pritz, S., & Kelley, P. (2009). *Professional development for educators on the use of assessment data*. Retrieved from http://136.165.122.102/UserFiles/File/One-pagers/NOCTI_Data_Assessment.pdf
- Guskey, T. R. (2003). Professional development that works: What makes professional development effective? *Phi Delta Kappan, 84(10)*, 748-750.
- Hodes, C.L. (1998). Developing a rationale for technology integration. *Journal of Educational Technology Systems, 26(3)*, 225-234.
- Hur, J., Cullen, T., & Brush, T. (2010). Teaching for application: A model for assisting pre-service teachers with technology integration. *Journal of Technology and Teacher Education, 18(1)*, 161.
- Land, S., & Zembal-Saul, C. (2003). Scaffolding reflection and articulation of scientific explanations in a data-rich, project-based learning environment: An investigation of progress portfolio. *Educational Technology, Research and Development, 51(4)*, 65-84.
- Lewis, A. (2000). *Revising professional development: What learner-centered professional development looks like*. Oxford, OH: National Staff Development Council.
- Martinez, M. (2010). Teacher education can't ignore technology. *Phi Delta Kappan, 92(2)*, 74-75.
- Mishra, P., Koehler, M., & Kereluik, K. (2009). The song remains the same: looking back to the future of educational technology. *Tech Trends, 53(9)*, 48-53.
- Morrissey, M.S. (2000). *Professional learning communities: An ongoing exploration*. Austin, TX: Southwest Educational Development Laboratory.
- National Research Center for Career and Technical Education. (2011). *Improving secondary career and technical education through professional development: alternative certification and use of technical assessment data*. Louisville, KY: University of Louisville, College of Education and Human Development.

National Research Center for Career and Technical Education. (2010). *Professional development for secondary career and technical education: Implications for change*. Louisville, KY: University of Louisville, College of Education and Human Development.

NOCTI. (2011). *Score report quickview guide*. Retrieved from <http://www.nocti.org/PDFs/Quickview.pdf>

Ryman, S., Vine, R., & Richardson, B. (2009). Creating and sustaining online learning communities: designing environments for transformative learning Part III: Sustaining a learning community through constructive controversy. *International Journal of Pedagogies and Learning, 5(3)*, 46-58.

Ryman, B., Hardham, G., Richardson, B., & Ross, J. (2009). Creating and sustaining online learning communities: designing for transformative learning. *International Journal of Pedagogies and Learning, 5(3)*, 32-45.

Sheninger, E., Carr, N., & Davis, M. (2011, March 2). *Pumping up district social-media strategies* (Webinar). Retrieved from the Education Week website: <http://www.edweek.org/ew/marketplace/webinars/webinars.html#archived>

Smith, C., Hofer, J., Gillespie, M., Solomon, M., & Rowe, K (2003). *How teachers change: A study of professional development in adult education* (Report No. 25). Boston, MA: National Center for the Study of Adult Learning and Literacy.

Sparks, D. (1994). A paradigm shift in staff development. *Journal of Staff Development, 15(4)*.

Vander Ark, T., Revenaugh, M., & Hite, W. (2011, March 30). Harnessing the 10 elements of high-quality digital learning for your school district (Webinar). Retrieved from the Education Week website: <http://www.edweek.org/ew/marketplace/webinars/webinars.html#archived>

Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston, MA: Harvard Business Press.

West, R.E. (2010). A student's guide to strengthening an online community. *Tech Trends, 54(5)*, 69-75.

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