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CULTIVATING eXtension COMMUNITIES OF PRACTICE

A Dissertation Presented

by

Judy H. Branch

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements
for the Degree of Doctor of Education
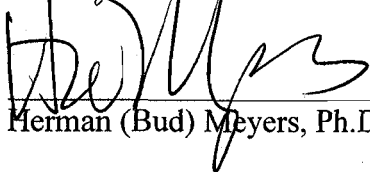Specializing in Leadership and Policy Studies

May 2008

Accepted by the Faculty of the Graduate College, The University of Vermont, in partial fulfillment of the requirements for the degree of Doctor of Education, specializing in Educational Leadership and Policy Studies
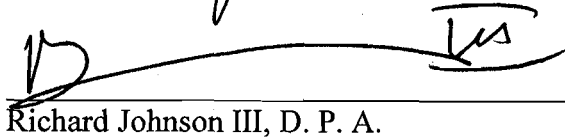
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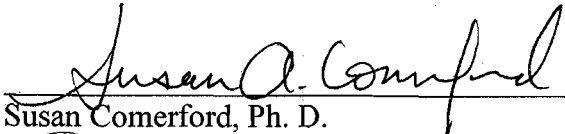
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Title: Cultivating eXtension Communities of Practice

ABSTRACT

This study empirically describes and analyzes the characteristics and functionality of the "Communities of Practice (CoPs)" used within eXtension, a new initiative of the Cooperative Extension (CE) system. It also endeavors to lay the foundation for empirical analysis of CoP processes, which to date have been explained almost exclusively using qualitative case study methods.

Land-grant universities were founded on the ideals that higher education should be accessible to all, that the university should teach liberal and practical subjects and should share the college's knowledge with people throughout their states. eXtension is an educational partnership of more than 70 land-grant universities. Its reported purpose is to help Americans improve their lives with access to timely, objective, research-based information and educational opportunities accessed through http://www.extension.org . This Web resource is customized with links to state land-grant university CE Web sites.

This mixed-method, action research project applied to the virtual environment describes the extent to which people who became part of an eXtension Communities of Practice (XCoPs) reported that they engaged in purposeful cycles of continuous inquiry in dialog, decision, action, and evaluation (DDAE) and the attainment of eXtension's goals. An Internet survey obtained descriptive data of members' participation within the eight pioneer XCoPs to assess the extent to which each XCoP engaged in the DDAE cycles of inquiry. Analysis of the survey data resulted in the categorization of low-, medium-, and high-level functioning XCoPs. Members of three pioneer XCoPs representing each category (low, medium, high collaboration) participated in online interviews that revealed how CE's reward structure, XCoP membership composition, and leader/member skill sets impact XCoP performance in meeting eXtension goals. Two sets of "best practices" for eXtension initiative staff and XCoPs emerge from the discussion of triangulated data.

ACKNOWLEDGMENTS

Without the opportunity that Jane Schuchardt, Debra Pankow, Nancy Porter, Barbara O'Neil, and Sharon Seiling, gave me to work in the eXtension Financial Security for All Community of Practice, I would not have written a paper on this topic.

Without Nelda Young's excellent tutelage in high school to master first the manual and then the *new* electric typewriters, I would not have had the skills to work in a virtual environment and draft this paper.

Without the personal encouragement of Joe Hilton, Cheryle Selan, Holly Lukens, Deborah Straw, and Bruce Conklin, I would not have had the fortitude to develop the project into this paper.

Without the University of Vermont's comprehensive structure for in-service professional development including the Center for Teaching and Learning, credit coursework, and sabbatical leave, my journey since 1979 culminating in this paper would not have been possible.

Without the guidance of Susan Hasazi and the responsive facilitation of Christopher Koliba, Bud Meyers, Ricardo Johnson, and Susan Comerford in

DEDICATION

To my father, who revered education all his long life and died in July 2004, at age 92, not completely understanding the true value of education;

And to my sister, Laune, who gave the excellent care I wanted for my mother before she died March 20, 2008 at age 95;

And to my mother, who will always be with me;

I dedicate my story with awesome and enduring gratitude and thanks.

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EXECUTIVE SUMMARY

"It was the best of times, it was the worst of times; it was the age of wisdom, it was the age of foolishness; it was the epoch of belief, it was the epoch of incredulity; it was the season of Light, it was the season of Darkness; it was the spring of hope,…"
~~~Charles Dickens (1859, A Tale of Two Cities)

Over 200 years later, Dickens' dichotomies that began his famous novel, set in London and Paris from approximately 1775 through 1792 and encompassing the period of the French Revolution, stir present-day feelings about the conditions of our lives. The contexts for Cooperative Extension Service (CES) and eXtension can also be discussed as best/worst of times scenarios. On one side, CES is a bureaucratic, hierarchal, traditionally agriculture-related, almost 100-year-old organization. It is nestled into over 100 land-grant universities across the United States and its territories that are grappling with shifting educational paradigms (transfer vs. collaboration) and corporatizing (supported activities must improve university wealth) management structures. CES's non-credit presentations and course work have traditionally been supported with public funding at the county, state, and federal levels, thereby setting up the public to expect CES to be without cost to the individual. Universities tend to marginalize programs that cannot enhance revenues. The agriculture community shrinks daily while other audiences that need the information CES can provide grow exponentially. Communication technology has changed the way CES can reach audiences; however, its aging workforce is largely unskilled for making full use of communication advancements. Fully embracing communication technological changes for CES faculty is

complicated with fear that the time spent in learning, authoring, and experimenting with cutting-edge technology to reach new and vast numbers of people will not be valued and rewarded in reappointment, promotion, and tenure (RPT) decisions.

An opposite scenario filled with hope and joy and easy comfort about collaboratively working together to create CES resources and learning opportunities on the Internet can also be told. Visions of universities valuing this new convenient educational service, embracing the scholarship of eXtension faculty, and valuing CES's "learn by doing" philosophy are the contextual perspectives of the following story. As a University of Vermont CES faculty member, I have been vigilant about making every effort to eliminate bias in the analysis and interpretation of my research data. I believe my choice of overall optimism about the potential of eXtension to CES's ability to thrive and survive in an information age is not relevant to my analysis. It reflects one of my core beliefs that "battling" the negative and resisting what is not wanted are not as effective as working together to bring to fruition a shared vision of what is wanted. eXtension has offered an optimistic vision for CES and is worthy of the interest it has created for investigating the processes and functionality of eXtension Communities of Practice (XCoPs).

Chapter 1 defines eXtension as an initiative of the CES and provides a historical perspective of this almost century-old organization for non-credit adult education sponsored through land-grant universities throughout America. It endeavors to give the rationale for creating eXtension, its three-year history, and

what users may need to know to be able to trust the information found on the Internet at www.extension.org. It also attempts to explain what one needs to know about eXtension to be able to become a member of an XCoP and/or to create an XCoP.

Three categories of literature are discussed in Chapter 2 as preparation for a research design that focused on XCoPs. First, the reification of eXtension is explored with the underlying question of whether the creators of the XCoPs were using the term CoPs as a popular label or as a conceptual guiding force. Second, the characteristics and functionality of the construct *communities of practice* are sought in the literature. And finally, a review of the literature on virtual CoPs reveals how they differ from face-to-face CoPs in their needs for facilitation to build trust. The literature review results in concluding that the understanding and facilitation of engagement in XCoPs could be enhanced by asking the following research questions:

1. What are the process dynamics of the XCoPs?

2. How well are XCoPs functioning?

3. What is the relationship between XCoP collaborative functioning and productivity in meeting organizational goals?

4. Can an instrument or series of instruments be used to assist XCoPs experiencing difficulty?

In Chapter 3, the rationale for the project design, population selection, and methods are explained. This mixed-method, action research study experienced

challenges with the population selection and respondent rate for the survey. The use of an adapted survey that had not been quantitatively normed required a pilot test. All Chronbach alpha scores on the pilot data were over .90, showing high internal reliability for the instrument. Further work must be done to fully establish the validity and reliability of the instrument to return empirical data regarding a CoP's quality of collaborative dialog, decision, action, and evaluation (DDAE).

To make this project manageable in a six-month time frame, the plan specified that three of the eight pioneer CoPs would be selected for online interviews based on the Community of Practice Collaborative Assessment Rubric (Gajada & Koliba, 2007) scores obtained in the online survey. An XCoP was selected from each of three score ranges that suggested the quality of collaboration was comparatively higher, medium, or lower among the eight. After completing the study, it was obvious that online interviews of all eight pioneer XCoPs would have improved the survey respondents' understanding of the DDAE collaborative cycles and possibly increased the number of responses. Surprisingly, eight interviews would have been manageable in the six-month time frame. A conclusion drawn from this study is that technology has made it fast and convenient to set up and conduct virtual focus groups and efficiently process the data after the interviews. Future studies will reverse the order of this project's design by conducting the focus groups first and then inviting respondents to complete the survey.

Analysis of the quantitative and qualitative data is presented in Chapter 4. Data from the virtual focus group interviews were used to compose three case study

XCoP assessments of the efficacy of their DDAE cycles of inquiry. The interview data were compared with the CoP—Collaboration Rubric (CoPCAR) scores for the three pioneer XCoPs interviewed in an effort to determine how well the scores predicted the quality of collaborative processes for the comparative groupings of scores into low, medium, and high categories. CoPCAR scores were predictive only for the XCoP having a lower score. Comparison of CoPCAR score ranking and the ranking of all eight XCoPs productivity revealed only one match and raised the problem of determining appropriate productivity measures. Conclusions drawn from all the quantitative tables and the case study data are discussed in Chapter 5.

The final chapter for the project consists of two parts: (1) conclusions addressing the four questions in the study and (2) contributions of the study to CoP literature, CES's virtual success, and my personal and professional development. In the first part, I discuss my conclusions drawn from the project data about the process dynamics and functioning of the pioneer XCoPs. The question about the relationship between XCoP collaborative functioning and productivity in meeting organizational goals is thoroughly explored with an acknowledgment that agreement on what measures productivity is problematic. I also propose what remains to be done to produce reliable instruments to assess CoPs processes and functioning empirically. In the final part of Chapter 5, I discuss the project's potential contributions to CES, to the study of CoPs in general, and to my professional and personal development. A list of tables and a glossary of acronyms

(Appendix A) are available to guide readers while they discover eXtension and the

XCoPs in my project report.

LIST OF TABLES

CHAPTER 1: WHAT IS eXtension?

What a man hears, he may doubt: what he sees, he may possibly doubt;
but what he does, he cannot doubt. ~~Seaman A. Knapp

An initiative of the Cooperative Extension Service (CES), eXtension is a

nonprofit foundation with the following vision:

- eXtension provides educational products and programs any time, any place, any format, and on any Internet-ready device.

- eXtension provides access to information, 24 hours a day, 7 days a week, 365 days a year (24/7/365), as needed by people to make decisions to improve their lives.

- eXtension has national shared strength with local customized focus.

- eXtension's content is dynamic and evolving.

- eXtension complements and enhances the community-based CES System of the land-grant universities.

- eXtension increases visibility of CES by reaching new audiences and expanding partnership opportunities.

- eXtension promotes collaborative development of Internet-based educational materials and minimizes duplication.

- eXtension provides on-going linkages between Communities of Practice (CoPs) and Communities of Interest (CoIs).

  (Gamble, 2005, p.1)

The Cooperative State Research Education and Extension Service (CSREES) in the

United States Department of Agriculture (USDA) is the federal partner for CES

educational activities sponsored at land-grant universities in every state in the

nation. The partnership was formalized with the Smith Lever Act in 1914. Today,

CES offices are found in almost all of the more than 3000 counties throughout the nation. Although the public is likely to consider CES of the USDA/CSREES an agricultural organization, its business has always been transferring the knowledge created in higher education to the public for practical application. Federal funding matched with state and county funds developed educational work in agriculture and home economics based on the demonstration methods of Seaman A. Knapp, who is called the "Father of Extension." Learning by doing has been CES's primary educational method with adults and youth. CES 4-H Clubs have always multitasked this concept by providing 4-H leader parents learning opportunities about leadership, age-appropriate behaviors, and content for their interests at the same time their 4-H member children were learning the same thing. CES's primary delivery method has been person-to-person interchanges to support behavior changes resulting from the learners' engagement in experiences.

As America evolved from an agricultural society through an industrial age to the present information age, population growth migrated from rural to urban and suburban areas. CES, which had traditionally focused on rural adult audiences with agriculture-related problems, found its agriculture-based audience diminished. Increasingly larger urban and suburban audiences had information needs for problem solving around such issues as aging and health, personal finances, youth and community development, food security and nutrition, and biosecurity, a lengthy list of concerns spanning all age groups. This situation increasingly challenged the

CES information delivery system to provide up-to-date, unbiased, researched information that could be accessed conveniently by ever larger audiences.

To begin to manage this challenge in a manner that is competitive in the present information age, the vision of an electronically based CES to collect, manage, and distribute the institutions' researched information on the Internet began to take form during the decade of the 1990s. Arguments for CES to provide its educational resources on line reached a crescendo at the turn of the century (Boehlje & King, 1998; Cotton, 2006). Advances in communications and information technology (CIT) and a political, economic, and social climate that recognized the value of knowledge as a product crowded the field in which CES had been the major, official, trusted provider until the last quarter of the 20th century (Boehlje & King, 1998; Cotton, 2006). By the year 2000, commercial Internet Web sites, exponentially expanding daily, were providing information related to agriculture, home maintenance and renovation, horticulture, and youth development issues, to name a few of the many topics for which CES traditionally provided expertise. CES professionals were increasingly concerned about the inaccuracies and bias of Internet information. There was growing awareness that the individual state university CES Web sites were not competing very well in the new national, indeed global, information economy. External consultants and internal evaluators frequently came up with the same statement: "Extension's rigorously researched, unbiased, effectively presented information is the best kept secret in the nation."

CES's shrinking operating funds and expanding audiences demanded a unified national presence by which information could be created and maintained without redundancy costs and its reputation and convenience of educational services could attract public use. CES CIT directors understood the value of searchable electronic data from the "best of the best" national expertise to support the traditional hands-on work of CES's place-based activities while attracting new audiences without incurring additional cost. Transforming the traditional bureaucratic paradigm—"deeply held and largely unconscious set of assumptions and values" (Zohar, 1997, p. 24) —of CES's organizational management to encourage all CES personnel to acquire the necessary tools to engage actively in all the Internet opportunities for teaching and learning became the challenge for a small group of technologically advanced CES employees. The paradigm for face-to-face educational delivery to improve the quality of life for families and individuals was not sustainable. However, the CES workforce as a whole lacked the attitudes and skills to use new technological tools to create a strong presence in the Internet economy. Zohar (1997, p. 24) called this kind of situation "the Paradigm Paradox." The paradigm that is necessary to make sense of the present organization will not allow organizational change from within the existing structure. Advancing to a new paradigm using the thinking of the present paradigm is impossible. CIT specialists in CES needed to create a new entity with new thinking about program delivery.

Early on, eXtension was referred to as e-CES (King & Boehlje, 2000), and it was conceived as a new virtual CES to avoid *incrementalism*, a term technology

specialists use to express the slow adoption of innovative practices within traditional organizations. The transformation of CES's traditional knowledge delivery system from its focus on distributing information the organization deems is needed, at a time and location the organization selects, to a focus on the user's anticipated needs became eXtension's major goal. The Web-based foundation of eXtension enables access to high-quality, well-researched knowledge at a time and location the user selects (Terry Meisenbach, 2006) 24/7/365. Dan Cotton, Director of eXtension at University of Nebraska at Lincoln, described eXtension as "the modern evolution of the land-grant university system" (Cotton, 2006).

To regain its competitive edge in managing knowledge (Hara & Kling, 2002; Hildreth & Kimble, 2004; Morey, Maybury, & Thuraisingham, 2000; Tourish & Hargie, 2004), CIT experts and CES content specialists began creating eXtension in 2005 as an affiliate entity to interface with the public and to create, manage, and maintain Internet-based educational resources to support place-based education. A group of CES CIT specialists leveraged funding in 2005 to create an electronic interactive searchable resource they named *eXtension (*pronounced ee-extension). eXtension was established as a nonprofit foundation, thus enabling it to process contracts and funds independently. Startup funding for eXtension came from the development of a monetary assessment for each state CES organization in proportion to its budget size. Another source of funding was an appropriation of $1.5 million in the US president's budget for New Technologies for Agriculture Extension in 2005.

eXtension Communities of Practice

     The eXtension CoPs (XCoPs) were born in 2005 when the eXtension staff (Xstaff) established a process for funding CES groups collaborating in educating the public in the subject areas in which CES has expertise and knowledge to create learning opportunities. Although XCoPs are organized around the creation, maintenance, and distribution of subject matter, a primary organizational purpose of XCoPs is to facilitate CES faculty and staff throughout the United States in learning how to create opportunities for learning in a virtual environment for themselves and their audiences. The Xstaff is composed of a director, two associate directors for content, a development officer, an evaluation specialist, and a fluid number of CIT specialists in part-time to full-time positions. Most of the staff members were employed in CES in one capacity or another before filling eXtension positions. Dr. Cotton, eXtension Director, was the CIT Director at the Institute of Agriculture and Natural Resources at the University of Nebraska at Lincoln. Before becoming an Associate Director for eXtension, Dr. Carla Craycroft had been the Director of Agricultural Communication Services and Computing for the University of Kentucky College of Agriculture since 1995. The other eXtension Associate Director, Dr. Craig Wood, had been associated with the University of Kentucky since 1985 as the Coordinator of Distance Learning for the College of Agriculture.

     It is difficult to determine whether the Xstaff named the eXtension workgroups CoPs because of their understanding of the theoretical construct or simply because the term is popular in education, business, and organization

improvement literature. Information about the *CoPs* concept first appeared in Xstaff publications in February 2007. Regardless, eXtension announced successful applicants of a request for proposals process in September 2005, to recognize formally the first eight XCoPs, which became known as the pioneer XCoPs. The funding from eXtension of $75,000 for each CoP was set up through Offices of Sponsored Programs at the home institution of each CoP leader (Principle Investigator). Thus, funding dates for the eight pioneer CoPs vary only by months. The first CoP National Workshop was held in March 2006 at the Brown Hotel in Louisville, Kentucky. About that time, the CoP *wiki* was being developed as the main tool for content collaboration and entry.

A wiki is software that allows XCoPs to create, edit, and link Web pages easily. According to Wikipedia, which is one of the best-known wiki Web sites, Ward Cunningham developed and installed the first wiki on the Web in 1995 and named it *wiki* after the wiki-wiki Honolulu International Airport shuttle bus that makes quick connections between the airport's terminals. Wiki-wiki is an alliterative substitute for *quick.* In contrast to Wikipedia, in which editing can be done by anyone on the Internet, the eXtension wikis offer editing opportunities only to eXtension account holders. Over the past three years, Xstaff members have built wikis and management systems for membership and events. The CoPs' collaboration wiki was the first constructed for content development, maintenance, and publishing. An *about* wiki was created for the collaborative development of resources about the eXtension initiative: news, governance, and projects. A

collaboration wiki for CES and their partners was constructed to encourage CoP members to collaborate on line with any group in CES and the university systems outside XCoPs.

To obtain an eXtension account (eXtensionID), individuals closely associated with the CES system (land-grant institutions, state colleges, or US government personnel affiliated with CES) or individuals in CES-related organizations working on projects with CES staff can enter the people management system at https://people.extension.org/account/signup and complete a registration form. Their membership information will appear in the XCoP CoI of the topic in which they indicate an interest. An eXtensionID enables XCoI members to engage in professional development sessions, publish their local events on the national calendar, observe the business agendas of all the CoPs, give feedback on CoP issues, and submit publications for CoP review and publishing. If a CoI account holder wishes to engage in a subject-matter CoP as a member, an email note committing to a particular aspect of the CoP work should be sent to the desired topic CoP leader. CoP leaders, members, and publication contributors sign agreements to release individual intellectual property rights to eXtension. All leaders' contact information for each XCoP is listed in the "People" wiki management system.

CoP leaders are "land-grant faculty or professional staff with Extension appointments whose institutions are in good standing with eXtension" (Craycraft, 2007). The leaders of recognized XCoPs review the eXtension vision, mission,

values, goals, and guiding principles (Gamble, 2005), and they sign an agreement outlining the philosophy of eXtension. The leaders of XCoPs share the budget decisions, plan and report the work of the CoP, and set up structures for subcommittees, for example, in managing the Frequently Asked Questions (FAQs) system, evaluation processes, and sustainability strategies through partnerships.

The FAQ system was unveiled in July of 2006 and now consists of two parts, the questions and answers and an Ask the Expert (ATE) feature. In the creation side of the feature, questions that CES audiences have asked recently or over the years of office administrative assistants, program educators, and curriculum specialists, among others, are written for each CoP topic area. CES researchers and specialists write answers to those questions. At least two subject-matter experts review and edit each FAQ question and answer in the appropriate CoP collaboration wiki. An FAQ coordinator in each XCoP organizes the FAQs according to established key word categories and signals CoP reviewers who are engaged in a key word team. A first reviewer will signal that the FAQ is ready for a second review by clicking the appropriate button in the FAQ wiki. The coordinator notifies the second reviewers, who review, edit, and click the *ready for copy editing* button in the wiki. Xstaff ,or a CoP designate, copy edits each question before Xstaff publishes the FAQs to the Web site, where users can search by key word for answers to their questions. When users cannot find an FAQ that answers their question, they are invited to submit their unique question to the ATE system. Each XCoP must have identified experts across the nation who are ready to research and

answer a specific question on a key word topic promptly. *Promptly* is defined in different amounts of time by the different XCoPs, but a 48-hour turnaround is the minimum expectation.

The work of creating, reviewing, organizing, promoting, and interacting with the public in content areas has become the work of XCoPs. The eXtension initiative defines an XCoP as a virtual network of subject-matter content providers consisting of faculty, professional and paraprofessional staff, county educators, industry experts, and government agency representatives who share knowledge or competence in a specific content area and who are willing to work and learn together over a period of time to develop and further share their knowledge in forms of educational products and programs and electronic interactions with customers (Craycraft, 2007).

The first pioneer XCoP launched its Web pages to the public on September 8, 2006. From then until the national eXtension launch celebration on February 21, 2008, the eXtension public Web site http://www.extension.org published 16 of the 21 XCoPs' resources. The other five will soon be launching their resources with those published in one of the following categories: **Community** (Diversity across Higher Education; Entrepreneurs and Their Communities; Gardens, Lawns, and Landscapes; Geospatial Technologies; Imported Fire Ants), **Disaster Issues** (Agrosecurity and Floods), **Family** (Family Caregiving; Parenting; Personal Finance), **Farm** (Beef Cattle; Cotton; Dairy; Horses; Livestock and Poultry Environmental Learning Centers), **Pest Management** (Wildlife Damage

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Management), and **Youth** (Science, Engineering, and Technology for Youth). New categories will be created as needed as new XCoPs publish their resources.

Personal Experiences with XCoPs

This general overview of eXtension is what it has evolved into and become over three years. When it started in 2005, little of the earlier description was in place to be communicated to prospective CoP leaders and members. Despite the ubiquitous use (Lea, 2005, p. 186) of the term *communities of practice* associated with teaching and learning today, when I flew to Phoenix in mid-November 2005 for an XCoP orientation, I thought CoP was just another label for a *team, taskforce, or committee;* the term carried no embedded meaning for me. The orientation did not mention Wenger's (1998) or any other approach to social learning that is found within the literature. It was all about meeting face to face with the other CoP leaders (from DC, NJ, ND, ID, OH, WY) with whom I have been in regular media contact from 2006 to the present. A facilitating consultant cajoled us into games and exercises (like many I had participated in with other groups over my long career with CES) to build trust in one another. Although I was distantly acquainted with two people in the group, I was the outsider. Most of them had worked together on national projects in the past. I, on the other hand, was transitioning from a national assignment in curriculum development with 4-H youth (another CoP, I now realize), and because of that experience, this new XCoP had accepted my application to lead their youth subgroup.

The other introduction at that orientation meeting in Arizona was to the *wiki*,

Internet software that provided the framework for our collaborative work spaces. As

luck would have it, my laptop's wireless connector was too weak to access the wiki

with the group, and I left the meeting having technically gained not much more than

a not fully defined new word for my vocabulary and twinges of apprehension about

learning the skills needed to operate in that environment. During 2006, I eventually

learned the meaning of the word *wiki* when our CoP leadership group collaborated

on a presentation about eXtension for a national conference. This Hawaiian word

meaning quick was in ironic contrast to the way I initially felt about learning to

work in that new environment.

Except for the technology learning curve, my XCoP experiences

were not different from the way I had worked in CES for years. The

professional associations in which I have had memberships and have held

various leadership positions at the state and national levels, my relationships

with colleagues in CES in county and then regional offices, and my service

with university groups such as the Faculty Senate and the Professional

Standards Council can all be analyzed as learning experiences with a CoP

lens. Certainly, my graduate study experiences since 2000 have been shaped

by social learning theory. Having endured the "transmission model of

learning" (Lea, 2005) for all of my formal education until I dropped out of a

program in the early 1990s, I was pleasantly surprised that the core courses

for my present graduate program were built around cohort collaboration.

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Other experiences with my XCoP during 2006 added information about the vision, mission, principles, and objectives of this new entity called eXtension, but my focus was always on *doing* whatever part that was my responsibility of what our leadership group decided we needed to do next. My work for eXtension was organized with regularly scheduled conference calls. Working on the next XCoP project and other parts of my CES plan absorbed my time, with little left for study and reflection.

It was not until early 2007, when I discovered that my program advisor is deeply involved and contributing to the study of social learning theory, specifically the CoP perspective, that I began thinking about designing a research project to study XCoPs. My sabbatical plan had included finding out more about CoPs, but I had not thought of any questions that were worthy of a dissertation. I knew that I was functioning in several CoPs, but I had not read much about it and did not consciously connect the concept with social learning theory that I had read about in my graduate core courses. For me, researching CoPs was like asking fish to ask questions about the water in which they swam. Reading the research gave me the questions.

CHAPTER 2: SOCIAL LEARNING THEORY: A CoP PERSPECTIVE

"Together, joined in effort by the burden, they staggered up the last steep of the mountain. Together, they chanted One! Two! Three! and crashed the log on to the great pile. Then they stepped back, laughing with triumphant pleasure..."
- William Golding, from Lord of the Flies

eXtension's CoP Literature

The educational philosophy of the Cooperative Extension Service (CES) developed out of the literature on adult education. Malcolm Knowles (1998) is referenced as the "Father of Andragogy" in the United States because he attempted to develop a theory of adult learning. Knowles explained that a *theory* can be tacit as well as explicit because it references a set of assumptions or an ordering system that summarizes facts, assumptions, generalizations, and hypotheses. *Andragogy* now applies to any form of adult learning and references learning for all ages when the instructional method focuses more on the process of learning and less on the content learned. Knowles (1998, p. 11) defined the term *learning* as focusing on the actions of a person whose behavior, knowledge, skills, and attitudes change as a result of participation and engagement in a learning situation. He described the adult learner as self-directed and capable of taking responsibility for decisions. Topics that have immediate value facilitate learning for adults especially when adult learners are encouraged to create their own strategies, experiment with problem solving, and reflect on what works.

The concepts of communities of practice (CoPs) are rooted in constructivism (C. M. Johnson, 2001), which is characterized by situated social learning. Problems are communally structured, and goals are negotiated among

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group members, leaders, and facilitators. "Constructivism stresses that all knowledge is context bound, and that individuals make personal meaning of their learning experiences" (Knowles, Holton III, & Swanson, 1998, p.142). Learners in this perspective "actively create knowledge and meaning through experimentation, exploration, and the manipulation and testing of ideas in reality" (Palloff & Pratt, 1999, p. 6). Teamwork, shared goals, collaboration, interaction, and feedback guide approaches to learning from the viewpoint of constructivism. The parallels between constructivism and andragogy embraced in CES education include learners' taking ownership of the learning process through experiential learning and problem-solving approaches (Knowles et al., 1998, p. 143). These characteristics describe the learning conditions for adults in XCoPs as well.

For CES, eXtension began referencing CoP literature in February 2007 (Wood & Craycraft, 2007, p. 1) in a Web page section titled *Referenced Background Information on Communities of Practice.* Paraphrasing Etienne Wenger's (1998) definition of CoPs as "a network of people who share a common interest in a specific area of knowledge or competence and are willing to work and learn together over a period of time to develop and share that knowledge," Wood and Craycraft comment that the concept of CoPs is not "unique to eXtension" and is also found in business literature. They note that transforming the CoP concept to the "mission and vision of eXtension has been an easy task, since informally, Extension has been functioning with CoPs in numerous content areas for years" (2007, p.1). They assure CES personnel that CoPs are composed of voluntary members whose

existence is defined by its group members, and the focus of their goals is more fluid and general than are the goals of workgroups or teams. Wood and Craycraft (2007) list the following positive things eXtension CoPs (XCoPs) will do for CES by providing a vehicle for developing, sharing, and managing specialist knowledge: XCoPs will help stop "reinventing the wheel," will cut across boundaries and reporting lines, and will be more flexible than the traditional organization units. XCoPs can provide early warning of potential opportunities and can create new knowledge in response to problems and opportunities. Finally, XCoPs can be a vehicle for CES cultural change by creating a knowledge-sharing culture with a largely self-organizing approach. The eXtension Associate Directors also outlined the following benefits that XCoPs provide for individual members:

- Provide access to expert help to expand horizons, gain knowledge, and seek help in addressing work challenges

- Help members to feel more conscious of, and confident in, their own personal knowledge

- Provide a nonthreatening forum to explore and test ideas or validate courses of action

- Foster a greater sense of professional commitment and enhance members' professional reputation (Wood & Craycraft, 2007, p.1)

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Community of Practice Literature

The construct CoPs was first introduced as a social learning theory in the 1990s (Lave & Wenger, 1991; Wenger, 1998). Credited with naming the concept and providing a theoretical basis for CoPs (Fontaine & Millen, 2004; C. M. Johnson, 2001; Koliba & Gajda, accepted for publication; Rogers, 2000), Etienne Wenger (1998) observed that our traditional institutions for learning are "largely based on the assumption that learning is an individual process, … separated from the rest of our activities, and that it is the result of teaching" (p. 5). He refutes these assumptions while building a case from the obvious for a theory of social learning based on four premises:

> (1) as social beings, connection with others is central to our learning processes; (2) learning is to gain knowledge to be able to do the things a culture values; (3) knowing enables one to engage with others in perfecting and contributing to those valued activities; and (4) learning and knowledge enable people to experience their world and engage in it to create meaningful lives (1998, p. 4).

The defining characteristics of CoPs are mutual engagement, joint enterprise, and a "*shared repertoire* of common resources of language, styles and routines by means of which they express their identities as members of the group"(Barton & Tusting, 2005, p. 2). *Situated learning* is defined as participation in a CoP. The primary learning method in a CoP is participation. Wenger's (1998)

original concept of CoPs integrated the four social learning components: *meaning, practice, community, and identity* embedded in familiar experiences (1998, p. 5).

Defining *practice* as a "level of social structure that reflects shared learning," Wenger (1998, p. 126) observed that some "communities of practice may be seen as forming a constellation" (p. 127) because they share historical roots, have members in common, belong to an institution, face similar conditions, have overlapping styles, share artifacts, or compete for the same resources. *Constellations* can be understood "in terms of interactions among practices" (p. 129). *Boundary spanning* is a process whereby one learning community interacts with other CoPs in and beyond its constellation.

In this process, there are individual trajectories as well as CoPs trajectories. Individuals can be described as located on the periphery or in the center of a CoP depending on their level of engagement in community learning (Wenger, 1998, p. 101) Trajectories also locate individuals in the CoP in describing increasing engagement as moving toward the center (Wenger, 1998, p. 154). Members who take on CoP leadership roles have moved to the center, and their trajectories become stabilized for a time. Eventually, they mentor other leaders, and their trajectories may be away from the center of one CoP in order to take on new challenges in other CoPs. Trajectories away from the center of one CoP may predict loss of interest or increased engagement in another CoP and may be described as growth in personal identity for an individual taking on new learning challenges. Trajectories and identity formation can also describe CoPs in

constellations (Wenger, 1998, p. 168). The CoP may identify itself as a leader

within a constellation of CoPs or as a CoP that aspires to freeing itself from the

structured environment imposed on the CoPs constellation.

The discussion in the literature of how CoPs are formed offers a broad range

of explanations (Koliba & Gajda, accepted for publication). For example, some

authors (Lave & Wenger, 1991; Stamps, 1997; Wenger, 1998) describe CoPs as

self-organizing, spontaneously forming groups of people whose expertise, curiosity,

and desire to solve pressing problems in a particular situation (work, family, health,

etc.) bring them into collaborative activities in which they build trusting

relationships and teach and learn from each other. Stamps (1997), taking an extreme

position, says: "Virtually everyone who has studied them agrees that communities

of practice cannot be created out of the blue by management fiat; they form of their

own accord, whether management tries to encourage them or hinder them" (p. 7).

Wenger, whose focus was on the informal self-organizing qualities of CoPs

when he and Lave (1991) first labeled the phenomena, later began advising business

managers regarding how they could create infrastructure to enable CoPs to reach

their full potential. In their book, *Cultivating Communities of Practice* (Wenger,

McDermott, & Snyder, 2002), senior executives are counseled to invest time and

money for CoP support, such as providing Internet technology (IT) systems

compatible with CoP activities and linking them beyond their boundaries with

related initiatives. These authors also (Wenger et al., 2002) advise changing

promotion systems and reward structures that do not recognize community

contributions and discourage collaboration. As CoP theory has developed in the

literature (Johnson, 2001; Koliba & Gajda, accepted for publication), organizational

support of CoP formation and maintenance as a part of a strategy for professional

development and organizational change has replaced Stamps' (1997) hands-off

attitude toward CoP formation and development.

Despite the range of explanations about how CoPs form (or should form),

there is considerable agreement about how one knows that a CoP has formed.

Research studies describing CoPs are mostly qualitative and are documented with

case studies (Johnson, 2001; Koliba & Gajda, accepted for publication). Johnson

writes: "All the reviewed studies agree that there is a master to apprentice, learning-

by-doing, and social structure to communities of practice" (2001, p. 52). The basis

for this agreement is that all the reviewed studies started with Wenger's definition

and indicators that a CoP had formed. Wenger's (1998, p.125) list of indicators

includes the following:

> (1) sustained mutual relationships—harmonious or conflictual [sic];
>
> (2) shared ways of engaging in doing things together; (3) the rapid
>
> flow of information and propagation of innovation; (4) absence of
>
> introductory preambles, as if conversations and interactions were
>
> merely the continuation of an ongoing process; (5) very quick setup
>
> of a problem to be discussed; 6) substantial overlap in participants'
>
> descriptions of who belongs; (7) knowing what others know, what
>
> they can do, and how they can contribute to an enterprise; (8)

mutually defining identities; (9) the ability to assess the

appropriateness of actions and products; (10) specific tools,

representations, and other artifacts; (11) local lore, shared stories,

inside jokes, knowing laughter; (12) jargon and shortcuts to

communication as well a the ease of producing new ones; (13)

certain styles recognized as displaying membership; (14) a shared

discourse reflecting a certain perspective on the world (p. 125).

These are indicators of tightly coupled CoPs. Much of the learning in these

communities is characterized as occurring through mentor relationships, with new

members moving from the periphery to the center through engagement and

participation to become core members (Lave & Wenger, 1991).

Considerable information about the collaborative nature of CoPs can be

found in education evaluation literature (Johnson, 2001; Koliba & Gajda, accepted

for publication; Wenger et al., 2002; Zorn & Taylor, 2004). In their evaluation of

school improvement programs, Gajda and Koliba (2007) define CoPs as "the

embodiment of interpersonal collaboration within an organization in which the

individual members of a social learning system share common practices and work

together to achieve mutually desired outcomes (p. 2)." Lave and Wenger (1991)

were the first to talk about CoPs as a construct of social learning theory. Since the

early 1990s, collaboration theory has developed from the description and

observation of groups spontaneously working together to recognition that

organizations are "constellations of communities of practice" (Wenger, 1998) that

can be facilitated and nurtured (Wenger et al., 2002) to promote organizational

learning and social change. Recently, researchers suggest that the quality of a

community's learning environment and behaviors can be analyzed for the purpose

of feedback to the organization as a whole and its individual communities (Koliba

& Gajda.accepted for publication). This kind of analysis and feedback could

become a major contributor in planning for success in achieving the organizational

mission and the personal development of members in the communities of

organizations.

Knowledge Management in Virtual Communities

Virtual communities and CoPs are not synonymous. Johnson (C. M.

Johnson, 2001) points out: "Virtual communities are defined as designed

communities using current networked technology, whereas communities of practice

emerge within the designed community via the ways their participants use the

designed community" (p. 1). eXtension has provided the technology for virtual

communities, ongoing technical support for learning how to communicate and work

in an electronic environment (Raney, 2006), and the task of reviewing, creating, and

updating the content published on eXtension. Whether sustainable, efficient, and

effective CoPs emerge depends on the engagement of the group members (Johnson,

2001; Kimble Hildreth & Wright, 2001; Rogers, 2000). Johnson (2001) lists three

distinguishing characteristics for virtual CoPs:

(1) different levels of expertise that are simultaneously present in the

community of practice; (2) fluid peripheral to center movement that

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symbolizes the progression from being a novice to an expert; and (3)

completely authentic tasks and communication (p. 1).

In a survey of current research investigating online CoPs, Johnson (2001)

concluded: "The greatest problem with virtual communities is withdrawing, or

attrition" (p.1). Why, however, would professionals volunteer to become members

of an XCoP and then not participate? Margaret Wheatley (2000) says that the

following conditions make people willing to learn and share what they know:

(1) People understand and support the work objective or strategy; (2) people

know and care about each other; (3) people feel personally connected to

their leaders; (4) people feel respected and trusted (p. 7).

This statement suggests that facilitation of a virtual group is as necessary as

facilitation of a face-to-face group (de Laat & Broer, 2004; Schenkel, 2004;

Stuckey & Smith, 2004; Vestal & Lopez, 2004). Facilitation of a virtual group may

be more difficult in the lean media of written electronic text. Schenkel (2004)

defines *lean media* as the rating given to written text in a scale of media richness

and rates effectiveness in declining order from face-to-face, telephone, written text,

email, to fax. His qualitative study (Schenkel, 2004) explains how media richness

dramatically affected the ability of a CoP to learn from its members how to solve

problems when communicating solely by email on a bridge project between Sweden

and Denmark. A study of attorneys in public defenders' offices showed that the

CoPs that communicated only through IT had the least developed communities

(Hara & Kling, 2002).

Superb facilitation techniques may not be enough to develop trust within CoPs that have a continuous purpose and fluid membership. Stork and Storck (2004) researched the difficulties of building trust in online groups: trust within the group, group trust of the leader, and leader trust in the group. Their conclusion that "leading from behind" (p. 253) requires an active leader is complex, as are their principles for successful online leadership. Their work offers insight into the time, patience, and effort building trust requires. There is abundant material regarding how best to facilitate a virtual community to build engagement (Palloff & Pratt, 1999; Stuckey & Smith, 2004; Vestal & Lopez, 2004). Kimball and Ladd (2004) share their professional experience (with little documentation) in 15 tips for a CoP leader (p. 205) and 10 ideas (p. 212) for activities to attract attention and inject excitement, enhance knowledge and understanding, support conversation, and encourage regular participation. However, facilitation that builds and maintains trust in online continuous CoPs may need to include some adroitly facilitated face-to-face meetings.

Understanding the emerging process of CoPs may help align CoP leaders' expectations with reality, lower frustration, and increase patience while helping colleagues focus on the value of their work (Johnson, 2001; Kimble et al., 2001; Palloff & Pratt, 1999). "Both virtual communities and communities of practice have life cycles…'forming, storming, norming, performing, adjourning' [thus] language, practices, customs, and resources develop over time" (Johnson, 2001, p. 51). Kimble and others (2001) explain three necessary components in the development

of distributed CoPs. Groups of geographically distributed individuals who know each other, share expertise and interests or work, and pursue a common goal in a virtual environment are referred to as distributed CoPs. Collaborating in virtual communities requires time, a nonlinear approach, and tolerance for messiness.

Providing a communications and information technology (CIT)-supported virtual environment will not guarantee the emergence of a high-functioning CoP. However, a case study (Kimble, Hildreth, & Wright, 2001) of members of an international virtual community involved in CIT support research confirmed the presence of "features of a CoP" such as a common purpose driven by the needs of the members evolving into a group with its own terminology and a strong feeling of identity (p. 244). Apparently, when members of a virtual community are skilled in using CIT tools and frequently engage in the interests of the community, characteristics of CoPs emerge. These ideas related to the functioning of virtual CoPs have been documented mainly in case studies and have not been empirically tested (Gajda & Koliba, 2007; Koliba & Gajda, accepted for publication).

Koliba and Gajda (accepted for publication) propose that CoPs can be developed into a "powerful unit of analysis" (p.1) with empirical testing of key concepts. They identify six fundamental characteristics of interpersonal collaboration from their review of school improvement literature. "These key traits are: 1) shared purpose, 2) cycle of inquiry, 3) dialogue, 4) decision-making, 5) action, and 6) evaluation"(Gajda & Koliba, 2007, p. 7). Shared purpose is the reason that people come together in CoPs to achieve a vision or a goal they could

not otherwise accomplish on their own. In evaluating school improvement

programs, Gajda and Koliba (2007) create a framework that explains and assesses

CoPs processes in each cycle of inquiry: dialog (D), decision (D), action (A), and

evaluation (E) framework to help school personnel understand the power of CoPs

and assess their collaborative qualities. The quality of a group's dialog (D) can be

assessed by observing the planning, preparation, and frequency for talking together;

the evidence used to inform dialog, how conflict is recognized and dealt with, and

whether the group conversation consistently revolves around the stated purpose for

the group. Gajda and Koliba (2007) observe that high-quality CoPs engage their

members in an equitable decision-making (D) process that is transparent and

informed with quality dialog. Actions (A) are essential for improvement. Gajda and

Koliba (2007) quote research findings that conclude that planning is unrelated to

performance; only when plans are acted on will positive change occur. Evaluation

(E), the fourth critical component of the cycle, helps a CoP to know whether its

actions have been successful and to make decisions on what to do next. "Systematic

evaluation of practice is a critical characteristic of high functions in interpersonal

collaboration in any organizational setting" (Gajda & Koliba, 2007, p. 12).

Based on their observations and evaluation experiences, Gajda and Koliba

(2007, p. 13) introduce the CoP—Collaboration Rubric (CoPCAR) consisting of a

six-point scale to assess the quality of the DDAE cycle in a CoP. Although the

CoPCAR tool was designed and used with school improvement CoPs in mind, the

authors have used it with other groups and believe that it can be useful in assessing

the quality of collaboration of any CoP. In summary, Gajda and Koliba point out the possibility for researchers to make valuable contributions to educational research "by designing utilization-focused studies that examine the correlation between CoP quality and development and the attainment of essential organizational outcomes" (p. 27).

CoPs identified and supported in the eXtension initiative offer an ideal environment for an evaluative study of interpersonal collaboration in a virtual environment. Certainly, eXtension offers many CoPs using the same technology (Meisenbach, 2006). An analysis of the XCoPs may reveal more about how adults learn, factors that support collaboration and barriers to engagement in the learning communities. Because eXtension recognized, funded, and supported the eight pioneer CoPs consistently, there is a basis for comparison of their characteristics and functioning.

Purpose of Study

The goal of XCoPs is to facilitate CES faculty and staff throughout the United States in learning how to create opportunities for learning in a virtual environment for themselves and the audiences they serve. Because XCoPs are organized around the creation, maintenance, and distribution of subject matter, competing objectives obscure the overall purpose of eXtension and confuse evaluation processes.

Based on the review of the literature, I proposed this study to explore the relationship between the collaborative qualities of XCoP in the development of purposeful cycles of continuous inquiry in DDAE and the attainment of

organizational goals. The facilitation of CES in understanding the power and

productivity of XCoPs can be supported with answers to the following questions:

What are the process dynamics of the XCoPs?

How well are XCoPs functioning?

What is the relationship between XCoP collaborative functioning and productivity

in meeting organizational goals?

Can an instrument or series of instruments be used to assist XCoPs experiencing

difficulty?

This study of XCoPs contributes to the literature on collaborative learning

and CoPs mentioned earlier by providing specific examples of characteristics and

functions of CoPs that support efficacy, creativity, and productivity in a virtual

environment. It may also contribute to policy by drawing attention to how

organizational leadership and personnel decisions as well as individual behaviors

can remove barriers and support engagement in learning communities. My research

will aid practitioners in their understanding of ways to gather and analyze data for

virtual CoPs in order to initiate corrective actions, maintain CoP sustainability, and

achieve success in accomplishing the mission of the organization.

CHAPTER 3: CONDUCTING A MIXED-METHOD STUDY

"The essential point in science is not a complicated mathematical formalism or a ritualized experimentation. Rather the heart of science is a kind of shrewd honesty that springs from really wanting to know what the hell is going on!"
~~ Saul-Paul Sirag

My study is about the processes of collaboration that John Goodlad originally deemed "cycles of inquiry" (as cited in Gajda and Koliba 2007). The central question that I ask in this regard is how does the quality of these collaborative processes affect the attainment of organizational goals? I was also interested in creating an instrument to evaluate this process empirically for the purpose of providing an elegant supportive feedback mechanism for communities of practice (CoPs) having difficulty achieving organizational goals.

Initially, I worked on a research design using only a qualitative approach because, to phrase this euphemistically, I viewed qualitative methods as my research strengths. However, the idea of a "quick and dirty" instrument that could dust off some of the fuzzy analysis found in ethnographically supported CoPs literature pushed me into including a survey to determine the sample for the qualitative interviews. As the survey instrument began taking on a major role in my study design, I continued to consider the project qualitative in approach until my advisor pointed out that I had a *mixed-method design.* Only at that point did I discover Johnson and Onwuegbuzle's (2004) declaration that mixed-method research is a paradigm whose time had come, and my perspective shifted.

I based the quantitative and qualitative study of cycles of inquiry in dialog, decision, action, and evaluation (DDAE) on the CoP—Collaborative Assessment

Rubric (CoPCAR) that Gajda and Koliba (2007) developed for their evaluative work with school improvement projects. Quantitative (Henerson, Morris, & Fitz-Gibbon, 1987; Mertler & Vannatta, 2005) and qualitative (Bogdan & Biklen, 1982; Glesne, 1999; Maxwell, 1996; Patton, 1990; Wolcott, 1994b) approaches were combined (Johnson & Onwuegbuzle, 2004; Tashakkori & Teddlie, 2003) for reporting as a process of action research for education (Borg & Gall, 1989; Henerson, Morris, & Fitz-Gibbon, 1987; McMillan & Schumacher, 2001; Vierra, Pollock, & Golez, 1998).

There are several reasons why I chose an action research design (McNiff & Whitehead, 2006; Mills, 2000; Whitehead & McNiff, 2006). I am embedded in my research project as a member of the leadership team of an eXtension CoP (XCoP), and I am responsible for one of its subgroups. In the midst of this dynamic activity, the action research design, which requires reflection and allows me to write the report in personal narrative format, presents a much needed opportunity. I am seeking to improve my own practice while clarifying and enhancing the scholarly traditions of action research. Action research, from its beginnings in the 1930s with Kurt Lewin, became understood as a practitioner's approach to professional development, but not necessarily an academic form of research. Whitehead and McNiff (2006) assert that action research methodology can be clarified as academic research when practitioners "interpret the data, establish the validity of the work, and disseminate it . . . within critical public forums" (p. 21) and not give this power to an external academic researcher. Finally, action research methodology mirrors

some of the ideals of a CoP approach in that it is based on democratic values and promotes equality in learning, communication, critical thinking, decision-making, action, and evaluation (Whitehead & McNiff, 2006). In essence, by feeding data back to the eXtension system, I hope it uses my data and analysis, engages in dialog about it, make decisions designed to improve the XCoP format, and implement these decisions. In other words, by understanding this study as action research, I seek to inform the cycles of inquiry operating within and across the entire XCoP universe.

The Community of Practice Collaborative Assessment Survey

In September 2007, the CoPCAR adapted survey was distributed (Appendix B) through Instant Survey, an Internet software system with which eXtension has contracted service. Any XCoP group or member can obtain approval through the eXtension evaluation specialist to use eXtension's Instant Survey service for official evaluation purposes. Shortly before the Instant Survey invitation to complete the *Cultivating eXtension CoPs* survey, Dan Cotton, the Director of eXtension, emailed all members of the targeted sample to indicate that eXtension sanctioned my study plan (Dillman, 2000), the plan had received approval from all concerned Institutional Review Boards, and the design ensured confidentiality for individuals and groups when publishing results. A cover letter (Appendix C) was uploaded into the Instant Survey email invitation that explained the purpose of the survey, participants' rights and protections, contact information if information or protections were needed, and how to access the survey on the Internet. Instant

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Survey tracked the completion of surveys by email address and sent two email reminders only to those who had not completed during September 6 to 27, 2007 while the survey was on the Internet.

The survey population included all members listed (657 on August 8, 2007) in the people management wiki for the eight pioneer XCoPs. Members of the pioneer XCoPs were purposely selected for the study population because eXtension vetted them in a competitive process and announced their selection for funding in September 2005. Each of these eight CoPs received funding on different dates after that because the funds were processed by the home university-sponsored programs office of each CoP leader. Electronic survey software, email, and accessible CoP membership lists made it possible to invite every member of the eight pioneer XCoPs to answer questions regarding their engagement in their CoP and their assessment of the CoP collaboration processes. Table 1 shows the numbers of email addresses per CoP on the list submitted to Instant Survey; however, the number that Instant survey invited (409 total) from each XCoP after taking out duplicated addresses is not known. Table 1 compares the number of members in the eight pioneer CoPs when the survey was distributed in September 2007 (submitted column) and the number of members listed in February 2008 in the *people* wiki https://people.extension.org/colleagues/communities. The numbers shown in the people wiki can change daily because Cooperative Extension Service (CES) professionals join and leave the XCoPs continuously. The membership N change shown in Table 1 is also the result of the eXtension staff (Xstaff) CoP's changing

Table 1: Community of Practice Survey Population

XCoP	Submitted CoP N 9/07	CoP N 2/08	Leaders N 2/08
A	114	230	12
B	57	24	4
C	78	158	13
D	60	16	5
E	100	76	7
F	86	236	4
G	83	21	9
H	78	34	4
Totals	657	795	48

the procedures and definitions for the membership categories and leader's

inconsistency in the management of the membership lists among the CoPs. These

two factors, unknown at the design stage of the study, presented challenges in

determinating the population invited to complete the empirical survey on line.

The survey instrument was created for this study in different sections

encompassing demographics, assessment of individual engagement, and attitudes

and assessment of the CoP processes in DDAE. Questions to assess the CoP

processes were adapted from the CoPCAR that Gajda and Koliba (2007) developed

for their evaluations of school improvement programs. The survey instrument may

be found in Appendix B.

Establishing reliability for an instrument not quantitatively normed was the

next step and was partially accomplished. Because of time and cost restrictions, I

worked with only one of five types of reliability (McMillan & Schumacher, 2001),

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the internal consistency of the instrument. A pilot survey was conducted in August 2007 as part of the effort to establish instrument reliability.

The Pilot for the CoPCAR Instrument

A pilot survey using the empirically untested adapted CoPCAR instrument was conducted in August 2007 with selected XCoPs. These CoPs were purposely selected for the pilot population on the advice of an eXtension program developer, based on the assumption that these CoPs were well enough organized for the individuals to be able to assess their community processes.

Instant Survey sent the invitation to complete the pilot instrument on the Internet from August 9 to 20, 2007 to a total of 342 individuals. The number of total respondents who completed the survey was 76, or 22% of those invited, although 41 (12%) started the survey and did not complete it. A Cronbach (1951) alpha was calculated for three scales; questions 17 through 44 of the CoPCAR scale, the multiple parts of q47 (importance of CoP work), and the multiple parts of q49 (skills learned and used). The Cronbach alphas for these three scales are all very high, all more than 0.95 and an overall alpha of 0.97 for all 27 items. This finding indicates reliable internal consistency of the instrument questions. The Cronbach alpha would be 0 if all the items were completely independent and 1 if all the items were identical. The instrument must be used several times to establish the other types of reliability (McMillan & Schumacher, 2001), such as stability (test and retest same individual), equivalence (give different forms of instrument to same

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person at about the same time), and equivalence and stability (give different forms to the same individual over time).

Thus, the instrument questions for the targeted population were not revised, but the respondents' progress through the instrument was changed. Because of a large number of "I don't know" responses, I was advised to create a question that would branch new CoP members to the end of the survey. With that one revision, I was ready to upload the survey questions for the target population into Instant survey. In addition to establishing a Chronbach's alpha for the instrument, I learned how to enter and format questions during the pilot study with Instant Survey technical support.

Community of Practice Internet Interviews

A qualitative case study approach followed the implementation of the survey in January 2008. In early December 2007, an email message was sent to the leaders listed on https://people.extension.org/colleagues/communities about the selection for an online interview of three of the eight CoPs as a result of their CoPCAR scores. The invitation asked them to suggest an hour and date anytime in January 2008 when the leadership and their CoP members could gather in a virtual conference supported in the Connect software. The invitation explained that the interview was a follow-up to the September online survey to explore the collaborative processes of XCoPs.

The technician (*host* for the session) put the discussion questions in a window for everyone to view from their computer monitors. The same instructions

and protocol were used for all three sessions. I typed brief notes that appeared under each question while the XCoPs members talked. I also watched the chat window for written comments or questions from the participants, but I found this a challenging activity, especially for the HorseQuest group, which frequently used the chat window. All three sessions were recorded, and the technician emailed the Internet address where the recording for each session could be accessed. The playback on my computer allowed for stopping and starting every few words, which facilitated typing an accurate transcript into a Word document. I cut and pasted passages in the transcript into coded blocks (Glesne, 1999) using the cycles of collaboration (Gajda & Koliba, 2007) DDAE as the major codes before drafting each case study.

The selection of three CoPs for interviews was based on their CoPCAR scores. The scores (1 = most collaborative) clustered into three categories (see Table 2: high scores, CoP A (1.51) and CoP C (1.47); midrange scores, CoP B (1.67) and CoP G (1.62); lower-range scores CoP E (1.91), CoP F (1.77), and CoP H (1.98) for collaborative processes. CoP D could not be scored because of too many missing data in a very low response rate. I selected one CoP for the qualitative sample from each score level based on the total mean for the mean scores for DDAE. The interview protocol was also adapted from Gajda and Koliba's (2007) qualitative study for a school improvement evaluation. Member checking (Borg & Gall, 1989; Glesne, 1999; McMillan & Schumacher, 2001; Patton, 1990) with an Xstaffer, a CoP leader absent from a session, and leaders

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from XCoPs who were not interviewed was done by email correspondence. The interview schedule used for the study may be found in Appendix C.

Triangulating Data and Writing the Report

Accuracy and validity of conclusions are enhanced when data are triangulated with several sources (Bogdan & Biklen, 1982; Borg & Gall, ; Glesne, 1999; Patton, 1990; Wolcott, 1994a). My data gathering methods included document review of the CoPs products in the wiki and those published on eXtension. Participant observation of virtual professional development sessions on line was also possible live and by reviewing archived sessions.

Confidentiality in reporting had been promised at the start of the study, and this is a serious obligation. I was concerned that any negative conclusions I reported about XCoP collaboration *processes* could confuse readers to associate my analysis of process with evaluating a CoPs' *products—*the information provided on the eXtension Web site. Because this study is only about collaboration processes, it is best not to identify the CoPs that are known for their products and to state clearly my assumption that the rigorous peer-review of the required researched-based information that is available on www.extension.org is reliable, high-quality information regardless of whether the process to provide it was more or less collaborative. Traditionally in academia, respected research has come as often, if not more often, from solitary investigators than from collaborative research projects.

In order to conceal the pioneer XCoPs identities in the report, I gave each a letter label that did not have much power in differentiating them even for me as I worked with the empirical data. When I started analyzing the qualitative data, I really needed a pseudonym that gave character to the data, so I could associate it with each group accurately. To that end, I gave the three XCoPs the working names "Joys," "Cozys" and "Foils," which can be easily changed as needed for future reporting. Although my effort to conceal identity is sufficient for the general public, the XCoP members and Xstaff involved with this study will recognize the XCoP through what they said, even though I substituted names and other identifiers in the transcription brackets.

This present discussion of the rational for the project design, population selection, and methods for this mixed-method, action research study sets the stage for the examination of the quantitative and qualitative data in Chapter 4. In the analysis of the data, it becomes clear how the challenges with the population selection and low response rate for the survey affected this study and suggests ways to strengthen these areas in the research design in future studies.

CHAPTER 4: DATA ANALYSIS

In the United States, there is no end which human will despairs of attaining through the combined power of individuals united in a society.
- Alexis de Tocqueville, author of Democracy in America

The Community of Practice Collaborative Assessment Rubric—CopCAR (Gajda & Koliba, 2007, p. 13)—adapted for an online survey served to explore the characteristics of the pioneer eXtension Communities of Practice (XCoPs) and rate the quality of their collaborative communication in their dialog, decision, action, and evaluation (DDAE) of their work together. Qualitative interviews using an adapted form of the CoP-Focus Group Interview Protocol (Gajda & Koliba, 2007, p. 24) and archived data sets in the eXtension wikis were used to corroborate the quantitative CoPCAR ratings and explore the relationship of XCoPs collaborative communication with their productivity in meeting organizational goals.

Quantitative Data: The CoPCAR Scores

Of the 409 pioneer XCoP members invited, 192 (47%) completed the survey, and another 22 (5%) partially completed it. The first use of the survey data generated from the CoPCAR scores (Gajda & Koliba, 2007) was to help determine which XCoPs to study in depth using qualitative methods. Mean scores were calculated on each question in each collaborative communication cycle of inquiry assessing the DDAE processes of the XCoP. A total CoPCAR score was then produced for the cycle of inquiry from calculating a mean from all the DDAE cycles. The scores clustered into the three vertical levels shown on Table 2.

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Table 2: Community of Practice Collaborative Assessment Rubric CoPCAR Scores

1=Highest Functioning in 1-4 range	Joys C	A	G	Cozys B	F	E	Foils H	D
Dialog (Agenda)	1.4	1.5	1.5	1.6	1.6	2	1.8	0
Dialog (Attendance)	2.1	2.2	2	2.5	2.2	2.4	2.7	
Dialog (Goals)	1.7	1.5	2	1.8	1.8	2.1	2.4	0
Dialog (Structure)	1.1	1.4	1.1	1	1.8	2	2	2
Dialog (Clarity)	2.1	1.8	1.9	2	2.1	2.2	2	
Dialog (Balance)	2	1.9	1.9	2	2.1	2.2	2.2	
Dialog (Conflict frequency)	2.2	1.9	1.9	2.3	1.8	2	2.4	
Dialog (Conflict resolution	1.4	1.2	1.6	1.8	1.8	1.9	1.5	
Dialog (Purpose)	1.3	1.4	1.7	1.7	1.3	1.7	1.8	1
Sum of item means for dialog	15.3	14.8	15.6	16.7	16.5	18.5	18.8	3
Dialog mean	1.7	1.64	1.73	1.85	1.83	2.05	2.08	
Decisions (Policy)	1.4	1.4	1.8	1.3	1.6	1.9	2.7	0
Decisions (Importance)	1.6	1.4	1.4	1.6	1.8	1.9	2	
Decisions (Member dialog)	1.6	1.5	1.9	1.9	1.7	1.9	2	.
Decisions (Process)	1.6	1.7	1.5	1.7	1.9	2.2	2	
Decisions (Clarity)	1.4	1.8	1.7	1.8	1.9	1.9	2.3	
Sum of item means for decisions	7.6	7.8	8.3	8.3	8.9	9.8	11	
Decisions mean	1.52	1.56	1.66	1.66	1.78	1.96	2.2	
Actions (Leadership)	1.1	1	1.4	1.2	1.1	1.5	1.5	1
Actions (Distribution)	1.9	2	2.2	2.3	2.4	2.3	2.7	
Actions (Autonomy)	1.9	2	1.7	2	2	2.4	2	
Act (P&P development)	1.4	1.4	1.7	1.8	1.7	2	2	
Actions (Importance)	1	1.1	1.3	1.1	1.5	1.3	1.3	1
Sum of item means for actions	7.3	7.5	8.3	8.4	8.7	9.5	9.5	
Action mean	1.46	1.5	1.66	1.68	1.74	1.9	1.9	
Reflect (Feedback record)	1.4	1.7	1.8	1.3	2.4	2	1.3	2
Reflect (Research)	1	1.2	1	1.3	1.2	1	1.2	1
Reflect (Use data)	1	1.3	1.2	1.3	2	2.2	1.6	1
Reflect (Set goals)	1.2	1.3	1.2	1.6	1.3	1.6	1.7	1
Reflect (Market)	1.3	1.2	2	2.1	1.8	1.8	2.8	0
Sum of item means for R/E	5.9	6.7	7.2	7.6	8.7	8.6	8.6	5
Reflect/Evaluate mean	1.18	1.34	1.44	1.52	1.74	1.72	1.72	
Total rubric mean	1.47	1.51	1.62	1.67	1.77	1.91	1.98	

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CoP D could not be scored because of too many missing data in a low response rate. For the qualitative populations to be interviewed, I selected one CoP from each score level based on the total mean calculated from CoPCAR scores for DDAE. The high and low range selections had the highest and lowest CoPCAR scores. For the middle range, I selected the CoP with the lower of the two CoPCAR score because this CoP was the first to launch a Web site and had acted as a prototype for the initiative Xstaff.

Instrument reliability was again examined with Statistical Package for the Social Sciences (SPSS) using Cronbach's alpha for analysis. All the alpha coefficients were found to be over .80. Table 3 shows the alphas for each of the four subscales (DDAE) and the alpha coefficients for the total 24 items in the combined subscales.

Table 3: Reliability Statistics

Scales	N of Items	Cronbach's Alpha
Dialog	9	.916
Decision	6	.921
Action	4	.826
Evaluation	5	.854
All scales	24	.965

A Pearson two-tailed correlation (Table 4) was calculated on the pooled data in each of the four scales (DDAE). The responses of the questions in their respective subscales were summed, and the sums were labeled dialog, decision, action, and evaluation/reflection. The summed scores are highly correlated with one another, and the significance of all correlation coefficients is less than 0.001.

The CoPCAR summed item means produce scores for each DDAE mean and a total DDAE mean that suggests differences in the quality of the collaborative processes of the eight pioneer CoPs. T-tests were conducted on the scores for all four collaborative cycles for the three CoPs—B (Cozys), C (Joys), and H (Foils) — chosen for qualitative study. Although the CoPCAR mean scores appear to cluster into high, medium, and lower values for collaboration, no significant differences could be found on any of the T-test measures.

Table 4:   Factors Correlations

Factors	Correlations	Dialog	Decision	Action	Reflection/ Evaluation
Dialog	Pearson correlation	1	.856(*)	.774(*)	.747(*)
	**Sig. (2-tailed)		.000	.000	.000
	N	120	118	118	117
Decision	Pearson correlation	.856(*)	1	.817(**)	.795(*)
	**Sig. (2-tailed)	.000		.000	.000
	N	118	118	118	117
Action	Pearson correlation	.774(*)	.817(*)	1	.806(*)
	**Sig. (2-tailed)	.000	.000		.000
	N	118	118	118	117
Eevaluation/Reflection	Pearson correlation	.747(*)	.795(*)	.806(*)	1
	**Sig. (2-tailed)	.000	.000	.000	
	N	117	117	117	117

* Correlation is significant at the 0.01 level (2-tailed).   **Significance

A factor analysis was conducted to determine the existence of underlying structures for measures on the following 24 variables: agenda (q26), attendance (q27), goals (q28), structure (q29), clarity (q30), balance (q31), conflict (q32), conflict resolution (q33), purpose (q34), policy decisions (q35), importance (q36), member dialog (q37), process (q38), confidence (q39), leadership (q40), work distribution (q41), autonomy (q42), personal/professional development (q43),

importance to eXtension goals (q44), research information (q45) use unbiased data (q46), role of data (q47), goal-setting (q48), market accomplishment (q49). Principal components analysis was conducted using three types of orthogonal rotation procedures—varimax, quartimax, and equamax—with Kaiser Normalization (only those components whose eigenvalues are greater than 1 are retained) in each procedure. Oblimin and promax, each with Kaiser Normalization procedures, were also used.

The varimax rotation produced the best explanation. Because verification was sought for the four scales for DDAE to explain most of the variation in the data, the procedures were told to extract four factors. The solutions show that these four factors explain almost 70% of the variation.

The first factor appears to correspond relatively well with the Dialog scale, because the first eight of the nine questions (q26-q34) in this scale load highly on this factor (their component loadings in the *Rotated Component Matrix* are all greater than 0.5), whereas loadings for all other questions are very small. The second factor also corresponds relatively well with the Decision subscale. All five questions (q35-q39) in this scale load on this factor with loadings greater than 0.6. Several other questions (q28, q43, q48, and q49) also load highly on this factor, with loadings greater than 0.5. These questions may be more in line with *Decision* than with their theoretical subscales.

Interpretation for the third factor was more challenging. Three questions (q40, q41, q44) in this subscale load highly on this factor, but a couple of the action

scale questions (q42 and q43) have low loadings on this factor. Question 48 also has a loading for this scale over .6. The fourth factor has high loadings (>0.6) for three (q45, q46, q47) of the five questions in the *Reflection* subscale, with all the other questions having a loading of less than 0.5, so this factor corresponds somewhat with its theoretical scale. Interpretation of factor loadings is more art than science; however, the four factors tend to correspond for the most part to their DDAE theoretical subscales.

A factor analysis has potentially severe limitations because the basis for any underlying structure that is obtained is the relationships among all original variables in the analysis. The analysis tends to be less reliable when estimated from small samples. A data set that includes at least 300 cases for a factor analysis is recommended (Mertler & Vannatta, 2005, p. 258). However, when a solution contains several high-loading variables (>.80), a smaller sample of 150 may be sufficient.

CoP Demographic Data of Survey Respondents

Descriptive data of each of the eight pioneer CoPs is summarized in Table 5. However, the data sets are so small that the numbers are almost meaningless except as an exercise for future studies. The number of respondents to the survey (192) produced 120 complete data sets because 72 respondents early in the questionnaire selected an answer indicating that they had done nothing with the CoP other than obtaining an eXtensionID. That selection sent them to the end of the survey (a survey design technique called "branching"). An investigation of the low response

rate revealed two factors that challenge the population selection for the survey that was not predicted at the design stage of the project. The numbers shown in the people wiki https://people.extension.org/colleagues/communities can change daily because CES professionals join and leave the XCoPs continuously. Sometime between August 2007 (when the email address list for Instant Survey was composed) and January 2008 (when the data from the survey was analyzed), Xstaff changed the procedures and definitions for the membership categories in the organization of the people management wiki. These unexpected changes and XCoPs leadership inconsistencies in the management of membership lists present challenges to the determination of the population to invite to complete the empirical survey because people will try to answer survey questions for which they lack knowledge and experience to answer. Confusion around the membership lists for this study resulted in large numbers of "I don't know responses" in the data and reduced the number of complete data sets.

As an exercise in mining the data for the quantitative survey used in this study, Table 5 shows response rates of each of the eight pioneer CoPs, respondents' perspectives of their positions and functioning within a CoP, and their assessments of their own trajectories related to the stability of their engagement within an XCoP. Specific levels of length of service and skills as well as the gender of respondents were selected for discussion/demonstration out of a number of demographic descriptive options that are not discussed because of the low response rate. XCoPs B (Cozys), C (Joys), and H (Foils) were chosen for focus group interviews.

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The first column in Table 5 shows the number of respondents completing the survey from each of the eight pioneer CoPs and the percentage of total respondents (192) each CoP provided. The next three columns deal with the

Table 5: Respondents' Places, Trajectories and Demographics (*% based on 120 N)

CoP	Response Rates N (% of total)	Center of CoP* (%)	Not Center or Edge of CoP* (%)	Edge of CoP* (%)	In-bound * (%)	Stable * (%)	Out-bound * (%)	Length Of Service >20yrs	Skill Level >5	M (%)	F (%)
A	44 23%	39	39	27	19	78	3	29%	70%	16	84
B	12 6%	18	46	36	0	100	0	30%	50%	50	50
C	27 14%	10	60	30	40	60	0	27%	45%	80	20
D	9 5%	0	33	67	33	67	0	0	67%	44	56
E	39 20%	23	50	27	27	73	0	100%	70%	51	49
F	21 11%	29	42	29	42	50	8	.2%	42%	35	65
G	27 14%	38	8	54	31	54	15	30%	62%	20	80
H	13 7%	66	17	17	17	83	0	30%	50%	40	60
Total	192 N 100%	34N 28%	49N 41%	37N 31%	32N 27%	84N 41%	37N 31%	41%	59%	40	60

respondents' report of their placement in the CoP (center, neither center nor periphery/edge, and edge or periphery). *Center* suggests a leadership or very actively engaged position in the CoP. People in the *Edge* column may be observers, or what is known in technical jargon as "lurkers," until they figure out what they can and want to do in the CoP. Those in the *Neutral* position (neither periphery nor center) are assumed to be somewhat engaged in the work of the CoP. The

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percentages for the columns are based on a total number of 120 because 72

respondents "branched" to the end of the survey by selecting an answer indicating

no involvement with the CoP other than obtaining an eXtensionID.

The *Inbound, Stable,* and *Outbound* columns in Table 5 deal with the

respondents' assessments of personal trajectory related to the CoP. Notice that only

three of the CoPs have respondents indicating *Outbound* trajectories. These

percentages are also based on 120 data sets. When the respondent rate is adequate,

the *placement* and the *trajectory* data are significant areas for discussion with an

XCoP's leadership for assessing what could be done to enhance the sustainability

and health of their community.

Considering the extremely low respondent rate for each XCoP in this study,

discussing the demographics for the survey overall may be helpful. CoP A (with a

CoPCAR score high for collaborative processes) and CoP E (with a CoPCAR score

low in collaborative processes) had the most respondents to the survey (23% and

20%, respectively). CoP C (Joys), with the highest CoPCAR score, and CoP G

,with one of the lowest CoPCAR scores, tied for second place in respondents to the

survey. CoP F ranked next by providing 11% of the survey respondents. CoP B, a

with a mid-range CoPCAR score, provided only 6% of the survey respondents and

ranked with CoPs D (5%) and H (7%). A CoPCAR score for D could not be

calculated because of low response and missing data, and CoP H had the lowest

CoPCAR score.

Almost 40% (39) of all respondents associated with all XCoPs indicated that they had not engaged in their CoP much beyond obtaining an account. Participating in writing and reviewing Frequently Asked Questions (FAQs) was the chosen response for 21%. Twenty percent said they had worked in several areas creating content and editing in the wiki. Eighteen percent of the respondents said that they were slowly becoming involved in CoP activities. Only 3 (2%) had submitted publications to be reviewed for eXtension.

Twelve percent (23 N) of the survey respondents described their role in the CoP as a member of the leadership team, 76% (146 N) indicated that they were CoP members, 4% had an advising role (7 N), and 8% responded to the other category.

Forty percent (40%) of the respondents to the survey were male, and 60% were female. Respondents mostly occupied positions as CES faculty (79 N) and state specialists (63 N). Fewer program staff (10 N), state administrative staff (5 N), and Cooperative State Research Extension and Education Service staff (4 N) completed the survey.

The responses to length of employment in CES reflect an aging workforce. A major value eXtension offers to CES is in harvesting and archiving the expertise of CES faculty who will soon retire. Forty-one percent (41%) of the respondents had been employed in CES for 21 to over 30 years. The other statistics show that 19% had been with CES for up to 5 years, 17% have been employed with CES for 6 to 10 years, 22% were in the 11- to 20-year status. The large number of

professionals (18%) employed with CES for 26 to 30 years who responded to the survey was balanced with a set of individuals employed for 0 to 5 years (18%).

Skill level estimates are also interesting. Respondents estimated on a scale of 1 to 10 (10 being the best) their personal technology skill levels for working in a virtual CoP. Forty percent estimated their expertise at the 7 (20%) and 8 (20%) levels, and 8% reported higher levels of expertise. Forty-one percent (41%) indicated levels of 5 and below, and 24% selected the midrange of 5 and 6 as their technology skill level. Although it is interesting to look at the categories of data that can be aggregated, analyzed, and discussed from the survey in this study, the response rate is inadequate to yield significant insight. Perhaps the analysis of the qualitative data in the next section will offer more.

Qualitative Data Analysis: Three Case Studies

CES has long been associated with agriculture because small farm and rural families were most in need of unbiased, practical information to help them reach and maintain economic viability when CES originated and developed from federal legislation in 1914. Because CES now serves the information needs of individuals and families in any location, the term "*cultivating* XCoPs" is particularly appropriate in that it refers to the experience of being bound by nature's cycles in time and place (Gunderson & Holling, 2002) while expanding information into an unlimited virtual environment. The quality of XCoPs' cycles of inquiry can be examined using two performance standards. One is related to the CoPs' capacity for creating high-quality learning opportunities based on unbiased research that will

engage its Communities of Interest (CoIs; audiences, users of information) to perform to achieve their goals. The other performance standard relates to the XCoPs' capacity to contribute toward eXtension's purpose in transforming CES's educational methods into a virtual environment and casts the XCoPs as groups and as individuals into the roles of learner and teacher.

CoP B: The Cozys

In August 2007, the membership total listed on the eXtension people management server for CoP B was 57 (8/8/07) with four leaders. Today (3/08), their membership lists show 25 for the XCoP members, 5 in leadership (4F; 1M), and 145 XCoP Interested (XCoPI) members associated with CoP B. The drop in XCoP membership from 57 to 25 is a reflection of the change in the eXtensionID registration process, and it may also indicate the core group most engaged in the work of CoP B. Two members of this CoP hold Xstaff positions and were responsible for originally inviting these specialists to submit a proposal to become a recognized XCoP and receive $75,000 startup funding. CoP B served as eXtension's prototype for all the other CoPs and were working with the Xstaff before they were vetted as one of the pioneer XCoP. They were the first to launch their Web site to the public. This CoP's core members collaborated on projects for many years before becoming a recognized XCoP.

CoP B's Chair and Vice Chair participated with nine other members in an online focus group session using Connect that was hosted at Iowa State University in early December 2007. Four members in this session had been originators of the

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XCoP that they said grew out of an expansion of a southern region FAQ online project. Seven participants were either new to CES employment in the last six months to a year or had become members of the CoP within the last year. Two stated that they had become actively engaged by attending a conference held a week earlier than our interview. All participants in this session were CES Specialists, except one, who was a county 4-H educator. Three participants marked a poll that they had completed the *Cultivating eXtension CoPs* survey in September 2007; eight marked they had not.

The Connect archive available after the interview facilitated word-for-word transcription of CoP B's discussion because the recording can be stopped after every phrase and played back until a perfect transcript is achieved. The next challenge was to uphold the promise for confidentiality in reporting. In response to advice that case studies are more interesting and memorable when personalized, I gave CoP B a name that corresponded with the emotional climate of the interview session. This group sounded relaxed, the chat window filled with messages to each other, on and off the topic of the moment, with explanations of problems and things that had not been easy to work out, they were philosophically laid back, and they affectionately teased and joked with each other. Subtle humor encouraged group conversation. For instance, following a silent period when asked to characterize the group's dialog (frequency, structure, engagement), a leader said: "Someone will have to speak for that to happen." Google brought up many synonyms in a word search for *relaxed,* and the name Cozy felt right for this CoP.

Purpose

The Cozys' Chair defined the purpose of the group to be experts providing "updated unbiased research information for the clientele that are reached through eXtension." Another said it was eXtension that "provides our arm back out to the industry and to the clientele." Two members commented on "extend the reach of Extension and combat some of the garbage that's on the Internet now." One was particularly concerned "that we have a solid base of information to share with the 4-Hers to hopefully decrease the incidence of the misinformation out there." Finally, the Vice Chair added: "I think the other point that we've missed is the effort that this relieves County Extension folks from having to look up or collect all this information that we go directly to the experts and get the facts out there. It's a time saver for Extension."

The bulk of these responses relate most heavily to eXtension's purpose in transforming CES methods to meet the needs of audiences in a digital society. Individual comments about "updated unbiased research information," "extending the reach," "decrease … misinformation" were made, showing awareness of the Cozys' obligation to serve the users in helping them perform to achieve their goals. The quote from the discussion of purpose about our "arm back to the industry" refers to the vision of XCoP partnerships that will expand funding and people power to sustain CES educational opportunities. The comment about helping CES county educators easily obtain expert information also addresses the eXtension organization transformation goal.

Dialog

During this session, the dialog among members was relaxed, and the group often laughed, as exemplified in joking with a senior member of the group. "He just talks with marbles in his mouth sometimes (group laughter)," the Chair commented about the participant she described as being with the group "as long as the hills have been around." Her comments elicited a good natured "Hey!" from the senior member and then the retort, "But I'm still here!" Wenger (1998) says CoP humor such as this is a characteristic of tightly bound communities. The degree to which CoPs members intrarelate may be negative or positive in achieving their purpose together. Closely bound CoPs may keep others out (like cliques and gangs) and may be very efficient and effective in achieving present goals. However, tightly bound CoPs may have limited opportunities for positive change through learning because they are not engaging new members with diverse skills, and they may lack boundary spanners who learn from other CoPs in their constellation.

The Cozys meet monthly on Connect and annually at an eXtension face-to-face meeting scheduled especially for CoP work and concerns. Telephone conference calls and messages on email list servers soliciting feedback on information and issues among leaders and separate project groups occur as needed. The Cozys informally gather to discuss eXtension business at professional meetings they are attending for other purposes.

The annual meeting serves to plan the group activities for the year such as "guidelines for the future youth curriculum which is a 2008 agenda item," as well as

to provide time for subcommittees to work together. The CoP Chairs and the

eXtension administrative technical support person facilitate the face-to-face

meetings and the media communications. In the face-to-face meetings, they take

votes and democratically conduct their discussions. Subcommittees for each part of

the Cozys' content outline work in small groups so that everyone's expertise is

accessed. One participant commented that "as we broke up into working on our

learning modules then those that were involved could speak better in their

individual groups." Another added, as a "new member this last year, I've been

extremely pleased and impressed with the way the group was able to discuss

options." Group dynamics were characterized as "generally… pretty cohesive and

a pretty even sharing," especially in the small group committee work. The senior

member of the group added, "we always talk…; it just gets worked out."

The Cozys' discussion of their collaborative dialog processes as it relates to

providing excellent content resources for learning opportunities shows structures for

high-quality dialog. This XCoP's leaders are highly visible, active, and respected.

Face-to-face meetings are regular and well planned, and work is accomplished in

small groups so everyone uses their expertise. A democratic approach makes it

possible to talk through many options before decisions are made.   Opinion polls

such as that referenced in the following quote can be taken at face-to-face meetings

to prevent conflict and to attain the most expert estimations for content

recommendations:

…zoning and regulatory people across the United States would just

love that magic number and as we put some of that information up

that is not scientifically tested yet, but we have to come up with a

number, it gives us a chance quickly to survey 25 states as to their

opinion.

Expert consensus on some management recommendations is sometimes the only data available on some content issues that are related to regulations in which exact numbers are used. Face-to-face meetings give the opportunity to discuss all the issues around the recommendations.

The Cozys' dialog as it relates to contributing to the goals of eXtension shows easy boundary spanning into the Xstaff CoP. Because one of the Cozys' active leaders is employed by eXtension, this CoP is in constant conversation and immediately knows when the Xstaff is not going to be able to provide the technical help to create, for example, a management map. The Chair acknowledged that eXtension technical support was not able to keep up with the entire XCoPs' needs as the number of CoPs expanded from the pioneer eight (there were 21 CoPs by the time of the national launch celebration 2/08). The Cozys had been able to persuade one of their state specialists to do the technology work on the map, but the incident had obviously annoyed some of the CoP members. The Chair explained:

So in that case, some of the "conflict" would have been folks that are

not necessarily used to dealing with the technology, thinking it

should all be done yesterday and also the [eXtension] technology

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group … saying "Oh, we can get this done real quick," and then not getting it done.

A final point about the quality of the Cozys' dialog can be noted in the Chair's explanation of how important face-to-face meetings had been for their collaborative dialog. She said:

Yeah, and it was interesting from the very beginning concept of eXtension, everyone working from their own desk to put up all this content together in a collegial group, but the fact is, even these folks on this call and others that knew each other and had worked together needed the face to face to gain the trust. I mean even in our first content groups in the face to face, people were like, "Well, I'm not sure I can put all this stuff up" and this and that. And now it's like here; we share a lot of things without a second thought, but that came with the face to face working together and developing content together.

Her attitude regarding the necessity for occasional face-to-face meetings to maintain engagement had influenced budget allocations and other group decisions.

Decisions

Content decisions are talked out, explained the senior member of the group:

I don't know who makes the decisions on all the changes on the technology, but we get together, we talk about it, we're all

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[specialists], we know what we're trying to do, and we know where

we're trying to go and maybe we all have a different route to get

there, but… it just gets worked out. I don't think there's anybody

that is dictating or ruling the content at least.

Other members added that content decisions are the central job of the CoP, and one

explained: "I honestly don't have any desire to be involved in any decision making

above the content level."

Discussing leadership, a member joked that the group would prefer the

Chair, Vice Chair, and tech support leader to make all the decisions unless they

disagreed with something, and then they would want it changed. There was

laughter before the Chair rejoined: "Now you get a chance to see the hateful kind of

folks we have to work with" (more laughter).

Although a member expressed not wanting to be involved in decisions

beyond those related to creating learning resources, the Chair indicated feeling

some obligation in giving feedback for the decision-making of the Xstaff as it

relates to eXtension's goals. She commented that the development of the

technological framework should be "consistent and easy for content providers" to

use. She also indicated a willingness to contribute to the decision-making processes

of the Xstaff when she commented: "eXtension should make their slogan 'No CoPs

left behind,' referring to eXtension's diminishing funding available to pioneer CoPs

of '$75,000 to $50 to $15.'" She cautioned: "…phasing out what is available for the

communities that are there, have done it and are active … would be a mistake."

Several expressed concern that eXtension's funding trend may discourage CoPs from keeping their sites maintained, updated, and "exciting for folks to come back to."

Actions

In addition to work time for subcommittees, technology training is provided at the annual meeting. Because there were several new people at the most recent meeting, they took time for introductions, discussed the status of the group's work, and then "did some, 'easy work' that was repetitious that needed to be done, to help folks get comfortable with the technology and then we went on to different groups , projects and things." In the face-to-face meetings, the Cozys' work in small groups to begin to create their sections of the Web content and then complete their projects together in a virtual environment. A visit to http://www.extension.org will provide evidence of the concrete actions XCoPs take to provide resources for user's successful achievement. For this CoP, there are 14 sections in their resources now that include instructional videos, FAQs, and ATE procedure, a glossary of terms, a schedule of Web casts, online chats, and so forth. A Cozy member sums up the actions they took that relate to their users' achievement and references the technology challenge in the action cycle in reaching eXtension's transformational goal: "[we] put some quality information up on the web in some creative ways. I'm proud of [us] for getting [some faculty members] to work on the computer" (laughter).

The Cozys individually engage in actions to benefit eXtension's mission in addition to creating the contracted deliverables. Two members collaborated on a conference proposal "to do a competency workshop to basically demonstrate how Extension field staff members can use the eXtension platform." A relatively new member of the Cozys said: "I spent about an hour with them so I think that's cool too." She explained that her own university folks asked her to show another group considering the application process for CoP status what her role is and what the Cozys have done and can do for the public. A member pointed out that their actions to recruit new members are paying off, as evidenced by the seven very new and relatively new members participating in this interview session.

When the session was closing, the Chair asked a few members to stay in the virtual conference room to work on a grant proposal with her. This virtual community seems to seize every opportunity to act collaboratively.

Evaluation/Reflection

The Chair gave three pieces of evidence in her overall evaluation of their CoPs work:

> We were the first to get launched and we met our goals for the grant
> section and folks have taken on leadership in the areas of their skills
> and expertise and interests. So I guess from our content area and
> collegiality, I'd say, "It ain't broke (group laughter)!"

Members talked about the need to measure the impact of the content they provide. Stating that the whole goal of education is positive change, a member remarked: "That's pretty hard to measure."

Individuals have created evaluation procedures for their Web-based content, and apparently the Cozys as a group have not yet addressed evaluation procedures with a committee or subgroup structure. The Chair remarked: "We've been in touch with, 'the evaluation guy' for eXtension to try and help us—I don't know where it is from there though." This CoP has worked with the electronic metrics and can document significant increases in new users of their educational resources as well as which content items are accessed most often and when (times of day, days of the week, etc.) users engage in the educational opportunities on line. Also there has been some success in obtaining evaluative feedback on the anticipated usefulness of information at the end of chat sessions.

The Chair expressed some disappointment with the progress of technology development and said: "I think the evaluation and data mining stuff from the technology side has also been lagging behind, because we don't know anything about our users as of this moment. We can't really even contact them for feedback …but at least [users] will be able to 'rate' [the content] as they go like they do [on] amazon.com where you can rate the book and how useful it was… but we need to go beyond that." Several indicated their expectations that collecting impact data will eventually be accomplished "when the new site goes up," and classes can be

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offered through "Moodle" (a software framework that can take credit card payments for courses and can provide learning modules in a practical asynchronous format).

Another member commented that the technology for eXtension had not advanced to the stage where there is any way of contacting the people who have visited the site to "send out promotions" for a new learning lesson, a new module, a chat, or the Web casts. Others mentioned new tools such as Instant Survey that XCoPs leaders are beginning to use, but the major push had been to get the content "up and functioning," and concerns for empirically evaluating the impact of the content have had to follow that basic priority. Another member commented on informal evaluation sources:

> And I think too when you talk with people who use [our content] …
> they like it and they learned something. Like I've had one of our
> coaches ask if this is going to be a future resource for the national
> conference. Obviously they think it's valuable and fun and a good
> way to learn or they wouldn't be asking those kinds of questions.

As usual, the groups' evaluation comments jumped back and forth from the focus on user's successful achievements and success to the success of eXtension's transformation of CES. One member tied the need for impact data to the ability of XCoPs to engage members in CoP work. She thought young faculty members may not see eXtension as a way to document their scholarship and teaching impact for reappointment, promotion, and tenure (RPT) processes:

…being a pre-tenure faculty—I think [we need to help] … the

younger faculty, realize what [eXtension] can do … in terms of your

scholarship on your pre-tenure packets and on your promotion and

things. It really just started to be evident to me now that I'm going

through tenure this year.

Another member emphasized the need for impact data for CoP work to be

considered scholarship. The ability to evaluate the value of their educational

resources and learning opportunities is closely aligned with other concerns

the Cozys talked about that do not fit into the DDAE process analysis. Next

is a look at the Cozys' major organizational concerns.

Cozys' Concerns

This group discussed at length the technology learning curve for

this pioneer CoP. They cited technology changes every time they had a

meeting or tried to put in new content. Generally they agreed, as one

participant said, "the hard stuff is over. Now it's just updating it." They

talked about how it will be much easier for new folks working in the CoPs

because as a pioneer CoP they had worked through the changes and the

technology had gotten "streamlined" and working in the wiki is "much

simpler" now.

Concern for membership sustainability is reflected in comments such as

these: "One thing I'd like to see is some of the older faculty to still assist with this,

but I'd like to see some newer faces brought onto the project." The comment

provided another moment for laughter when the senior member replied: "Are you saying I've been around too long?" (laughter)

Budget decisions for funding travel expenses to the annual meeting have been based on the leaders' conviction that the face-to-face meetings are extraordinarily necessary to the work of this CoP. During the first year when the funding was $75,000 from eXtension, this CoP paid all the travel expenses for everyone who participated in the annual meeting. The second year, the funding was $50,000, and the CoP covered all the expenses for everyone except transportation to the meeting. This third year, eXtension funding is only $15,000, and this CoP is in the process of seeking sponsors to underwrite the cost of the face-to-face annual meeting because it has "been so valuable for our group as a whole from the very beginning."

One of the members commented that CoP work was not recognized as important yet by systems making RPT decisions and in the "developing process it is sometimes really hard to convince the higher ups that it is important." The Chair explained that many universities are in transition in the standards they use for determining the value of faculty scholarship, and this had been a concern of the leaders of this group from its beginning:

… when we were first talking about this in the first couple of years
we said we needed to actually protect our young faculty because the
fact is …most have to go through the ivory tower process, and these
types of things may or may not be recognized as suitable or adequate

for tenure and promotion, especially if they are out in the field and

have to go through the same process [as on-campus faculty].

It was noted that all XCoPs would benefit if the Extension Directors who have

indicated that they support this effort "would work in their local systems" and make

sure the XCoP "scholarly work of their specialist, educators, and field staff is

valued."

CoP C: The Joys

CoP C became an XCoP in the fall of 2005. They had 77 members in

August 2007 when they were invited to participate in the *Cultivating eXtension*

CoPs online survey.

By March 2008 CoP C's membership totaled 162, with 13 leaders listed on

the people management server. A membership of 136 was listed in their XCoPI. In

mid-December 2007, five members of CoP C, three women and two men, the

interviewer, and the conference software technical assistant were present for a focus

group interview to discuss the quality of this CoP's collaborative cycles in DDAE.

The author of the proposal for CoP C, a university communications specialist, an

Internet technology (IT) specialist, a subject-matter specialist, and a US Department

of Agriculture (USDA) Cooperative State Research Education and Extension

Service (CSREES) program advisor explained how they collaborate.

The Project Investigator (PI) explained that she attracted 13 leaders when

writing her first proposal for $75,000 funding to fill diverse roles such as subject-

matter specialists for content development and review, a grants developer, a

Hispanic coordinator for Spanish translation, a communications specialist for editing, a part-time state CES assistant for Web page design, and an IT specialist. Diversity in membership in order to access many skill sets needed to produce high-quality information for people of all backgrounds, for example those who are Spanish speaking, has been a concern of this XCoP from its conception.

Again looking for an appropriate pseudonym for CoP C, I reflected on the emotional ambiance in CoP C's interview. Comments of gratitude, appreciation, receiving as much as giving, enjoyment, satisfaction, and excitement bubbled up in my memory and created the feeling of joy.

Purpose

The Joys CoP had been operating as a CES group before becoming a funded XCoP long enough to have established an annual regional conference. The leader said she wrote the proposal for the group to become an XCoP because it would give her subject-matter audience access to CES educational resources "24/7" and would provide more numerous and creative ways to deliver that information. She concluded: "it looked like it would give us some opportunities for our subject-matter group to continue working together in a new way." Embedded in the reasons to become an XCoP is both the concern for her audience's achievement (access 24/7 to more and better resources) of their goals and enthusiasm for working toward eXtension's transformational goals (working in a new way). Others in the interview commented that the XCoP had attracted a larger number of members to create and disseminate its information. Although the group had co-authored publications

before, the XCoP diversity of expertise had made it possible to produce information in two languages and fully use new technology for more interesting and creative presentations of information.

Dialog

The Joys engage members in all of the states (13) with CoI for their subject as well as some adjoining states where there is potential need for their information. The discussion revealed that a diverse membership and leadership structure was initially possible because the group had been a CoP before eXtension and before the term, as one member on the interview said, "community of practice meant anything to anybody."   A leader of the Joys described themselves as "very well positioned," to become an XCoP. "Our major flagship publications have many of the same authors," a leader pointed out in the interview, and an annual subject-matter conference had already been produced through multistate collaborative efforts.

Dialog for this community occurs face to face at their subject-matter annual conferences as well as at other national meetings their specialists attend. Recently a national society reorganized giving this group an opportunity to establish a formal network that gives them an additional annual face to face meeting for XCoP business. This supports the Joys' efforts to be inclusive and continuously increase their membership. Dialog also occurs informally, through many types of communication media (email, instant messaging, telephone, Internet conference software). Two or three Web conferences are conducted each year, and informal

communication is continuous through email, Instant Messaging (IM), and other electronic media.

"More down to where the rubber hits the road part," a leader characterized how they develop content in small groups; the Joys communicate as subsets of their CoP as appropriate for the products or modules that are being developed at the time. "Right now we're in a fairly lucky period," he said, commenting on the way everyone seems to get along well, but went on to express some fear that conflict could disrupt congenial working relationships. He described a time in the early 1980s when there were conflicting approaches to the solutions that need to be worked out by this CoP. He said: "Fortunately for us at this point in time everyone is pretty much in agreement… And my fear is … continuousness could arise again in the future." A positive view of conflict was expressed when the communications and information technology (CIT) specialist said:

> My observation … is that these people get along--they can disagree
>
> and still be happy within the group. Maybe [the leaders] are so
>
> imbedded in this they don't realize how fortunate it is to be in a
>
> group where people are getting along and being productive and still
>
> can have their professional disagreements.

To foster engagement of as many members as possible in their collaborative dialog at face-to-face meetings, the Joys budget their funding to pay expenses for some of the state leaders to attend the [annual] conference. The Chair of the group described this as "a little bit of a carrot that we give them. However there is not

enough funding to give all 153 members any kind of funding." Summarizing this situation, one member commented:

So we have to be cognizant of the fact that we are basically a volunteer army. A couple of paid leaders and the rest are all doing this out of desire to help their community of interest.

Engagement of the membership is a constant concern of the Joys. A leader stated her idea of how she could improve the quality of their dialog:

From a standpoint of thinking about how we all work together, I wish that I had more time to contact people more often on an individual basis. I want to call some of these people one on one, some of our leadership and try to get some ideas about what they're thinking and sort of what they need.

The Joys' conversation about their dialog during the focus group interview was heavily weighted toward thinking about accomplishing the transformational vision of eXtension in convincing CES faculty and staff to become engaged in the XCoPs. One leader said it had been rewarding to her to notice that "just through the effort of trying to be inclusive … people I wouldn't have thought would be interested have stepped forward … to do something."

The Joys expressed enthusiasm about the possibilities XCoPs have for entering into dialog with each other. One leader explained that his realization that eXtension provides unprecedented cross-marketing opportunities came to him as a

result of participating in the XCoPs' national meetings held in Louisville, Kentucky. He said:

> the ability to meet and have conversations with the other CoPs has led to what I call cross-marketing; say the HorseQuest site has fire ant questions. The capacity of eXtension to begin to cross-market programs is immense. So bringing together wildlife people with say fire ants where appropriate has never occurred before. We've never known one another and this experience has brought those possibilities to light in a way that has never been possible, not only between disciplines but between states as well!

Decision

The Joys decisions are informed by dialog at face-to-face meetings, media communication, explicit procedures written in the wiki for submission and review of content, consensus reached in revising content in the wiki, and a published organizational chart that shows leaders and members for each subproject. The group consistently makes decisions about what individual and collective actions they will create and change by using questionnaires to collect data. A leader explained the process:

> We basically asked the CoP members that are present at the work days to fill out a questionnaire to say are you interested in this project? If so, how would you like to participate? Or on a scale of 1

to 10, is this, a good idea or a bad idea? And then we compiled that

and used it to set some of the priorities that we have.

Again, the Joys had a lot to say in regard to contributing to eXtension's transformational vision. The Joys raised questions about the decisions the Xstaff makes in their funding processes to have adequate resources to encourage CES personnel to engage in XCoP work. A leader pointed out that the startup grant funds eXtension gave may be part of the problem rather than the solution for convincing CES personnel to engage in XCoPs. He expressed this opinion: "Any time there is money involved in a program, it complicates matters." He described the really slow progress for developing learning modules that were included in the Joys' proposal, but all the workers that were needed to develop the modules could not be given stipends or salary savings out of the small eXtension grants funds to participate. He characterized slow production this way:

… because of the nature of the information and the liability

associated with making different …recommendations in different

states, we have to cover our bases and get approval from each state

leader before that is posted. None of our state leaders are receiving

eXtension funding and that process therefore is slower and you have

less participation and it requires more effort to reach those CoPs and

beg them to take a look at our modules to provide input that we need

in order to be protected when we post it.

The focus for the discussion for the decision cycle was fairly balanced in explaining the Joys' decision processes (questionnaires to help make content decisions) that will help users accomplish their goals and working toward achievement of eXtension's vision (questioning Xstaff funding decisions).

Actions

The Joys' Chair takes action to encourage members to engage in technology training sessions. A member commented: "I'd like to add that she is really good about sending out periodic emails to the entire CoP reminding them of things going on within eXtension." The Chair also described an in-service training that she and her counterparts in other states held just before the public launch of their Web site to make all CES agents aware of the new electronic resources of eXtension.

The Joys articulated how they publish information in eXtension in steps. First a specialist or group of specialists submits content that is reviewed by at least two reviewers with expertise:

> Then it goes to … Ag Communications to look at it and ultimately
> the publish button gets hit. And all this time our web person is
> monitoring the website and the development of these modules.

Another member explained how the Joys acted to solve their wiki problems by hiring a CES assistant at his university to be the Joys' wiki person. The Joys can go to their own Web master if they do not have time or talent to learn or address the wiki system. The Joys' technical support person spends 100% of her half-time position on developing and maintaining the Web site. She monitors the traffic and

people making changes. The Joys' Web site is now more attractive, with more information on it than planned in the proposal, and has extensive graphics, such as PowerPoint slides, images, and video, according to one of the leaders.

The Joys also acted on a problem related to the open access of the wiki system that allows everyone to access and edit pages. When someone who did not understand the outline and sequencing of the information completely rewrote a publication in the wiki, the leadership discussed with the Xstaff how they could prevent the publication of an unauthorized edit that had not been reviewed properly. They found that published pages can be frozen and can still allow editorial changes in the wiki Web site that cannot be published until reviewed. A leader summed up the incident this way:

> We worry about having such an open process that can be immediately published give us a problem. So we solved all that. I think what is up on the Web site right now is fairly stable but the mechanism is still allowing for us to make rapid revisions.

The interdependency with the Xstaff makes the action items the Joys discussed appropriate for measurement against both the outcomes for the users and eXtension's transformational goals. The Joys' individual and group actions are governed by the contracted deliverables (content modules and other resources) in the proposal that the eXtension initiative staff approved and funded. Proposals have products that are to be completed in an estimated time frame. The Joys "did get the funding, which makes those commitments sort of locked in concrete," one leader

explained. However, eXtension, as the funder, made promises of technology resources to complete those deliverables. One of the leaders described the situation this way:

> And it's a continual ping pong match between us as the content providing CoP group . . . and what eXtension can and will do to allow that to be successful. And this has been part of the pioneer community of practice experience. We continually sit down and say who is going to do this? What are we obligated to do and what are they going to do? …they have been extremely forth-coming when we have issues that border on deal-break issues. We get commitments verbally that "Oh those issues will and can be resolved." In some cases there is a lag time from that point and there continue to be issues ….

The Joys act to clarify issues with the Xstaff. They obviously have boundary spanners willing to wrestle with the decision-making processes of the Xstaff.

Another intradependent activity that all XCoPs have is the Ask the Expert (ATE) system, which includes FAQs. The Joys raised the question: "How much of this is the responsibilityof a CoP, and how much is the data base tracking the responsibility of the national eXtension group?" The Chair explained that their group had had to make many adjustments because eXtension has changed the way they do things as they go along. She said she had experienced "a lot of anxiety over

[the ATE system] in terms of how that is being handled. It's different than we thought."

An action expectation of this CoP briefly touched on was establishing partnerships with other agencies that will add resources in expertise or funding for the ongoing creation, development, and maintenance of the project. One leader summed it up this way: "There's lots of work to be done. There are lots of opportunities that still have not been realized," such as how to garner and maintain sponsorships for sustainable funding.

Evaluation/Reflection

Evaluating the content the Joys create for their Web pages is a primary concern. First, the quality of the content is evaluated by at least two peer-reviewers with expertise for the specific subject before it can be published. Beyond that, individuals are currently working on instruments and mechanisms that will provide information about whether the content was used and, if so, whether it positively changed behaviors, conditions, attitudes, etc., to solve a problem. This XCoP's effort is interdependent with eXtension's software programmers who have designed a survey that can be accessed at any point in a learning module using the Joys' content questions. In addition to electronic survey instruments, such as Instant Survey, a leader mentioned existing Scantron forms used in face-to-face meetings that could be adapted to online use. He explained:

Many of the metrics that we generally use for our Extension

accountability are already in there from an agency's perspective and

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then the questionnaire allows you to add additional questions to custom-make it for your particular discipline or educational program needs. We're hoping to use that, move it over into eXtension. There's really no reason for us to re-invent the wheel.

The Joys are just getting started in developing the system for evaluation of the content in terms of how it helps the CoI (users) to adopt positive behaviors and change behaviors related to the subject matter for successful problem resolution. A university specialist will head up the evaluation efforts for the Joys with as many CoP members who are willing to join that effort. One of the leaders said that CES projects that produce "outputs" in the form of information, presentations, conferences, etc., without evaluating the "outcomes" (changes in behavior, attitudes, environmental conditions, etc.) are not highly valued in this era of organizational accountability. Citing this as an "area under development" that has "provided heartburn," he elaborated on the problems associated with making the case that eXtension is an outcome program:

> We [need to] be able to gather the kind of metrics that would give the information of the "so-what" from the CoIs. And I'm hoping we can make that happen, but it will not be able to occur unless we … as a CoP has access to the demographics and to the CoI individuals to the point where we can actually do what they now call a reverse 911 where you can actually send an email or a phone call to the people

who use the site and survey them, if you don't get their response

voluntarily when they are leaving our Web site.

Formal evaluation is an evident concern constantly in the foreground for

the Joys'. In addition, there is evidence of reflective evaluation about every cycle

of their inquiry. Reflecting on their actions raised planning issues and allowed the

frustration associated with some activities to be examined:

With all new things there are growing pains—so since we are a

pioneer community of practice we have perhaps experienced more of

these than some of the future communities of practice do. But the

one thing that I seem to have learned from all of this is that

everything takes 3 or 4 times longer to get accomplished than I

thought they would. So we have had to make adjustments as

eXtension has changed the way they are going to do things.

Finally, group members shared their evaluations of the value of their

personal CoP experiences to their professional and personal growth and identity.

Characterizing the CoP as his "largest team-building exercise," one member

reflected: "We got to the point where everybody was on their own. Now we have

the linkages." He mentioned a module for 4-H the group is creating in Second Life

(a virtual interactive community) as a project that he and his colleagues would not

have even thought of without the linkages to new people with new ideas the CoPs

provide. He summarized the value of the Joys' work:

The quality of the work that we're putting out because

[communications specialists] help in editing our final copy … and

then have it translated to Spanish and having it posted as a mirror

website, and the FAQs at this point—these are huge

accomplishments that none of us could have accomplished on our

own.

A communications specialist expressed her feelings of identity and confidence

when she uses the Joys' wiki as an example of how CoPs collaborate:

I'm really proud to have been involved with such a great group of

people … and contribute to something that we typically think of as

content only. …What being a part of this particular CoP did for me

professionally [as an IT specialist] is that I learned a whole lot more

about technology –some things that we hadn't been doing here or

just doing a little bit. Just the exposure that I have had, [with

subject-matter specialists] has just been a lot of fun and has been

really exciting to see things progress and develop and have this

wonderful product.

The discussion ended with reflection on all the opportunities that are available and

have not been worked on because of all the work in launching the Web sites.

Garnering and maintain sponsorships for sustainable funding in the future years,

using eXtension's capacity to take credit card payments for continuing education

courses, and developing partnerships with product manufacturers and distributors without biasing content information comprise part of the work to be done.

The Joys' Concerns

One leader suggested that engagement in all XCoPs would improve with help from CES administrators. He explained that the Extension Director in his state finally

> said something about faculty involvement in the wiki system and
> gave it value, gave it blessings from the highest levels of
> administration to have mid-level administrators to value the input
> and time that their faculty and staff are devoting to creating this new
> method of outreach. And … having that administrative support and
> blessing and encouragement … that's really what we're lacking.

In addition to engaging members in the collaborative dialog, new members must be attracted to the XCoPs dialog, if the Joys' Web site is to continue to be relevant. Sustainability of workforce time, energy, and expertise, as well as funding, is an ongoing topic for the Joys' conversations.

The CSREES advisor raised the question whether the collaborative wiki was actually a barrier to member engagement. He suggested that everybody is too busy to put a lot of time into learning the system because it is not the "friendliest place, not the easiest place to learn how to work." He questioned learning to use the wiki, when everyone has other communication skills that are easier to use and using a wiki is necessary only for eXtension participation, not for any other parts of

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most people's employment. He said: "Frankly in my job the only place I have to use the wiki is with two communities of practice and everything else I do, 96% of my work, I don't need it. … With the wiki, there's a learning curve and it's pretty technical."

CoP H: The Foils

CoP H had a membership of 97 in August 2007, when its members were invited to participate in the online *Cultivating eXtension CoPs* survey. By March 2008, CoP H's membership lists show 34 CoP members, 7 leaders, and 213 in its CoPI. Early in December 2008, a focus group interview was held on the Internet Connect supported conference software hosted at Iowa State University. Present in the interview was two CoP H leaders who were part of a group of five who wrote the proposal to become an XCoP and received $75,000 startup funding in the fall of 2005. A project leader joined the conference on a telephone, without computer screen, from an airport waiting room in transit from a national conference, and two joined from cell phones while in a car. Three men (a co-writer of the original proposal and project manager, a subgroup leader/subject-matter specialist, and a CSREES advisor), two women (a co-writer of the original proposal and an administrative assistant), the interviewer, and the Connect technical assistant were involved in this interview.

CoP H set up the interview session on a day half the group would likely be in transit from a national conference. It appeared that the person setting up the date and time had not checked with the other CoP members about their availability.

Efforts were made to encourage the group to reconsider the date in view of the conflict with a national meeting, but no one responded to the inquiry about scheduling a better time. After the interview, the word to describe the group personality was *frustrated*. This XCoP found it difficult to feel successful in meeting the situational expectations. A Google search found the word *foil* to be an obscure synonym for "one who is prevented from being successful." The Foils seemed an appropriate alias for this frustrated group.

Purpose

The Foils defined their purpose in terms of "developing educational resources to share with the public." A leader confirmed: "I would see essentially the same goal—to develop educational materials to help the public respond." On this basis, one leader explained they "should be considered [two] separate [communities] of practice." Another asked whether the question of purpose was "relative to the Foils' mission or eXtension's?" The question was not answered directly, but the general consensus of the group seemed to be a complete focus on developing educational resources for end users achievement. Considerable confusion about the identity of CoP H surfaced early in the conversation, with statements such as "[this CoP is] unique; … confusing and we've had some issues with a single identity in these two very diverse topic areas."

These informants described all the characteristics of the Foils in two separate parts. For example, one person started describing how their community started with five members, but one had to leave because of overwhelming local commitments resulting from the devastating storms that hit the southern coasts, and

another team member participated marginally, so really there were only three on the team. Then he concluded: "There were a few more involved with the other team." They did not join their "two communities of practice … together in person early on." The team of three had known and worked together for many years. The other team members had met each other only coincidentally and had not worked on any national projects before eXtension approved their proposal. Totally absent from CoP H's conversation was any recognition that the reason the Xstaff funded subject-matter groups is to coordinate diverse topics around coinciding similarities; for example, adult investment learning opportunities and parental teaching of children about money are diverse topics bringing content specialists together who are interested in personal finance education.

Dialog

The Foils communicate rarely if ever face to face because members have such "diverse backgrounds they didn't all attend the same meetings." They also had not put a meeting (*work fest,* Xstaff call it) into their original budget. The frequency of media-aided communications was described as "as needed." The Foils recalled meeting for conference calls every couple of weeks to develop the initial framework and then less frequently as they were developing the material. When work assignments had been agreed on, most of the work was done independently, with two or more group members interacting back and forth by phone or by emailmail as needed. Conference calls for the entire group would be set up when needed.

Commenting on the opportunities for dialog in the wiki, one leader expressed his belief that the opportunity cost for members to become competent in the wiki would prevent content production. Members used email with documents attached to share in the development of materials. Although the Foils had encouraged members to learn how to work in the wiki at first, the challenges in that environment discouraged them, and they "allowed those specialists from the different institutions to continue … shared word documents" attached to email until finally one individual would put the edited document in the wiki for the CoP. "I know that is not how it is supposed to work," admitted one of the leaders one of the two topic areas.

The Foils pointed out the positive aspects of their small size, long-term collegial history, and ability to agree: "Familiarity allowed us with those conference calls to pick up and do things that we probably would not have been able to do if we didn't have that relationship." They described working together as being very enjoyable and professional, with "no such thing as conflict." I observed one conflicting opinion expressed during the interview. After much was said and agreed on about how the Foils were pulled in so many different directions that they did not have time to devote to the XCoP project, one retired leader remarked "being pulled in eight different directions; … was part of the job description when I joined Extension."

The only conflict the group identified was not within their CoP, but with the initiative Xstaff in their provision of the Internet work space called the wiki. The

Foils also mentioned their annoyance that the wiki format had changed without notice, that they were not able to find documents they had put in it, and that they had additional technical work to do because of the changes the Xstaff made. The Foils, with very small member engagement and focus on collegiality, did not recognize intraconflict and had no examples of working through identified interconflict with Xstaff.

The writer of the proposal for the Foils explained her plan to increase member engagement in the Foils' work. She mentioned 170 CES people that had indicated an interest in this CoP in general when they joined or obtained an eXtension ID. Providing a Web conference could attract commitment to this CoP's membership. She expressed willingness to attract a more diverse membership than they had and said: "if there happened to be some 'experts' out there that we're not aware of, especially involve them." However, "just some editors or some folks who have contacts with experts in their state" would be good to involve. She thought it was time to recruit people into the Foils that may not have the "in-depth expertise as our pioneer work team members did." Remarking that less experienced members may still have some good ideas to contribute, she advised broadening the membership to "truly follow the eXtension philosophy." Perhaps "some Joe Blow, county agent—that none of us know personally" would find good information that could be approved by the CoP experts. She thought it would be possible to keep "the integrity of the research based information" with broader collaborative work.

Decisions

The Foils made decisions primarily about the topics to include in the materials they create. They cited the peer-review process as another area for decisions. Consensus was reached in developing the outline for the materials, and the project leader became the "final editor." The Foils said:

> At some point, the leader… would arbitrarily, with the blessing of the rest of the team, make some decisions and maybe make some assignments of how some of that work might best get done.

The group generally agreed that "the biggest decision that we had was to finally deviate from using the wiki in order for our development to proceed." They based this decision on the amount of time learning to operate in the wiki would take away from producing the content that they believed was the purpose for the group: "And our group finally decided that where we could do the best with our time was to provide the technical material." Supporting that decision, another member said of his wiki experience:

> At one point, I tried to be a good soldier and at least insert some diagrams, some of my illustrations into the wiki and somehow that process ran off the rails and I honestly have no notion of what sort of enhancement that the wiki system would add to the text editing capability of Word—in other words, multiple people reviewing a word document. I guess from my perspective asking us to spend our

time on wiki was basically a wheel spinning exercise without any

obvious benefits. So I was very glad that we were able to just move

forward doing things that work.

Reflecting on the problem with document editing in the wiki, an

administrative support person suggested that they needed something in writing that

would help them understand what the Xstaff would do for them. She described

"having a written decision making tree kind of document, whether it's in the wiki or

it's on Word so that everybody has a copy in their computer, or whatever, saying

this is the next step that I need to take and then whose desk it ends up on after that."

Several Foils mentioned their frustration with so many changes in the wiki format

and the frustration of increasing technical expectations throughout the process.

Their understanding, "that we were, 'one of the pioneer teams' so that eXtension

was developing as we were working on it," did not change the groups' insistence

there is critical need for "having a clear understanding of who is responsible and

how all this is laid out."

Actions

The Foils again focused their discussion of actions on "the material

development" and explained that once assignments had been agreed on, "it

was each individual's responsibility in essence to provide leadership for that

content." The peer-review of the material was processed under that

individual. Publishing the material, however, is an action that is

interdependent with the Xstaff and had not yet been accomplished in January 2008 at the time of this interview.

The Foils had not yet launched their Web site because of confusion over who would do the copy editing. They had expected the technology Xstaff to do this task, but the Xstaff had apparently become overwhelmed with launching all the XCoPs that were ready before the national launch celebration. The Xstaff could not give any one CoP the extensive support copy editing all the Foils' materials would require. At the time of this interview in December 2007, the Foils were in the process of identifying copy editors across the nation to help them ready their wiki pages for launch before February 21, 2008.

Evaluation/Reflection

The member sitting in the airport tried to clarify the meaning of reflection and evaluation and pointed out there are at least three levels—the content materials and resources, the entire CoP process, and the sustainability of CoPs in terms of engaging people and funding projects. He assured the group that there is an "awful lot" of reflecting on "how do we make sure the subject areas have the right kinds of people involved in the future?" However, for formal evaluation, he said: "I'm not sure there are any solid issues that can be shared." Other than peer-reviewing the resources they intended to publish on their Web site and offering the following evaluation related observation that "documentation is the next step for clearing up processes," no other evaluative evidence was offered for the processes the Foils are using to evaluate their actions.

One person summed up what he thought were the accomplishments of the Foils with the focus on working together satisfactorily and producing excellent content in spite of uncomfortable environmental expectations:

> We identified nationally recognized expertise for a few very important topic areas and put them together in a collaborative work environment, identified significant information based on land-grant research that address issues that are going to affect a lot of people. I think we identified some challenges in the entire process and didn't let those challenges keep the process from going forward. We made some modifications and transitions throughout utilizing the expertise of people we already had by going to *Word* rather than wiki, and in the end, the product that is going to be available on eXtension is going to be just as good, just as valuable as if all the individuals had all the technical expertise. I think we adjusted, we modified, made some changes along the way and in the end we delivered the goods.

The Foils' Concerns

The Foils have a development committee, and eXtension expects them to find funding for sustainability, rather than continue to receive funding from eXtension. One of the development committee's goals is "to buy out some time of people to devote to [the CoP] on an on-going basis." One of the leaders described the feelings of some colleagues at a recent meeting at Clemson University relative to sustainability. The idea that national experts were expected to give their time to

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eXtension activities and to solicit partners' time and funding "was not very well received by a couple of the folks, especially in light of the contributions coming from Directors and institutions." Another leader attempted to clarify that this CoP had a committee now to provide leadership in obtaining financial resources to have people devote time to this eXtension project. She said: "we're talking sustainability in manpower, not just money, and I'm more concerned about the … person power since we've been so short to begin with; we can't continue to expect these people to devote as much time as they have initially.

CoPCAR Comparisons of the Joys, the Cozys, and the Foils

How well do the CoPCAR scores derived from analysis of the survey questions represent the quality of collaboration of the three XCoPs when compared with the findings from the qualitative interviews? Although there was no statistical significance among the CoPCAR scores, the qualitative data triangulated with the scores suggests an alignment with the predictive value of the CoPCAR.

Qualitative evidence supports the trend in the CoPCAR scores that identify more collaborative communication structures and processes for dialog (Table 6) for the Joys and Cozys than for the Foils. The evidence is less clear that the Joys are more collaborative in dialog than the Cozys, and there is not as much spread between their scores (.15) as there is between their combined means and that of the Foils (.3).

The Joys' agenda for dialog included face-to-face communication at their own annual subject-matter conferences, eXtension annual conferences, regular

Table 6: Dialog

1=Highest Functioning in 1-4 range	JOYS	COZYS	FOILS
Dialog (Agenda)	1.4	1.6	1.8
Dialog (Attendance)	2.1	2.5	2.7
Dialog (Goals)	1.7	1.8	2.4
Dialog (Structure)	1.1	1	2
Dialog (Clarity)	2.1	2	2
Dialog (Balance)	2	2	2.2
Dialog (Conflict frequency)	2.2	2.3	2.4
Dialog (Conflict resolution	1.4	1.8	1.5
Dialog (Purpose)	1.3	1.7	1.8
Sum of item means for dialog	15.3	16.7	18.8
Total rubric mean	1.47	1.67	1.98

Internet conferences on Connect, and all forms of media communications (wiki consensus, email, IM, telephone) between and among individuals, subgroups, and the whole CoP. Joy members also frequently crossed boundaries with the Xstaff in professional development sessions and problem-solving situations. Expenses to national meetings were paid for CoP members (state program supervisors) who are not at the center of the Joys' community to encourage their engagement. The Joys had engaged members who are subject-matter experts, field educators, CES middle management supervisors, and technology specialists, among others, with their energetic efforts to be inclusive in the diversity of member composition. This is evidence of a highly collaborative attitude toward peripheral members who learn from observation and encouragement of members at every level of technological communication and subject-matter skills.

The Cozys gave similar evidence to that of the Joys regarding the agenda and structure of their communications, except the Cozys relied on the eXtension annual meetings and communicating at national conferences where they happened to be, rather than having a separate national subject-matter annual meeting. The boundaries between the Xstaff and the Cozys were very permeable because the Xstaff had worked with this group in 2005 to create an XCoP prototype before funding them in 2006 as an XCoP. An Xstaff member continues to be an engaged leader of the Cozys.

The Foils, with a CoPCAR score .4 lower than that of the Joys and .2 lower than that of the Cozys for collaborative dialog, also shows qualitative data for their dialog agenda and structure that looks almost opposite that of the Joys and the Cozys. The Foils had no face-to-face meetings as a community, and in fact they thought of their subject matter as two separate CoPs instead of two subgroups within the same community. There were few at first and then no regularly scheduled CoP media meetings; all communications were structured on an "as needed" basis. This CoP had been closed to all except expert membership for fear that this new outreach method that allows all members to edit publications in a wiki would affect the integrity of the research base.

From conception, the Joys' goals have been closely aligned with the eXtension initiative to include not only content development, but also "working together in a new way," which eventually eXtension defined as developing systems for FAQ and ATE creation and maintenance, member engagement, evaluation, and

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partner development for sustainability. The Joys provided evidence that they had

worked as an XCoP in various degrees on all those purposes to achieve the vision,

mission, and goals of eXtension. The Cozys' alignment with eXtension goals was

also evidenced in their interview. However, a community structure for evaluation

the Joys described was not evidenced in the Cozys' interview, although certain

individuals had been working on various evaluation procedures and instruments for

their content. Because the Cozys were a prototype for Xstaff, the leadership may be

continuing to rely on the Xstaff to develop some of their community structures.

Given that the Foils purpose was solely defined as producing quality content, no

development of community structures for FAQs and ATE, member engagement,

evaluation, and sustainability were evidenced in their discussion, although these

topics were touched on at various points in their interview.

The Joys as a group did not appear to embrace the concept of positive

conflict whole-heartedly. There was evidence that some leaders had misgivings

that conflict would interfere with the necessary good relationships that a "voluntary

army" must have to function; however, there was keen awareness among leadership

members that "conflict" is necessary to get all the options on the table, and

professional conflict is essential in discovering or creating the truth. The Cozys

acknowledged some community members' disappointment in time frames for

completion of projects as their only conflict, but this was not alarming or frustrating

for the leadership. Full acceptance of the growing pains of this newly created entity

and pride in pioneer suffering were evident. The Foils, on the other hand, were

quite frustrated by conflicts with the Xstaff and evidenced no capacity for

recognition of conflict within their community. Or perhaps there was no conflict

because they were seldom in contact as a group. Production was almost always an

individual process.

The Joys provided evidence that they encourage members to express beliefs

(fears) and to ask questions for clarity in their description of the way they solved

their wiki editing problem. Fear that something could be published without

stringent review was discussed, and leaders were able to cross CoP boundaries to

clarify with the Xstaff exactly how the wiki worked and what their CoP needed to

do to ensure correct publishing procedures. The Cozys evidenced no fears or needs

for clarification with the Xstaff and no confusion. It was as though the Xstaff had

provided for their needs so well that they could relax and enjoy each other's

company without needing to be "on task" all the time, like the Joys. The Foils

appeared to have no members who could cross their closely bound community to

negotiate the information they needed from the Xstaff regarding copy editing and

other procedures that caused confusion. Having rejected the wiki collaboration

altogether, the Foils seemed to have decided by default on developing direct

communication with the Xstaff.

Again, there is clear evidence in the qualitative data that the Joys and the

Cozys (combined average mean difference over the Foils =.61) are more

collaborative in making decisions than the Foils (Table 7). There is less spread

(.14) between the CoPCAR scores of the Joys and the Cozys and also less

qualitative evidence the Joys are more collaborative in their decisions than the

Table 7: Decisions

1=Highest Functioning in 1-4 range	JOYS	COZYS	FOILS
Decisions (Policy)	1.4	1.3	2.7
Decisions (Importance)	1.6	1.6	2
Decisions (Member dialog)	1.6	1.9	2
Decisions (Process)	1.6	1.7	2
Decisions (Clarity)	1.4	1.8	2.3
Sum of item means for decisions	7.6	8.3	11
Decisions mean	1.52	1.66	2.2
Total rubric mean	1.47	1.67	1.98

Cozys. The Joys use collaborative formal structures such as questionnaires to

obtain feedback from their members on which to base their decisions. These

structures were not evidenced at all for the Foils and only in passing in the Cozys'

comments about getting everyone's opinion on contest decisions at national

meetings.

The Joys' community decisions are informed with questionnaires about

content choices and individual preferences for workgroups their members complete

at face-to-face meetings. Budget decisions have been based on attracting and

engaging members in the work of the community by paying expenses to national

meetings ("a carrot"), as well as by hiring workers to develop the most essential

content models. They also hired an IT specialist to perfect the Web pages and to

help members not having the skills or time to learn the skills participate in the wiki

work. The Joys are in constant communication ("ping pong") with the Xstaff to

negotiate their contract deliverables with decisions about who is obligated to do what. They have tackled policy issues around the structure of the ATE system. They also raised questions about eXtension grants that produce "haves and have-nots" for a collaborative system.

The Cozys use their face-to-face meetings to make decisions democratically about content and poll their members for essential information used in planning priorities. As a community, the Cozys appear less interested in policy issues than the Joys, and one individual stated that she had no interest in making decisions about anything other than content. The Cozys show little concern about negotiating their contract with the Xstaff about who is obligated to do what. Apparently their history with the Xstaff has built the trust their needs will be met eventually. The Foils make decisions only about content. They cited their peer-review process as making decisions by consensus, although leaders make decisions arbitrarily that are later blessed by the membership. Their biggest decision to date was to discontinue any efforts to use the wiki as a collaborative communication tool in favor of using attachments to email messages. The qualitative data seems to support the trend in collaborative decisions the CoPCAR scores suggest.

The CoPCAR actions (Table 8) score spread of .22 between the Joys and the Cozys and between the Cozys and the Foils is evidenced in the qualitative data in that the Joys report more collaborative activity than the other two. The Joys' leadership is present virtually through frequent communications about eXtension professional development session, requests for feedback on issues, and updates on

Table 8: Actions

1=Highest Functioning in 1-4 range	JOYS	COZYS	FOILS
Actions (Leadership)	1.1	1.2	1.5
Actions (Distribution)	1.9	2.3	2.7
Actions (Autonomy)	1.9	2	2
Act (P&P Development)	1.4	1.8	2
Actions (Importance)	1	1.1	1.3
Sum of item means for actions	7.3	8.4	9.5
Action mean	1.46	1.68	1.9
Total rubric mean	1.47	1.67	1.98

the status of the CoP's progress. The distribution of the work of this community is set up through the formal contract, with some deliverables having individuals hired with eXtension grant funds to develop them and others given to subcommittee members who are employed in CES and are paid indirectly through their plans of work for CES. Individuals talked about presentations and other work that they felt contributed to their personal and professional development.

The Cozys' leadership was discussed as being very active in the face-to-face meeting. I did not have a sense that the leaders created a constant presence in online correspondence to the whole community. Their contract deliverables had been developed through processes very similar to those used by the Joys. There was also considerable evidence that individual members have made presentations at conferences, written articles, and engaged in many activities that they felt contributed to their personal and professional growth.

The Foils depended on individual actions to develop the deliverables in their contract. There was no mention of activities they felt developed them personally

and professionally. The tone of their discussion suggested that these community members were giving more (cannot continue to spend as much time as they have) than they received from the experience.

Table 9: Evaluation and Reflection

1=Highest Functioning in 1-4 range	JOYS	COZYS	FOILS
Reflect (Feedback record)	1.4	1.3	1.3
Reflect (Research)	1	1.3	1.2
Reflect (Use data)	1	1.3	1.6
Reflect (Set goals)	1.2	1.6	1.7
Reflect (Market)	1.3	2.1	2.8
Sum of item means for reflect/evaluate	5.9	7.6	8.6
Reflect/Evaluate mean	1.18	1.52	1.72
Total rubric mean	1.47	1.67	1.98

The CoPCAR score differences on evaluation and reflection (Table 9) show a .2 spread in collaborative evaluation practices between the Joys and the Cozys and a .31 spread between the Cozys and the Foils. Again, the qualitative interview data reflect the trend of the scores in showing that the Joys have created a structure (evaluation committee) and apparently were discussing evaluation methods as a group more than the Cozys, who were individually evaluating content use of their Web site. The Foils had too much to do to launch their Web pages to consider evaluation strategies up to the time of our interview.

The Joys, Cozys, and Foils set their goals and benchmarks in their proposals to become funded XCoPs. In comparing the three interview sessions, the Foils' remarks suggest that eXtension accepted proposals that were limited to content development at the time. As eXtension developed, it added more expectations

about the activities and obligations for XCoPs. The Joys and Cozys talked about

how they adapted to these new expectations for sustainability in member

engagement and funding and changes in the wiki for publishing content. However,

the Foils talked mainly about content creation and appeared to hold fast to

producing only the deliverables in the contract. Their evaluative summation made it

clear that they had delivered content without developing the collaborative

communication processes eXtension assumed was part of the package.

All three XCoPs are concerned about the formal evaluation of content and

learning opportunities that can be accessed on www.extension.org. The Joys had

formed a committee to work on the formal evaluation of content through

developing instruments and procedures. Although there was considerable comment

about the need for evaluation, the Cozys as a group had not developed structures

and strategies for accomplishing these tasks. Individuals had worked on evaluation

in gathering the metrics of use from Internet reports, and others had worked on

instruments of evaluation for pieces of content. The Foils said that they had nothing

to report on evaluation of content.

Comparison of CoPCAR Scores with Productivity

In an effort to corroborate further the quality of collaborative

communication with CoPCAR scores and the qualitative interview data of three

XCoPs with the productivity of each CoP, a review of the December 2007 report of

accomplishments in the profiles of each of the eight pioneer XCoPs produced

similar data that could be compared across all the pioneer CoPs. Table 10 shows

the eight XCoPs listed in the order of their CoPCAR scores (1 = most collaborative), with the Joys listed first and the Foils last, and CoP D added at the bottom because there were not enough complete data to give it a score. The December 2007 XCoPs reports and observation of the information on the Web pages at http://www.extension.org are the source of information about the following production items found in the Table 10 columns:

FAQs are created and answered by experts on the topics and are peer-reviewed before publishing on the Web site. *ATE* is a system in which on-call experts respond through email to users who ask a question that is not answered in the FAQs data base. Together, the published FAQs and the number of responses to ATE give some indication of the level of activity in which an XCoP is engaging with the public. Numbers of FAQs and ATE responses for each of the eight XCoPs were summed, and each XCoP was given a rank 1 to 8 (with 1 being the highest rank). For example, CoP A was ranked 1 in the FAQ column, with over 1000 FAQs published and considerable ATE activity.

* *Videos* throughout the learning lessons and archived in podcasts are counted in the reports. The Cozys were ranked 1 on the basis of the number that they reported were available to the public on their Web pages.

* *Web casts* are teaching/demonstration sessions that usually originate in virtual conferencing software in which a live audience can participate.

These sessions can be archived and video streamed after the live session. The Cozys are the only pioneer XCoP currently showing Web cast schedules on their pages; thus they ranked 1, and the other seven XCoPs were tied in rank 2.

Calendar (Events) usage in the Web site also indicates productivity with public engagement in learning opportunities. Calendar entries for January through June were counted for each of the eight CoPs, and the first rank again went to the Cozys.

Pages roughly indicate the volume of content an XCoP has published, although there are so many forms of content—Web casts, podcasts, chats, interactive games, etc.—that the number of written pages may not be a highly relevant measure. CoP A is ranked first, followed by CoP D (2) and the Cozys (3).

Course Work (CW) is on the Web pages for the Cozys, using Moodle (Modular Object-Oriented Dynamic Learning Environment). CoP A shows evidence of soon having an online class on Moodle. There is no evidence that the other six XCoPs will provide course work; therefore, they tie for a rank of 3.

The rankings were summed for each XCoP, and a mean was calculated for the rankings, which appear in fourth column for Productivity Mean (P Mean). In the third column for Productivity Rank (P Rank), the Joys, with a top CoPCAR score for collaboration is in sixth place, tied with the Foils, who had the lowest CoPCAR score, and with CoP G, which was in third place for the CoPCAR scores. The productivity calculation provides some contradictory evidence regarding connection

Table 10: Comparison of CoPCAR scores with XCoP productivity

Input Processes>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>Output Products

CoPs	DDAE mean	Pro-cess rank	P ro-cess mean	FAQ	Video	Web Cast	Events	Pages	C W
Joys	1.47	**6**	4.5	6	3	2	7	6	3
A	1.51	2	2	1	2	2	4	1	2
G	1.62	**6**	4.5	4	5	2	5	8	3
Cozys	1.67	1	1.5	2	1	1	1	3	1
F	1.77	4	3.8	7	5	2	2	4	3
E	1.91	5	4.3	8	5	2	3	5	3
Foils	1.98	**6**	4.5	5	5	2	6	7	3
D		3	3.3	3	4	2	6	2	3
				ATE	# Dec report	Web cast	Calen-dar	Learn lesson	Cours e Work

between high-quality collaborative processes and productivity. However, in
Chapter 5, the measures selected for productivity as well as the adequacy of the rate
of responses and population selection are discussed in an attempt to provide
explanations regarding the mismatch between process and productivity.

CHAPTER 5: WHAT I LEARNED

"Education is not preparation for life; education is life itself." ~~ John Dewey

Although eXtension Communities of Practice (XCoPs) are organized around the creation, maintenance, and distribution of subject matter, the primary organizational purpose of XCoPs is to facilitate Cooperative Extension Service (CES) faculty and staff throughout the United States in learning how to create opportunities for learning for themselves and others in a virtual environment. This study has been an investigation of the quality of the process dynamics the pioneer XCoPs have created as self organizing communities. This final chapter for the project consists of two parts: (1) conclusions addressing the four questions in the study and (2) contributions of the study. In the first part, I discuss my conclusions drawn from the project data about the process dynamics and functioning of the pioneer XCoPs. The question about the relationship between XCoP collaborative functioning and productivity in meeting organizational goals is explored next, with an acknowledgment that agreement on what measures productivity is problematic. An assessment of what remains to be done to produce reliable instruments to assess CoPs processes and functioning empirically is provided. In the final part of the chapter, I discuss the project's potential contributions to CES, to the study of CoPs in general, and to my professional and personal development.

XCoP Characteristics: Quality of Process Dynamics

To engage in an XCoP, it is not necessary to understand that the CoP concept originated from social learning theory that has found practical application in many places; mainly in business, education, political activism and engagement in virtual worlds among others. However, social learning theory, and more specifically the *communities of practice* concept, provides a frame or perspective to justify (make meaning out of) the actions required to engage in the social setting of an Internet virtual environment. Educating CES faculty and program staff about the characteristics of CoPs is needed to inspire individuals to engage in a CoP aligned with their plan of work and to act responsibly in contributing autonomously. For individuals who are already CoP members, knowing more about the characteristics and functionality of CoPs will improve their ability to assess whether the CoP in which they hold membership is developing collaborative processes and structures and what is needed to become more effective in this type of social setting. For this survey, the 47% response rate was further reduced to 29% who submitted complete data sets because 72 respondents said that they had not been involved in their XCoP except to obtain an eXtensionID. This answer to a question at the beginning of the survey sent them to the end of it. There were also 5% partial complete responses indicating that people did not have enough information about what is expected of CoPs to answer the survey easily.

Data gathered quantitatively with an Internet survey for eight pioneer XCoPs and qualitatively with interviews for three XCoPs revealed varying degrees

of development of collaborative cycles of inquiry (Gajda & Koliba, 2007). Data from eXtension archives, my participation in the national launch celebration, and individual email and telephone contacts with informants triangulated the quantitative data to show that the entire group of pioneer XCoPs evidenced collaborative action in varying degrees. All eight have now (as of 3/2008) publicly launched their information to the eXtension Web site; one launched just days before the national celebration in February.

CoP D, whose data was so sparse and incomplete that a CoPCAR score could not be calculated for it, thus was also not considered for an interview. In email correspondence, I found CoP D's expressions of disagreement with the eXtension staff (Xstaff) in using the wiki technology, thereby favoring an RSS (Really Simple Syndication) Feed system for their resources. CoP D so seriously disagreed with the Xstaff that I was happy to see that this group had not withdrawn from the eXtension constellation of CoPs and were among the 16 XCoPs exhibiting at the national celebration in February 2008. CoP D had also published their content to the public 10 months before the national launch.

No statistically significant differences among the pioneer CoPs in developing the collaborative cycles of dialog, decision, action, and evaluation (DDAE) were found in the analysis of the total CoPCAR scores. I believe that the small respondent rate (47%) and even smaller data sets (many responses were incomplete) were largely responsible for this outcome. I look forward to conducting another study as soon as possible that educates the target population for this survey

first and makes every effort to increase the response rate in order to test this conclusion. Perhaps the response rate itself may tell the story of greater or lesser engagement in collaborative communication in future surveys of XCoPs because all CoP members will need to become more responsive to electronic communication to serve their *communities of interest* (CoIs) with virtual educational opportunities. As individual XCoP members become more engaged in the work of the CoP, I think they will be more knowledgeable about CoP functions and better able to respond to the survey questions in this study. Five percent of those invited to take this study's survey started but did not complete it, and 18% of those submitting a survey said that they had not been involved with the XCoPs beyond just obtaining an eXtensionID.

CoPCAR Scores and XCoP Productivity

I also asked the question whether the CoPCAR scores that represent the degree of collaborative functioning also represent CoP productivity. Efforts to answer this question revealed the formative nature of my action research project. The measures for productivity were not specified in the design of this study. From archived data and observation of each of the eight XCoPs, I selected content-related products evident in the work of all eight XCoPs (Table 10). On those measures, the matching trends in the CoPCAR scores with productivity continue to put the Foils in the bottom of comparative ranges for collaborative processes and productivity. However, the Joys' high CoPCAR score (1.47) is unrelated to the sixth ranking that ties with the Foils and CoP G's rank in comparative productivity. The Cozys'

highest rank of 1 for productivity measures was not predicted by their comparative midrange CoPCAR score (1.67) from the survey. Only CoP A maintained a matching relationship of second place for CoPCAR score and rank in productivity. Coincidence maybe; however, I remember now that it was CoP A leadership that reviewed the survey questions before I uploaded them to Instant Survey. I had decided from the outset of the study that I would not choose CoP A for an interview regardless their score because I knew more about them than the others. With that rationale, I justified asking CoP A leadership to review the survey instrument without seeking the same review from the leadership of the other seven pioneer XCoPs. I now believe that CoP A had more information about the characteristics and behaviors expected of highly functioning CoPs than did the other XCoPs in this study.

Another significant point, from my endeavors to answer the question about whether greater collaboration results in greater productivity, is that measures of productivity are problematic. For example, the Joys mentioned in their interview that they had difficulties in setting up the Ask the Expert (ATE) feature for their Web site. My data check revealed they had done extensive work on a geographically based structure that had experienced some technical problems in activation. My interview data showed that the Joys had created a structure (which the Cozys had not) to work on evaluation of their content. The Joys' activities perhaps indicate more complexity in achieving productivity given their particular situation and show highly collaborative efforts that had not quite yet yielded

productivity. Considering that any assessment of process and productivity will be a snapshot of a moving target, it now appears evident to me that productivity measures may be more than content measures. Content measures of productivity seem to address only the goal of XCoPs to provide their CoIs with high-quality research, nonbiased resources, and learning opportunities to help the clientele achieve their personal goals. In considering the other major goal of transforming CES's workforce skills for engagement in creating and disseminating education in a virtual environment, the productivity measures are more elusive than content productivity. Negotiating productivity measures with the Xstaff and the XCoPs now appear to me necessary for a meaningful assessment of this question.

The Survey Instrument

Although not empirically significant, the CoPCAR scores show trends for identifying the most collaborative XCoPs consistent with my analysis of the qualitative interviews. Certainly, the qualitative analysis of the group interviews supported the trend in the CoPCAR scores that suggested the Foils were not functioning as collaboratively as the other pioneer CoPs even though it did not do well at differentiating those CoPs performing above a minimal level. This study serves as an excellent preparation for empirically *norming* the survey instrument in projects that will (1) control the population selection, (2) endeavor to educate the selected population on CoP concepts perhaps through online focus interview sessions, (3) exhaust all methods for achieving a high response rate, and (4) negotiate the measure for productivity against which the scores will be compared.

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Contribution to CES

I believe eXtension is reaching a tipping point (Gladwell, 2005) with regard to having enough resources available on the Internet to have a critical mass to attract CES's organizational imagination. Dr. Cotton, Director of the eXtension iniative, has already shared a draft of my conclusions from this study with an eXtension consultant working with the Xstaff to plan the next three years. I hope I have rendered the dialog, ideas, and feelings of my XCoP colleagues clearly and this report will make a contribution to Xstaff decisions that will benefit CES and the XCoP members who spent their time helping me with my study. It is very exciting to be on the edge of historical change and be aware that it is happening and have a part in it!

My analysis of the Joys', Cozys', and Foils' qualitative data found that each of these XCoPs desired to have input into the Xstaff's decision-making process that affect four issues: (1) time-framed estimates of Xstaff's technological services for XCoPs work, (2) clear explanation of the technology tools that XCoPs can use that will ultimately fit into the publishing framework for the eXtension Web site, (3) institutionalization of XCoP engagement and production into CES position descriptions and accountability structures, and (4) collecting evaluation data that show behavioral change in users who engage in eXtension learning opportunities.

Accurate Time-Framed Estimates

Each of the three XCoPs interviewed experienced varying degrees of frustration around the issue of the time frame for technical services the Xstaff

would provide. In other words, there was confusion about which technology

services would have to be purchased outside of eXtension's support and frustration

when services were promised that had no delivery time in site. The Joys said their

experience around this issue was like a "ping pong match" in "continually asking

who is going to do what?" They found Xstaff "extremely forth-coming" about

giving verbal commitments for resolving technology issues and then "there is a lag

time from that point and there continues to be issues…" The Cozys explained that

the eXtension technical support was not able to keep up with the XCoPs' needs as

the number of CoPs rapidly expanded from the pioneer 8 to 21 XCoPs. Even so, it

was annoying for some of the Cozys because "the technology group" would say

"Oh, we can get this done real quick," and then it was not done until the Cozys

finally secured their own XCoP member to provide the technical help. The Foils

spoke of their surprise to find the statements that they had heard "that eXtension

was going to provide technical support to do all the copy edit" would not be true in

their situation. They suggested a "written decision making tree [document] saying

this is the next step that I need to take and then whose desk it ends up on after that."

Options for Technology Tools

Hopefully, the XCoPs originating after the pioneers have had wiki

experiences that have had less of the steep "learning curve [that's] pretty technical"

that one of the Joys reported. The Joys hired a half-time Web master to solve their

wiki worries. Some Joy members learned to use the wiki, and those who did not

"have time or talent to learn or address the wiki system" relied on the Joys' Web

master. The Joys felt great about their decision because the Web master made their site attractive with "graphics." "It has PowerPoint slides and images and video that we never even put in our proposal," one of the Joys explained. The Foils also hired a technically skilled person to work in the wiki for everyone and felt less than good about doing so because one Foil leader said: "I know that is not how it is supposed to work." The Cozys had an Xstaff technical person as an active leader in their CoP, and that made learning the technical skills less urgent and perhaps less difficult for them; however, they, too, admitted technical delays while waiting for Xstaff help. These are three XCoP stories about the difficulties in wiki land that will not help market XCoP membership and engagement.

Institutionalize XCoP Engagement into CES Positions

The Joys talked the most about being at the mercy of a "volunteer army" in completing eXtension projects, but related comments can be found in the Cozys' and the Foils' transcripts concerning funding sustainability for eXtension. There is a gigantic eXtension "volunteer" myth arousing anxiety and creating havoc whenever eXtension funding is discussed publically at national conferences or in the privacy of XCoPs leadership group meetings. With the exception of the Master Gardener volunteers who are not paid by CES, but who may have taken free course work in exchange for teaching others as a volunteer, every XCoP member I have met is employed by CES. The eXtension startup funding was meant to be just that—startup! Like the Joys' "carrot" in the form of paid expenses for state leaders to attend a national conference, the eXtension grants were the carrots to attract

enough people to divert some of their CES work time to establish the eXtension Web site. Some XCoP members may have successfully negotiated that time with their supervisors into their plans of work, and some may have taken a risk spending CES time that will not be valued and rewarded in the reappointment, promotion, and tenure (RPT) processes of their local institutions.

A member of the Joys acknowledged that the grants may, in a counterintuitive way, actually cause problems by creating "haves and have not's." The eXtension grants are no different from obtaining any kind of outside CES funding that may provide some salary savings to the home institution and funds for travel expenses. The XCoP member is employed by CES while doing the eXtension grant-funded work, and those funded call on (without paying) the talents and goodwill of colleagues to accomplish the funded project goals. From the beginning, the goal of eXtension has been to have the production and maintenance of the eXtension Web content absorbed into the CES positions at every level. The question is: Has that time arrived? When will the time be right for eXtension to stop giving startup funds and provide CES personnel nothing beyond technological innovation and maintenance?

Provide Outcome Evaluation Data

The Chair of the Cozys mentioned amazon.com in her discussion of how to obtain data that shows positive behavior change for those who engage in eXtension learning opportunities. Such a good idea! I imagined I had thought of it (until I mined the data again) out of an experience I had with amazon.com while working

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on this project. Amazon emailed suggested I would possibly like a particular book on the basis of the other books I had shopped for or bought from their Web site. Well yes! I bought the book, read it from cover to cover, and found it a central resource for understanding CoP concepts. Should they send me a survey, I would gratefully answer it, and they could take credit for changing my behavior (from not reading enough on the subject to reading more). Actually, the Cozys' Chair and I may have had different parts of the same idea. The Chair referenced Amazon's ability to invite immediate user rating of the usefulness of content. My idea focuses on follow-up of the users' interests to ask what they did with the content. If CES could send an email to a user of eXtension resources to tell them about an event, a new study or regulation, a course, chat, or Web cast based on a user's interests tracked with eXtension software, I believe CES Directors would enthusiastically encourage faculty and staff to devote time in eXtension projects. The Joys and the Cozys talked at length about the challenges of obtaining evaluation data that could show outcomes, not just outputs and inputs for their logic model program planning efforts. An Amazon-type tracking system has the potential to return outcome data to grab the attention of middle management supervisors and the blessings of institutional RPT councils.

Recommendations Based on Pioneer XCoP Data

1. Educate all XCoP members about the characteristics of collaborative practice in general and the goals of XCoP in particular.

2. Prioritize the eXtension budget to be used for technology services for the eXtension Web site. The common explanation from the members of three XCoPs that "the technology didn't keep up, catch up with us, as had been promised" may indicate a shortage of Xstaff positions focused on technology. Perhaps it is time to eliminate startup grants or other items from the budget to be able to spend a greater portion of the eXtension budget on technological advancement—software and technicians to program it.

3. Explore the resources needed to create an individual tracking system similar to amazon.com that could be programmed to collect CES outcome as well as output and input data. If eXtension had that capability, perhaps CES units would be enthusiastic about giving startup incentives and other support to faculty and staff for working in an XCoP. This would free up eXtension to do more with innovative technology.

4. In technology training sessions, help XCoP members understand how wiki pages are published. Explain the steps that can be done in formats other than the wiki and the points at which they can be transferred into the wiki. Explain the advantages and disadvantages of transferring into the wiki, educational resources created in other formats. Explain other options for places to hold content from which it can be published if any are available. Help members achieve a working concept of the whole process (perhaps graph it) from page creation to publishing and archiving.

5. Publicize throughout CES the advantages of the *history* tab on every wiki page that can be edited. The history tab shows the amounts of authorship in every

collaborative page of content, and it allows a publication to be rolled back to any version of the edit should a peer-reviewer have questions about the most recent version. Thus, the history tab contents can be used as evidence of the scholarly work faculty have done in eXtension for RPT decisions and as a safeguard against losing approved edited pages should someone edit a page of content in a way in which a CoP will not approve. Probably, there are CES Directors and XCoPs members other than the Joys who "worry about having such an open process that can be immediately published give us a problem."

6. Slow the natural progression for eXtension to become in its operation like CES, the parent organization. eXtension started with few guidelines and little theoretical explanation about XCoP culture and expectations. Guidelines have now been published, and the bridge the Xstaff was building while standing on it connects with CES in a Web site that is expanding daily. While it is a welcome addition to have written instructions about how to operate in the wiki, continued growth of prescriptive guides and institutional structure may hamper creativity and inventiveness and may divert productivity away from the central technological tasks only eXtension is equipped to develop and provide. If eXtension can give CES vast new audiences and systems to make educational accountability clear and easy, CES will find a way to give incentives and support to its workforce engaging in XCoPs.

New Identities, New Trajectories

Whatever the Xstaff decides about the immediate management of the relationship between the eXtension initiative and CES, it is important that they hear

the grateful voices of the XCoPs they have created. Regardless of the frustration at times, there are XCoP members who have new perspectives about what they can learn and accomplish individually as well as with collaborative energy. CES not only has a new Web site to give it a new identity and trajectory of success in an information age, it has new energized groups working together. The Joys exclaimed:

> I'm really proud to have been involved with such a great group of people! [As a CIT specialist it was great to] contribute to something that we typically think of as content only. What being a part of this particular CoP did for me professionally is that I learned a whole lot more about technology –some things that we hadn't been doing here or just doing a little bit. Just the exposure that I have had, [with subject-matter specialists] has just been a lot of fun and has been really exciting to see things progress and develop and have this wonderful product!

The Cozys were grateful to have had so much fun together and to turn out a successful product at the same time. The senior member speaking for the group evaluated their success:

> I really believe the things that made this group successful is [we] weren't afraid to discuss things; weren't afraid to share things and were not terribly concerned about who got the credit.

The Foils were as proud of their product as the other XCoPs who found it easier to work more collaboratively. One of the leaders evaluated their XCoP experiences:

> We identified nationally recognized expertise for a few very important topic areas and put them together in a collaborative work environment, identified significant information based on land-grant research that address issues that are going to affect a lot of people. I think we identified some challenges in the entire process and didn't let those challenges keep the process from going forward. The product that is going to be available on eXtension is going to be just as good, just as valuable as if all the individuals [in our CoP] had all the technical expertise. I think we adjusted, we modified, made some changes along the way and in the end we delivered the goods.

I conclude that eXtension has "delivered the goods" to CES, and there is more to come. They created a constellation of XCoPs that have continuously changing voluntary membership with leaders who are obligated through contracted deliverables in a competitive proposal process. Each XCoP purposes to create learning opportunities in specific subject-matter topics and to create structures for community learning, sustainability, and marketing of the CoP's work. Social learning theory is assumed to inform the perspectives of XCoPs. The virtual environment facilitates the development and use of instruments and processes that identify XCoPs experiencing difficulty in developing collaborative skills, and

intervention in an XCoP's cycle of practices is possible before a CoP's coping mechanisms create processes that obstruct their learning. The eXtension's constellation of CoPs has matured to the point of spanning boundaries to enable CoPs to "cross market" their resources and learning opportunities across disciplines. My engagement in an XCoP and my project have given me insight into working collaboratively in a virtual environment, and I am able to share information such as that found in Appendix E Recommendations for XCoPs.

Contributions to the Study of CoPs

This project identified XCoPs as an ideal environment for the study of virtual *CoPs*. The XCoP environment provides consistency across the software platforms supporting their activities, comparative startup dates and time frames, similar technical support, and identified purposes. Real-time and archived data are plentiful, and communication with all parts of the system is convenient, low cost, and accessible. A challenge in the future may be that too many researchers want access to XCoPs members, thus making it even more difficult to obtain high respondent rates. Perhaps eXtension can profit from allowing access to researchers who are able in some way to support eXtension's work.

This study also demonstrated the ease in which quantitative and qualitative methods can be used in a virtual environment to gather data and to triangulate the data with information from many sources: archives, events, videos, and Web casts. The face-to-face survey instrument adapted to the virtual environment produced pilot and target data with high Cronbach alphas (>.9). To establish this survey's

instrument reliability and validity further, it needs only to be used in a few more studies that have high respondent rates. This study lays the foundation for empirical analysis of CoP concepts and allows the qualitatively explained concepts to become an assessment tool for CoP processes and functionality.

I believe this exercise in mixed-method research will inspire and instruct other researchers in their efforts to analyze the characteristics and functionality of CoPs quantitatively. It has stimulated my desire to continue to test and retest the survey instrument for reliability in giving feedback to CoPs about the development of their collaborative skills, and I want to explore again how the quality of their collaboration relates to their productivity.

Contributions to my Professional and Personal Development

"In the beginning was the Word, and the Word was with God, and the Word was God." John 1:1 King James Bible

Having reviewed what I learned about the characteristics and functioning of the pioneer XCoPs, I want to reflect on my *practice* and the value of this work as an action research project. My purpose was to become effective in the design of learning opportunities for engaging in an XCoP. An aligned and broader purpose for my practice was to fulfill the University of Vermont (UVM) doctoral program mission, which is to "become a leader who can construct and apply knowledge to make a positive difference in the lives of individuals, families and communities" (Program mission in *Cohort Manual*). When I began the program, I learned there were two primary ways to conduct research for constructing knowledge about

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learning. There is a positivist approach with designs that require randomly selected samples and strictly paired groups receiving and not receiving a treatment or intervention. The resulting data have numerical values and can be analyzed with many statistical options. This very strict quantitative approach is difficult to use in social science investigations and is more often used in clinical studies that must generalize to a total population the results from the sample studied. Therefore, quantitative designs developed for studies in social sciences have found value in studying specific populations as well as purposefully selected (rather than randomly selected) samples of populations (Borg & Gall, 1989).

Regardless of the design, I was convinced that any kind of quantitative research was beyond my capabilities and resources. The mathematical logic of statistical calculations escaped my understanding, and I, like the Foils in my eXtension project, avoided interaction with concepts that aroused discomfort except when forced by the doctoral program requirements to take classes in the subject. The fact that I managed to make an A- in *Statistical Methods in Education and Social Services* is testimony to how well I had learned to "play the game" (Gee, 2005), based on my father's declaration that "it doesn't matter what you know, just get that piece of paper" (meaning my first undergraduate diploma). I felt successful in a class on how to construct a survey, but was discouraged by the cost and amount of time a hard-copy mailed survey would require and the genius and luck it demanded to get an acceptable response rate. That was in 2003, and the idea that I could conduct an electronic survey had not yet arrived in my world.

The qualitative approach offered several design options that fit my perspective of my capabilities. Projects used data gathered in one or a combination of procedures such as direct observation, interviews, and use of archived secondary data. Transcribing and coding for analysis are laborious, but I had been successful in course work doing that part well. Constructing the report in an ethnographic or case study style seemed doable. However, I was challenged with defining the research questions for any approach to a research project.

I thought my only practical option for a research project was to use a qualitative design until I discovered that several of my cohort colleagues were writing personal narratives for their dissertations. UVM Professor Robert Nash had popularized a personal narrative option. I was fascinated with the concept! The possibility of avoiding labor-intensive interviewing, transcribing, and coding was also very appealing. I had taken a course with Professor Nash in the spring of 2000 called *Religion, Spirituality, and Education,* and I was familiar with his personal transformation in teaching style. I remembered that I had loved the readings and class discussions in the religion class. I also remembered that I was constantly in awe of the change in Professor Nash's teaching style from the first class I attempted with him in 1992.

I spent most of my leisure time in the summer of 2004 reading UVM qualitative and personal narrative dissertations and finally decided not to pursue the personal narrative option. Writing a personal narrative would not develop the new skills I needed for my present employment nor for new positions I wished to seek.

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In the present decade, the demands for accountability in educational programming have become increasingly urgent. Designing ways to prove that the educational opportunities an organization provides make a real difference in participants' quality of life is a complex task requiring skills with many tools. Reflection is a necessary but incomplete tool box for the tasks I want to pursue. The mixed-method action research design I finally created has contributed much to my repertoire of abilities to address accountability issues in the following ways.

I've lost my anxiety about learning in the euphoria of patient, dogged creation. I'm more open to trying something new and confident in finding resources—people, online searches, technical support, books that can help complete a project. Whether it's building a blog on the Internet, constructing an electronic survey, or writing a professional paper, I've learned by completing this project that patience, committed time, and some passion for the work will help me complete any task in the future. I no longer fear failure.

Generally, working through the quantitative part of this project excavated my prejudices about what I can learn. I'm now confident and open to taking on projects in which I will need to learn new skills to accomplish its tasks or coordinate services to complete tasks for which I lack skills. Specifically, my perspective about my future use of statistical methods has changed, as well as my willingness to spend time and effort on diminishing returns from stringently conducted qualitative research methods. Working with the XCoPs study raised my consciousness regarding the accelerated rate of change that anything we study today

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is likely to experience. When I was writing the report of my data analysis, I felt like I was trying to pin down a moving a target, as so much had changed with the XCoPs in less than six months! Qualitative methods originating out of anthropological research that could afford to study unchanging cultures for years are not well suited to the flow of virtual cultures and place-based educational projects that are here today and gone tomorrow. With my new guide (Mertler & Vannatta, 2005) explaining the wonders of SPSS and defining the vocabulary I'll need in communicating for statistical services, I'm likely to engage in quantitative research, framed with studying available artifacts and checked with brief media facilitated (telephone, computer conferencing, email) interviews in order to publish a timely paper before what I've studied is no longer relevant.

I also feel satisfied that my quest for knowledge about what motivates human action in any arena—learning, acquiring, consuming, making war, creating peace—has come full circle. Writing this dissertation has drawn on everything I've studied at UVM. The action research design allowed me to reflect and write a personal narrative around what I learned from the quantitative and qualitative data I gathered. I have some answers confirmed consistently in the subject matter I've studied that will help me assess situations and invent appropriate strategies to encourage development of positive action—my own as well as others. I remember that the first course I took that began the pursuit of continuing education at UVM had these same goals for developing the ability to assess behavior and invent strategies for positive action.

I completed a course in 1979 entitled *Child and Family Guidance* in which Oscar Christensen demonstrated the skills needed for counseling families based on an Adlerian model (Christensen & Schramski, 1983). Adler's main assertion was that "all behavior has the goal or purpose of achieving significance or security for the individual" (p. 91). The counseling method also included Dreikurs' (1948) explanation of immediate and mistaken goals for attention, power, revenge, and assumed disability, which apply to adult behavior as well as to children. The major goal of this family counseling intervention was to facilitate the parents and their children to become conscious of their mistaken goals that had created unproductive behavior patterns and had disrupted family harmony as well as hindered positive development for each individual in the family. My memories of this class again confirm the foundational belief of social learning theories that humans are hard-wired from birth to find the ultimate meaning for their lives in belonging in communities. I'm also prompted to wonder whether XCoPs' members may exhibit mistaken goals for their behaviors. If families are an example of CoP dynamics, can we assume that members of CoPs behave like family members? Perhaps this will be another avenue for future research?

And finally, my project has given me optimism for the future of humanity. Global warming, the trend to corporatize the world economy and make democratic governments powerless, and the accelerating global violence with potential to eradicate humanity from the earth are serious threats. However, people who study

adaptive systems point out that it is human to invent and reinvent our personal and communal worlds:

> Human beings are "sense-making" animals. Through the use of communication, language, and symbols they collectively invent and reinvent a meaningful order around them and then act in accordance with that invented world, as if it were real. (Gunderson & Holling, 2002, p. 108)

Since humans do this "sense making" in *CoPs,* which are everywhere, and we each belong to many CoPs, the solution to the problems facing humanity are not "out there" but within each of us. A prolific writer about saving humanity one person at a time, author of *Diet for a Small Planet*, Frances Moore Lappe, in her most recent book (2007) outlines how individuals create a "spiral of empowerment" by replacing the theory of human nature as being selfish, competitive, and materialistic with the theory that "within human nature are deep needs for fairness, cooperation, effectiveness and meaning" (2007, inside back cover). Continuing in the same political style she used in *Diet* (which had more important information about America's wasteful food production habits than information on sound nutrition), Lappe outlined a step-by-step revision of the language and symbols we use in order to communicate a premise of "plenty of goods and goodness" for all humanity that can change our dialog and choices and can result in positive action for "enabling progress toward resolving local-to-global crises." Our theories about human nature give us language that results in structuring human behavior. The way we act from

our perspectives helps us "plant our feet firmly in mid-air" (Gunderson & Holling, 2002, p. 108).

And that is what my father didn't understand about education. "Doing school" (Gee, 2005), just "playing the game" to get the diploma, does give me economic advantages he wished he had in his struggle to support all of us with the employment he could get with less than an elementary education. But true education, real knowledge, is vastly more liberating than the sometimes enslaving careers we are able to obtain through education! I resonated with the tone in the voice of the Joys' CIT specialist because I have also felt my spirit soar from engagement within an XCoP. I've felt the joy of creating a new identity from new knowledge. I've felt the same gratitude I heard from the Joys as they described their awareness of their increasing power as a community to effect positive change and their power as individuals, as attractive trajectories for their actions began to appear for them. Belonging, learning, and finding significance and security in a CoP is a "high" that could replace substance abuse, greed, violence, waste, poverty, and economic injustice among other outcomes caused by "mistaken behaviors" resulting from ignorance.

In conclusion, I can say that being part of an XCoP has been the best career experience I've had. Completing the requirements for a doctorate in educational leadership took a long time, and I'm glad I didn't rush through it. Looking back, the timing seems to have been perfect! I have connections now that I've never had before to be able to continue to use what I've learned about research to replicate the

study I've done and design others. I'm interested in implementing the *Cultivating eXtension CoPs* survey again in cooperation with Michael Lambur, our eXtension evaluation specialist. It would be useful to do some education around the CoP concepts before administering the survey and limit the selection of the population to CoP members who are formally committed to some aspect of the CoP work. I'm also looking forward to learning more about the options for analyzing quantitative data and working with SPSS. Working with numbers no longer seems impossibly out of my reach. I'm also looking forward to being part of the research of others. A young graduate student I've never met emailed me today. She is starting to design a study on virtual communities and she is interested in learning about what I've done. We could probably meet in the eXtension collaborate wiki when I have time to meet with her. I responded immediately, asked her to remind me again in April when I'd have time, and true to my "best practices" list, saved her message in my draft folder.

The implications for the practical application of my research project in my profession are abundant. Writing this paper has actually been a surprising joy. I've not liked the work of writing, which can be a glaring weakness in a position connected to higher education, even though my work is practical rather than academic. I have a couple of video awards and a radio award from the National Association of Extension Family Consumer Sciences, but writing has always been an anxiety-producing chore that I have avoided when possible. I think I've found the attraction that makes it worth doing. It's a bit like being God on paper: to create

an idea, a feeling, or an instruction just the way you want it. Where else can one find that kind of power and freedom? As far as the practical application of this whole experience to my professional life, I'm looking forward to working on a paper about this project and trying to get it published. There's opportunity daily to invent creative evaluation strategies I could write about, too. And this experience has expanded my capacity to help people CES serves to achieve their goals.

It's obvious now to me that everyone is a life-long learner. I believe the old axiom, "You can't teach old dogs new tricks," is true because the focus is on teaching. Just as true would be the statement, "You can't prevent old dogs from learning," and look at the ways our culture helps us learn to depend on our grandchildren to program our newest gadgets instead of reading the manual and practicing until we can do it ourselves. We also learn to accept expanding waistlines, weakening muscles, and giving up productivity at age 65. We can't prevent ourselves from learning from our communities, and this explains why parents bonded with their children are intuitively sensitive about the character of their children's friends. We can't avoid learning, and all learning isn't equally good.

Choosing communities in which to learn is the key to whether the time and effort spent are worthwhile and contributes to making the world a better place. I'm grateful to the communities in which I practice for giving meaning and joy to my life.

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APPENDIX A: Acronyms

Ask the Expert (ATE)
CE Service (CES)
Communication and Information Technology (CIT)
Communities of Practice (CoPs)
Community of Interest (CoI)
Cooperative Extension (CE)
Cooperative State Research Education and Extension Service (CSREES)
Dialog, Decision, Action, and Evaluation (DDAE)
eXtension account (eXtensionID),
eXtension Communities of Practice (XCoPs)
eXtension Community of Practice Interested (XCoPI)
eXtension staff (Xstaff)
Frequently Asked Questions (FAQs)
Statistical Package for the Social Sciences (SPSS)
United States Department of Agriculture (USDA)

APPENDIX B: Instant Survey

Thank you for taking the time to complete this brief survey. It will take approximately X minutes to complete. You may enter your name and contact information for a $100 drawing after you submit your completed survey.

Your responses will be kept in strict confidence. However, your suggestions for ways of improving your Community of Practice will be compiled, summarized and shared with other members of your community as a formative evaluation. You will not be identified as having given these responses.

The following pioneer eXtension Communities of Practice have been identified for a study on the relationship of collaboration to achieving organizational goals. (if you are a member of more than one CoP, please check and respond to questions for only one CoP at a time) If you are not presently a member of a CoP listed below, but were a member, please complete the survey.

__Financial Security for All
__HorseQuest
__Imported Fire Ants
__Wildlife Damage Management
__Consumer Horticulture
__Entrepreneurs and their communities
__Just in time parenting
__Extension Disaster Education Network
__Member in the past of _____CoP

Length of time that you have been part of this group:
     0 0 to 1 month
     0 1 to 6 months
     0 6 months to 1year
     0 1 to 2 years
     0 2-3 years
     0 3 years or more

Your place and trajectory in this group Using the metaphor of "center & periphery" consider what bests describes your place within this group?
____ I am at the center of this group, an insider; I am highly engaged
____ I am neither at the center, nor on the periphery of the group, neither an insider, nor an outsider
____ I am on the periphery of this group, an outsider; I am not very engaged

What is your trajectory in this group?
0   Inbound, heading toward the center; I am becoming more engaged
0 Stable, not moving in or out
0 Outbound, heading away from the center or out of the group altogether; I am
        becoming less engaged

Please rate the following practices of your group in terms of <u>dialog</u> quality. Consider all the opportunities for communication (wiki, conference calls, chat rooms, Breeze Sessions, Instant Messaging, training sessions)

O Group membership is purposefully and fully configured	O Most of the individuals essential to accomplishing the mission of the CoP are members	O Group membership is unclear or not fully configured.	O Don't Know
O A documented agenda is pre-planned, prioritized, and understood by group member prior to engaging in group dialogue	O A planned agenda to guide group dialogue usually exists before dialogue begins	O Agenda to guide group dialogue does not usually exist	O Don't Know
O Full attendance for regular scheduled group communication is the norm.	O Almost full attendance is the norm for regularly scheduled group communication,	O Group does not communicate regularly OR full attendance at scheduled group communication is rare	O Don't Know
O Group dialogue is consistently used to analyze evidence related to practice AND the effects of practice on achieving organizational goals.	O Group discussion is usually related to making meaning of information related to practices OR the effects of practice on achieving organizational goals	O Group discussion typically focuses on issues only indirectly related to practice and achieving organizational goals.	O Don't Know
O Group discussion is guided by structure or protocol for analytical dialogue	O Process for dialogue tends to be improvisational	O Process for dialogue does not exist	O Don't Know
O ALL members regularly use the dialogue to publicly examine their beliefs and transform their assumptions.	O Some members regularly use the dialogue to publicly examine their beliefs and transform their assumptions.	O Few members use the dialogue to publicly examine their beliefs and transform their assumptions.	O Don't Know
O Engagement in group dialogue is well-balanced. No one dominates or hibernates.	O Engagement in group dialogue usually balanced. Most everyone participates at some point.	O Engagement in group dialogue is not well-balanced. There are those who regularly dominate and those who regularly hibernate.	O Don't Know
O Disagreements are regularly surfaced by group dialogue. Group experiences and successfully works through disagreements on a regular basis.	O Disagreements occasionally surface through group dialogue. Group works through disagreements when they arise.	O Disagreements and constructive conflict do not exist or are unrecognized by group members.	O Don't Know

O All group members air and resolve all task/issue related disagreements publicly in online or telephone communications.	O Most group members air and resolve all task/issue related disagreements publicly in online communications but some tend to air disagreements privately.	O A significant portion of the group air disagreements outside group communications leading to avoidance of conflict and obstruction of group process	O Don't Know
O Group members share and regularly invoke and reaffirm their purpose	O Group members have a shared purpose, but it is not regularly invoked or reaffirmed	O Group members do not reaffirm or do not agree on a shared group purpose	O Don't Know

Please rate the following practices of your group in terms of decision-making quality. Consider all the opportunities for communication in the wiki, conference calls, Breeze Sessions, instant messaging, chat rooms, scheduled professional development.

O Group makes on-going decisions about the policies and practices that they will create, maintain, and change.	O Group **occasionally** makes on-going decisions about the policies and practices that they will create, maintain, and change.	O Group **does not** make decisions about the policies and practices on a regular basis.	O Don't Know
O Decisions are directly related to organizational mission—high level, high stakes.	O Decisions are generally related to organizational mission	O Group does not regularly make decisions that are directly related to organizational mission	O Don't Know
O Decisions are consistently and fully informed by group dialogue.	O Decisions are **usually** informed by some degree of group dialogue.	O Decisions, when made, are minimally informed by group dialogue.	O Don't Know
O Process for making decisions is fully understood, transparent and adhered to at every decision-making point by group members.	O Process for making decisions is **generally** understood, and adhered to at most decision-making point by group members.	O A process for making decisions is not transparent, does not exist, or is not adhered to by group members.	O Don't Know
O Group is clear about its decision-making "zone of authority."	O Group is **somewhat** clear about its decision-making "zone of authority."	O Group is not clear about its decision-making "zone of authority."	O Don't Know
O Group leaders/facilitators are purposefully selected, visible and accessible	O Group leaders/facilitators exist, but may not be purposefully selected, visible and accessible	O Group leaders/facilitators do not exist, or are not purposefully selected, visible and accessible	O Don't Know

Please rate the following practices of your group in terms of <u>action</u>. Consider all the opportunities for members to act on furthering the organizational mission of the Community of Practice.

O All group members take regular individual action. These actions directly support group goals and are endorsed by the group decision-making process.	O Most group members take regular individual action. These actions usually support group goals and are endorsed by the group decision-making process.	O Few group members take regular individual action to support group goals.	O Don't Know
O Group member actions are pedagogically/professionally / philosophically complex and challenging	O Group member actions are somewhat pedagogically/professionally / philosophically complex and challenging	O Group member actions are not pedagogically/professionally/ philosophically complex and challenging	O Don't Know
O Actions of group members are intended to directly enhance achievement of organizational goals.	O Group members actions are occasionally intended to enhance achievement of organizational goals.	O Group members actions have marginal significance for achieving organizational goals.	O Don't Know
O Action-taking among members is evenly distributed; there is a balance in member contributions. No one is burnt out or left out.	O Distribution of action-taking among members is usually or somewhat balanced.	O Action-taking among members is not evenly distributed; one or more members may be burnt out or left out.	O Don't Know

Please rate the following practices of your group in terms of how the group reflects on and evaluates its own practices.

O Group members systematically collect and preserve evidence (numerical and narrative data) about their actions	O Group members systematically collect and preserve some evidence (numerical and narrative data) about their actions	O Group members do not regularly collect or preserve any information about their actions	O Don't Know
O Group members do not use "hearsay," anecdotes," or "recollections" as evidence to evaluate practice/make decisions	O With some regularity group members use "hearsay," anecdotes," or "recollections" as evidence to evaluate practice/make decisions	O Group members rely on "hearsay," anecdotes," or "recollections" as evidence to evaluate practice/make decisions	O Don't Know
O Group consistently uses evidence (numerical and narrative data) to frame group dialogue and decision-making	O Group occasionally uses evidence (numerical and narrative data) to frame group dialogue and decision-making	O Group rarely uses evidence (numerical and narrative data) to frame group dialogue and decision-making	O Don't Know
O Group consistently accomplishes tasks and regularly establishes new short-term goals.	O Group occasionally accomplishes tasks and establishes new short-term goals.	O Group does not accomplish tasks or set new short-term goals.	O Don't Know
O Group members regularly celebrate and publicly announce accomplishments	O Group members occasionally celebrate and announce accomplishments	O Group members rarely celebrate and announce accomplishments	O Don't Know

Assessing the Importance of this group. Please Place an "X" in the box that corresponds with the level of importance of this group to each category.

Level of importance	Not important at all	Somewhat Important	Very Important	Critically important	Not applicable to me
Of this group to your personal job or role as Extension faculty, staff or administrator					
Of importance of this group to Cooperative Extension mission of educating the public					
Of importance of this group to your job or role satisfaction					

What tools have you used in participating in this CoP? Check all that apply
___Wiki
___email
___eXtension account
___Breeze seminars
___Instant messaging
___Blogs
What tools have you learned to use as a result of becoming a member of a CoP?
___Wiki
___email
___eXtension account
___Breeze seminars
___Instant messaging
___Blogs

Please briefly describe what you see as the function or purpose of this group?

Please provide us with any suggestions for ways of improving the functioning of this group.

APPENDIX C: Survey Cover Story

Dear Pioneer eXtension Communities of Practice Members,

I am writing to ask your help with a survey Judy Branch, a member of the Financial Security for All CoP created for her sabbatical project from the University of Vermont Extension. Members of all eight eXtension Pioneer CoPs will be invited to take this survey from September 4 through September 18. This survey is being conducted to learn more about members' engagement in cycles of inquiry (dialog, decision-making, action, and evaluation). The study will identify best practices for CoPs that contribute to organizational goals and the personal professional goals of individual members. Findings will contribute to collaborative learning theory in the specialized environment of virtual communities. Practical strategies for removing barriers and facilitating effective collaboration that will support CoPs productivity and sustainability in our virtual environment may also be revealed.

Our records indicate that you have an eXtension account and have joined one of the eight Pioneer CoPs. There are no known risks to you to take this survey.
Your answers to the questions are anonymous. Any reports prepared will be released only as summaries in which no individual's answers can be identified. This survey is voluntary. You are free to decide not to participate in the survey and can withdraw at any time without harming your relationship with the researchers or the institutions involved. However, you can help us very much by taking 10 minutes to share your perspectives about the Community of Practice in which you are a member.

If you have questions or comments about the survey, please contact any one of the following people:

Judy H. Branch, MS, CFCS
Extension Specialist : Family & Community Development
University of Vermont ,617 Comstock Rd., STE 5,Berlin, VT 05602-9194
Phone: 1-802- 223-2389 ext. 17
judy.branch@uvm.edu

Michael Lambur
eXtension Evaluation and Research Leader
540/239-3965
mike.lambur@extenion.org

Dan Cotton
Director, eXtension
402/472-2821
dan.cotton@extension.org

Community of Practice Name: Date:
Place: Connect/WIMBA on Internet   Participants: Facilitator(s):

Intro Questions:
> Please share your name and how you came to be a CoP member/leader.
> - Are other leadership members of this CoP that are not present?
> - How is this CoP referred to by its members?
> - What is the central purpose of this group?

In terms of **dialog…**.
- What do you talk about?
- How often do you convene for dialogue?
- How is your dialogue structured/facilitated?
- Describe the interpersonal dynamics of the group. (Probe for level of interpersonal trust and problem-solving.)
- What conflicts exist or have been worked through in this CoP?
- How might your dialogue be improved?

In terms of **decision-making**….
- To what extent does your group make decisions?
- What types of decisions do you typically make?
- What is your process for making decisions? (consensus, majority, 1person, etc.)
- Do you have a group leader or leaders? Who is/are your group leaders?
- How might your decision-making be improved?

In terms of **actions**…
- What types of actions result from the types of decisions that you make?
- What individual actions are taken?
- What group actions are taken?
- How might your action-taking be improved?

In terms of **evaluation/reflection**
- What types of information do you gather?
- What type of evidence informs your dialogue and decision-making?
- How do you determine whether and to what extent the actions you take are effective?
- How might your evaluation be improved?

Closing Questions:
- What accomplishments is this group most proud of?
- Is there anything that we haven't talked about here today that you believe is important to add

Gajda, R. & Koliba, C., HSOM Study Group CoP FG Protocol, March 2005

APPENDIX E: Recommendations for XCoPs

1. Market engagement in XCoP opportunities with information about the characteristics of social learning processes.
2. Explain the XCoPs focus on invention, discovery, and performing roles with present skills while depending on the skills of others to supplement personal deficits until skill deficits are removed through learning or symbiotic cooperation of CoP members makes individual skill deficits irrelevant.
3. Explore with prospective CoP members how to formally negotiate XCoP work into personal plans of action contracted with their local CES units.
4. Expound with concrete local examples for items on the list (**http://about.extension.org/wiki/How_to_Become_a_Community_of_Practice**) of contributions engagement in eXtension makes for CES
   - Sustainability of educational products and programs produced
   - Production of higher-quality, interactive, online educational materials
   - Increased reach and impact of products produced
   - Recognition for all content providers that contribute
   - More efficient use of resources and technology
   - Less duplication of effort
   - Enhanced access to national resources
   - Increased skill sets for faculty and staff
   - More efficient use of faculty and staff time
   - Better customer services
   - Reduction of redundant activity

5. Schedule and publicize regular meetings (usually monthly) of the CoP leadership on Connect or other virtual platform where all CoP members and CoPI members can observe the current status of CoP business. Preparation and proceedings for meetings include:
   a. Post Agenda in wiki two weeks before regular meeting.
   b. Leaders write status report for their responsibilities in the Agenda in the wiki before the scheduled meeting.
   c. Responsibility for written minutes is rotated, and notes are written in the Agenda posted in the Connect window while the meeting is in process. Recorders place minutes in appropriate XCoP wiki for member review and edits and finally archiving when the next Agenda is posted.
6. Email messages among leaders and members between meetings concerning progress on items can be referenced to the address of the Agenda minutes in the wiki. Clarify responsibilities for all CoP roles: for example:
   a. Identify a leader to encourage engagement in eXtension live and archived 30 minute skill sessions through regular email reminders to the member list serves.

b. Identify a leader to manage membership registration for CoPI, CoP member, and CoP leader requests. For research purposes and clarity within XCoPs, CoP member lists should contain only those committed and engaged in CoP work such as review and editing of documents, FAQs, ATE, marketing and development committees, and leadership coordination.

c. All present leaders identify talented colleagues who will commit to CoP leadership and mentor them for a year before transitioning a leadership role to a new leader.

d. Identify leaders for all CoP endeavors such as specific subject topic areas, marketing, member engagement, funding, etc., and encourage them to engage colleagues to work with them.

7. Strive to engage a diverse membership in XCoPs in the following characteristics among others:

a. Age may predict technology skills and organizational management skills. Younger members may use and learn the skills to work in a virtual environment easily because of experience growing up with computer technology. Older members may have more skills in coordinating, organizing, and managing cooperative projects as well as broader subject-matter expertise.

b. Various positions in CES develop different skill sets. Field educators may have high-level coordination, marketing, and consumer-oriented perspectives, while specialists' strength may be more limited to in depth subject-matter expertise. Personnel in various positions have access to different groups for prospective partnerships and can ensure the CoP has boundary crossers that facilitate XCoP development.

c. Length of service can be important for balancing new perspectives, skills, and motivations with political savvy and organizational memory of best practices.

d. Ethnic/racial diversity can facilitate effective approaches in creating learning opportunities in different languages, selecting appropriate situational scenarios, and adopting effective word choices and styles for educational materials.

8. Encourage members to perfect their personal electronic skills to make working in a virtual environment easy, efficient, and as warmly relational and fun as possible. To that end, I'll share my top 10 email strategies:

- Just as I would in a face-to-face encounter, I express a brief social greeting and closing appropriate to the receiver.
- I never hit the "send" button when I'm angry. Emotional tone always manages to filter through just like a "smile" in a telephone voice or in person.

- Remember email creates a document that is instantly filed. Make sure the information it contains is complete and worthy of retrieval and contains nothing that could be damaging.
- Label the subject line for ease in file retrieval. Use email boxes and set up filters to them as well as filtering Spam.
- In the first inch of a message, give the recipient everything needed to be able to fully respond. Clickable Internet addresses, deadline dates, directions to scroll to the bottom of the window may be read only if in the first lines of the message. This is especially true if the message is read on a PDA or telephone. Past correspondence regarding a topic may be helpful to send following the most recent reply; however, check and delete correspondence not applicable to the immediate message. Be sure not to violate forwarding rules from list serves or organizations if correspondence has come from a variety of sources.
- Use a variety of techniques to show your readers what is important: bold a date, underline a deadline, put a concept in italics, use another color font, or highlight words for attention. Not all software will show color emphasis. Be cautious about using all caps because that suggests shouting and may offend. Occasionally ask for and pay attention to feedback from different audiences about your use of these techniques.
- When a message arrives that must have a reply, but for a variety of reasons I may not be able to reply for a week or so, I'll immediately send an "I got it, will get back to you on (a date), because (….)." If I know I can respond in a day or two, but not at the moment, I read the message, I can click *reply* and then *save* the message to a *draft folder* where I will not have to sort through all the *In Box* messages again to find it. I check the draft box often to be sure I haven't forgotten to reply to a message. Not replying is like walking past without acknowledging someone who greets you and asks a question. It's not friendly! I also use the draft box to let a reply sit until an emotional state—frustration, anger, indifference, despair, fatigue—passes and my reply can be positive and thoughtful.
- When I really need a reply and it's not forthcoming, I send the same message a week apart with a new message on top of the original with a note that says something like, "I'm just checking to see if you got this message." Or "I know you are presently overwhelmed with work, can you give me a time I can put on my calendar when you can work on this with me?"
- When I continue not to receive an email reply and I've checked that my messages have been brief, specific, clear, complete, etc., I smile and pick up the telephone receiver.

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