Virtual Communities of Practice: A 21st Century Method for Learning, Programming, and Developing Professionally

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Abstract
Cooperative Extension can build on use of virtual Communities of Practice (CoP) to enhance educational programs and professional development. This article examines the way virtual CoPs can support the Extension mission and build on our heritage of integrity and innovation. Literature about virtual CoPs reports on successful implementation of these communities by the volunteer sector, eXtension, and by formal education to support professional development and content and program development. Cooperative Extension may benefit from the study of virtual communities of practice and their applications across the national system.

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Extension Embraces New Technology

Cooperative Extension has improved lives through non-formal engaged education each decade since the early 1900's. Extension's hallmark for educational programs has always been unbiased, research-based knowledge, practice, and education that engage individuals and communities, so they can improve their own lives.

Throughout the decades, Extension has earned a reputation among its clientele for being the first to introduce cutting-edge methods, equipment, technology, tools, and ideas to help address high-priority issues of people in local communities. Partners often look to Extension to learn about new technologies. As a result, agents and faculty often blaze the way for community-based adoption of technology, while facilitating economic development that provides technology access.

Learner and Community Centered

It is the community-based and learner-based focus that guides Extension's best practices. Engaged Extension educators and university faculty utilize the most current reliable knowledge, practices, methods, and technologies for learning, working collaboratively with people in local communities to:

- Define the local situation,

- Make informed choices,

- Utilize the latest research findings, and

- Address the most important local issues and problems.

Face-to-Face Learning

The effectiveness of Extension's community-based learning continues to be through face-to-face educational programs, club structure and membership, community groups, result demonstration projects, workshops, seminars, and one-on-one interactions. These face-to-face methods build capacity, create social networks that enhance leadership, and result in positive actions that strengthen communities. While these methods for learning are usually preferred, Extension has historically utilized cutting edge technologies to enhance local learning opportunities. For example, Extension was a leader in the 1900's in taking education to local community sites by wagon, horseback, and later by train.

As technologies developed, Extension used telephones for learning, introduced video-grams, videotaped educational presentations, and taught using satellite video conferencing. With the advent of the Internet, Extension established searchable Web sites, developed Web-based networks, and created online electronic learning communities. Each of these new methods for learning addressed local community-based needs and issues while expanding engagement with new audiences. We were working with communities of place while also strengthening targeted communities of interest that crossed time zones and geographic locations.

Internet Access

We found that the Internet transforms the way people work and how they seek and find information. It continues to change how Extension creates and delivers educational programs. County lines and state boundaries are less important to clientele using the Internet.

As a trusted source of unbiased, research-based information and programs, Extension is now repackaging content, teaching modules, demonstrations, community learning, and advice that can be used in multiple educational settings. One of these new forms is development of virtual communities of practice, where collaborative learning connects experts, partners, and community leaders to focus on one issue or problem.

Community of Practice

The term "Community of Practice" (CoP) was coined in the 1990's (Wenger, 1998). A CoP was defined as "a network of people who share a common interest in a specific area of knowledge (and) are willing to work and learn together over a period of time to develop and share that knowledge." Subsequently, the concept was implemented by self-forming teams within organizations, then across geographical locations. As technology and high speed Internet access became available, online virtual applications began to expanded opportunities for global co-learning. Wenger (2000) developed a simple formula to explain a CoP.

Competence + Experience + Engagement = a Community of Practice

Private sector and non-profit organizations alike recognized the value of creating an environment for CoPs that crossed their structure and sometimes included members from competing organizations. These communities became highly valued because the learning from such communities permitted organizations to be more flexible, move faster, address more complex issues and problems, develop new products, and attract and retain talent (Rein & Gustafsson, 2007).

Jennifer Preece (2003) described CoPs as follows.

> Originally the term COP was used widely to include almost any community that came together to discuss a specific topic; they included business, education, health communities and others. Typically the term is now associated with professional, work-oriented groups who are often associated with or hosted by companies and government agencies (Preece, 2003, p. 72).

eXtension Communities of Practice

In this decade, the national Cooperative Extension partnership across states created eXtension. This new initiative is redefining how to organize and distribute "practical knowledge supported by education and peer-reviewed science" (NASULGC, 2006). The vision of eXtension is to build upon Extension's rich heritage of local presence, local programming, and as the trusted source of the best practices.

Once again, Extension is in the vanguard of a revolutionary idea, with creation of a collaborative educational system application, using technology. The eXtension initiative is designed to foster collaborative learning across land-grant universities and employs self-selected Communities of Practice to guide and maintain online content development.

Barbara Hunter (2002) described CoPs as "the antithesis of bureaucracy" because they depend on relationships, shared values, norms, and standards. These "change communities" construct new

knowledge and products, and provide faster and more accessible collaborative learning. The development of CoPs has been adopted by the eXtension initiative, and it is a new method to support community-based Extension educators as "cutting edge change agents."

eXtension Communities of Practice (CoP)

The first example of effective CoPs is embedded within the structure and function of eXtension. As you will recall, the national eXtension initiative addresses needs and aspirations of learners by creating consumer-focused answers that are easily accessible, timely, cutting-edge, convenient, and trustworthy. To learners and clientele who identify their zip code, these answers are branded with their state Extension logo, so it looks and feels local.

Behind the scenes, the practical knowledge is supported by nationally recognized experts who are also learning and producing results through virtual Communities of Practice (CoP). Since 2005, at least 21 CoPs have organized and are building the foundation for the eXtension gateway. As of February 2008, 16 science-based subjects have been developed and released for public access. To experience this, see <http://www.extension.org/>.

eXtension CoP Role

Communities of Practice (CoP) supported by eXtension are defined as a virtual network of subject matter content providers consisting of faculty, professional and para-professional staff, county educators, industry experts, clientele, and government agency representation. These communities:

- Share knowledge or competence in a specific content area,

- Work and learns together over a period of time, and

- Continually update knowledge and best practices through the development of online educational products and programs.

They continually discover how to be more responsive and relevant to savvy online learners.

The CoPs also includes value-added professionals such as instructional designers, writers, designers, and editors. As a learning team, members of an eXtension CoP:

- Address the knowledge and practice needs of their virtual learners, and engage Communities of Interest (CoI) who rely on this new knowledge day to day.

- Identify the most recent research-based best practices to inform their educational products and programs.

- Act as stewards of the most current knowledge for their specific content area. The CoP team assures constant updates of the most recent findings and practices.

- Utilize innovation to continually improve access and delivery. This requires that Web-based information and education be timely, relevant, and presented effectively, so that issues facing targeted learners and experts address are useful now.

Multi-Institutional and Multi-Disciplinary eXtension CoPs

Because eXtension CoPs are designed to be multi-institutional and multi-disciplinary, they are open to the continual expansion of their membership. Members will move in and out depending on their interest and time availability; therefore, membership in the CoP is fluid and flexible.

CoPs capitalize on shared expertise and contributions to develop the best possible educational products and then constantly strive to improve those products based upon customer needs and feedback. These common themes of co-learning, co-leading, and developing new knowledge are also found in the communities of practice literature.

Communities of Practice Stages of Development

What may be evident is that the eXtension communities of practice are still evolving. Pemberton and Mavin (2007) note in a recent international journal article that many of the organized CoPs are indeed focused on co-learning and co-creation of knowledge as learning communities, but others function as work-teams and project teams with tasks to complete (Pemberton & Mavin, 2007).

Other CoP researchers indicate that groups may go through team development stages before they become a high performing virtual community of practice. Wenger, McDermott, and Snyder (2002), describe the stages of development using this timeline (Wenger, et al. 2002, p, 69, Figure 4-1).

Stages of Community Development in a Community of Practice

The jagged line represents the level of energy and visibility that the community typically generates over time.

Evaluation of eXtension Communities of Practice

Several patterns have emerged from these new and developing eXtension Communities of Practice. As they naturally develop into communities, they are continuing to develop trust, a collaborative spirit, a passion to improve through co-learning, and the management systems needed to support their content development in eXtension.

A review of eXtension CoP notes and recommendations captures the following CoP managerial issues. Internally, the eXtension CoPs are addressing:

- Frequency and quality of communication.

- Communication protocol for a virtual environment.

- Management and leadership design planning that builds the culture, documents accomplishments, plans and facilitates meetings, honors differences, and recruits new members.

- Time needed to foster and maintain trust, respect, and social capital through the best mix of virtual electronic communications and face-to-face meetings.

For eXtension CoPs, periodic face-to-face meetings are important to keep the community focused and productive. This face-to-face time permits development of greater trust, social learning time, and collaboration to set new directions.

The virtual work of eXtension CoPs appears to be best accomplished with defined leadership, defined member expectations, and deadlines. Mastering technology aids such as Web conferencing, instant messaging, watch lists, feeds, and Wikis is enhancing virtual CoP productivity and member interaction.

Volunteer Sector Communities of Practice

The second area where CoPs are working well is in volunteerism. One of Extension's strengths is the empowerment of volunteers who support, teach, facilitate, and evaluate local educational programs.

Belarby and Orange (2006) studied volunteer sector communities of practice in the United Kingdom's voluntary counseling and advisory service. They found that the people interviewed preferred to use the terms "learning" or "know how" when referring to their purpose. The most compelling issue that emerged was that volunteers were highly motivated to share what they knew, and they wanted to continue learning. Motivation to learn was the most important factor.

Volunteers, who were motivated to learn, exhibited self-confidence because they were already experts in this area before developing a community of practice. These volunteers exhibited self-awareness, a good attitude towards "being of service" to the organization where they were volunteering, and the desire to learn and share with others (Belarby & Orange, 2006).

The volunteers felt that communication was an important part of learning and that sharing personal life experiences, stories, and events was a significant factor in evolution of their learning (Belarby & Orange, 2006). The creation of Extension virtual communities of practice for experienced volunteers may significantly improve local volunteerism for these highly skilled and seasoned volunteers and is likely to result in new knowledge. Supporting an environment for volunteers who desire to develop a virtual community of practice could be of great value to Extension programs in the future.

Professional Development

The third area where CoPs were found to be effective is in-service and professional development. Research studies involving virtual communities of practice in professional development describe using CoPs to improve professional skills and competencies in public schools, higher education, and in the corporate world.

In a study of video community of practice environments in the Province of Alberta, one of the findings was that video-conferencing as a CoP tool enhanced and expanded "administrative services and professional development" (Alberta Education, 2006). It is important to note that this study was conducted only after the development of the Alberta Super-Net that enabled easy-to-use

and reliable high-speed Internet access with video conferencing.

In another study by the audiology department of the University of Florida, virtual CoPs were found to be more effective than other alumni programs in maintaining ongoing engagement among graduates and with faculty. It was reported by Colle and Holmes (2002) that the graduated audiologists from the University of Florida benefit from the university's online CoP approach. Faculty co-learners reported: "Not only do students attend the course meeting at their site, they have a corresponding virtual meeting room. The cyberspace meeting place supports both chat and message posting activities" (p.27).

Jennifer Lock (2006), the University of Calgary, studied online learning communities for teacher professional development. She warns against developing CoPs for professional development as an "add on" to conventional programs. She outlines three major changes that must occur in order to make the shift from lecture style learning to educators taking responsibility for their own collaborative learning.

1. Perceptions of professional development options for educators must change to include purposeful online processes that are "fluid in nature" (Lock, 2006, p. 663).

2. Use of online CoPs for professional development must be based on educators needs vs. what others choose. (Lock, 2006, p. 663).

3. Communities should be open to other educators locally, as well as to educators around the world.

She concludes by identifying obstacles that must be addressed to be successful.

- The technology may not be reliable, accessible.

- Educators may not have adequate technology skills, or they simply may not be ready to learn in this manner.

- The school culture may not support this kind of professional development.

- Last, it takes time to develop a high quality virtual community of practice. There may be a limit to the number of performing CoPs that are focused on teacher professional development, therefore, access to an existing high quality community may be limited (Lock, 2006).

Virtual CoP Effectiveness Summary

In a review of online communities' literature for the New Zealand Ministry of Education, four findings were reported that describe why CoPs were effective (Lai, Pratt, Anderson, & Stiger, 2006).

- Implementation of a CoP requires a shift in emphasis from formal training to learning in practice.

- Communities of practice go beyond traditional "one-shot" and "face-to-face" models of event-based, expert-novice forms of professional development.

- Communities of practice allow teachers to act as co-producers of knowledge, which requires greater personal responsibility for professional growth.

- Currently, communities of practice are only infrequently used for teacher professional development (Lai et al., 2006, p. 4).

Ladewig and Rohs (2000) reported on leadership development in the Southern region. One of their recommendations reads like a precursor to development of virtual CoP.

A systematic training program designed to develop leadership and managerial capacity, communications proficiency, and team skills should be provided to existing and potential leaders in Extension. Organizations in the information technology era will increasingly rely on self-designed, self-managed teams (Ladewig & Rohs, 2000).

Recently, Senyurekli, Dworkin, and Dickinson (2006) studied online professional development. They identified several factors important for co-learning in a geographically distributed team. These criteria are also important in a virtual CoP. They found that online learning must be relevant, learners must learn or have appropriate technology skills, and learners must be intrinsically motivated to actively participate.

They also recommend that if the goal is to develop social capital among learners, a menu of various online technology communication options must be available. They specifically mentioned Weblogs (Blogs), message boards, chat, Web casting, and synchronous online meetings.

Future Study

It would be helpful if studies were conducted to learn more about the effectiveness of implementing virtual CoPs in Cooperative Extension programs and throughout engaged university programming. Can we conduct scholarly program research that will determine if virtual CoPs:

- Effectively address the needs and aspirations of new online communities of learners?

- Enhance outreach and Extension program outcomes?

- Help learners and university partners address more complex issues?

- Result in becoming agile, flexible, and responsive to clientele needs and aspirations?

- Lead to development of new and engaging knowledge and products?

- Increase program outcomes?

More research in this new method of teaching and co-learning is needed as we continue to become more skilled with electronic learning opportunities.

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