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## Formation of a Virtual Professional Learning Community in a Combined Local and Distance Doctoral Cohort

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A phenomenological study was conducted with a group of doctoral students preparing to be technology leaders. Students and faculty participated in weekend-intensive course work in which the faculty and some students attended classes on campus, and another group of students attended classes through distance technologies. Using some of these very same technologies, students and faculty members were interviewed in either distance or face-to-face sessions. Students and faculty indicated that because of the various technologies they were able to communicate, to build relationships, and to feel a sense of community. However, those at a distance also indicated they missed out on the informal conversations held among students who attended classes on campus. The various technologies helped form the beginnings of a virtual professional learning community.

The proliferation of high speed Internet access dominates the landscape of public education. This interconnectivity provides an exciting opportunity for educators to create professional networks using technologies readily available. An innovative approach maximizing these tools allows isolated teachers and leaders to bridge the gap between their classrooms. Depending on the collaborative needs, teachers and administrators have access to multiple modes of synchronous communication including: (a) two-way audio and video, (b) interactive white board sharing, (c) application sharing, and (d) file exchange. In addition to these exchanges, educators have the opportunity to collaborate in an asynchronous environment. These communications are in the form of intranet and extranet websites, web logs, and email strings. The engaging, sustained communication growing from the networked virtual professional learning community empowers all participants to have equitable voice opportunities. This democratic model promotes cohesion throughout the educational process from a local to a state, to a national scale (Glickman, 2005).

The interconnectedness of the 21<sup>st</sup> century “flat” world provides many opportunities for educators to enhance their craft, and one of these ways is the virtual professional learning community (Friedman, 2005). This concept, in its fullest realization, mirrors the world from which it was birthed. In this world technology is transparent, borders are erased, and ideas are freely exchanged. Educators responsible for preparing tomorrow’s citizens should begin to embrace these opportunities and capitalize on the wealth of knowledge accessible through virtual professional learning communities.

## PURPOSE

Virtual professional learning communities will grow from the necessity to connect students to other students. Leading edge teachers will connect to each other as they prepare for these “virtual” meetings between students. The preparatory phases of these student interactions will lead teachers to initiate in professional dialogue about class project plans, course topics, and best practices in the classroom. In this article, the authors examine the effectiveness of existing technologies in facilitating a virtual professional learning community and discuss the findings from an ongoing qualitative study.

## LITERATURE REVIEW

When reviewing the development of successful collaborative interaction between professionals, there are two themes that emerge. First, educators must realize that, we “cannot improve student learning” without improving teacher learning (Fullan, 1993, p. 423). Additionally, teachers learn best by sharing ideas, planning collaboratively, critiquing each others’ ideas and experiences, and reducing the isolation encountered in most schools (O’Hair, McLaughlin, & Reitzug, 2000).” Many teachers long to experience collaborative environments that are currently separated by more than classroom walls. Regardless of an instructor’s geographic location, all teaching professionals are challenged to meet increased demands of accountability under time constraints. Effective uses of available technologies can optimize time on task and maximize the success of professional learning communities (Carroll, 2000).

### Growth of Technology

Technology access in schools has increased dramatically through various local, state and national initiatives. A July 2006, report from Wainhouse Research studied the state-by-state availability of professional quality videoconferencing on a national scale (Greenberg, 2006). Video conferencing has been used in America’s K-12 classrooms for almost 20 years. In this time period, there have been three waves or stages of adoption. The initial wave grew out of the need for access to resources in rural areas. These early networks included “mixes of higher education, state offices, vocational schools, and high schools” (Greenberg, p. 2). K-12 schools began by sharing needed classes between sites and acquiring content from regional educational providers, such as career technology centers and junior colleges. Many of these first networks were closed to connectivity beyond the local area.

The second phase or wave of adoption began with the start of the 21<sup>st</sup> century. With K-12 schools conditioned to offering courses, new players seized the opportunity to jump into the market with new offerings. There were, “new funding sources, as well as new approaches to technology deployment” (Greenberg, 2006, p. 2). This second wave was focused on tearing down walls by allowing students to interact with virtual field trip content providers around the country.

Another innovation, Internet2 or I2, emerged at this time providing higher quality connectivity to nodes on the I2 network. This nationwide network interconnected local loops of educators. The Center for Interactive Learning and Collaboration, a nonprofit organization out of Indiana, created the Keystone Conference allowing K-12 educators from across the nation to join together virtually to exchange best practice suggestions and ideas.

E-Rate and Rural Utility Services (RUS) grant dollars provided and continue to provide the capital needed to fund the virtual process. Throughout this phase, the quality of connectivity and the equipment used to connect continues to increase while the prices and costs of implementation have continued to decrease. The resulting increased availability has given rise to the third phase of video conferencing implementation in the K-12 environment.

Wave three, currently emerging, is poised to allow “student-to-student collaborative projects and even student creation and delivery of content” (Greenberg, 2006, p. 12). This opportunity to connect students to one another truly removes the barriers of socio-economic status, geographic isolation, and ethnic diversity. The low cost technologies currently flooding the market and the intrinsic need to make these connections a part of the educational process will move this third wave to the forefront. As teachers grasp the power of this technology and its availability, they will champion its use.

Wainhouse researchers have determined that nearly 23,000 K-12 classrooms and offices nationwide “have been equipped with videoconferencing as of early 2006” (Greenberg, 2006, p. 6). While these impressive numbers indicate a great start, the penetration of this technology, when compared with the total number of classrooms nationwide, only accounts for 1% of the classrooms. Additional findings reveal that as many as one-half of the classrooms in Oklahoma have access to videoconferencing. With many schools in the majority of the counties currently labeled as “rural,” Oklahoma is poised to be a leader in the formation of virtual professional learning communities.

## Professional Learning Communities

One of the most powerful conceptual models for transforming schools, the professional learning community (PLC), differs from traditional schools in

the following ways: (a) shared mission, vision, values, and goals (Bernhardt, 2002; Eaker, DuFour, & DuFour, 2002; Glickman, 1993; O’Hair et al., 2000); (b) collaborative teams (Newman, Smith, Allensworth, & Byrk, 2001); (c) collective inquiry (Cate, Vaughn, & O’Hair, 2006); (d) action orientation and experimentation; (e) continuous improvement (Putman & Borko, 2000); and (f) results orientation (Killion, 2002). Research has identified that PLCs provide teachers collaborative and supportive environments for on-going learning (Hord, 1997; Kruse, Louis, & Bryk, 1995). If schools want to enhance their organizational capacity to boost student learning, they should work on building a PLC that is characterized by shared purpose, collaborative activity, and collective responsibility among staff (Newmann & Wehlage, 1995).

A focus on student learning is a fundamental component of the vision in a PLC (Morrissey, 2000). This emphasis on learning leads those within the school to concentrate their efforts on the following three critical questions: “Exactly what is it we want all students to learn? How will we know when each student has acquired the essential knowledge? What happens when a student does not learn?” (DuFour, DuFour, Eaker, & Karhanek, 2004, p. 21). “Addressing these three fundamental questions positions the school to move from a culture with a primary emphasis on ‘teaching’ to a culture with a primary emphasis on ‘learning’” (Eaker et al., 2002, p. 13). Furthermore, Huffman and Hipp (2002) stated: “...the creation of a professional learning community is not an end in itself. It is, rather, an infrastructure for supporting school improvement so that, ultimately, the level and quality of student learning increases” (p. 81).

Recent research and knowledge of successful schools identifies common features in PLCs. In these cultures, the stakeholders (a) share a high value for learning, (b) work to enhance curriculum and instruction, and (c) focus on students. In schools with PLCs, the culture possesses:

1. a widely shared sense of purpose, values, and goals;
2. norms of continuous learning and improvement;
3. a commitment to and sense of responsibility for the learning of all students;
4. collaborative, collegial relationships;

5. opportunities for staff reflection, collective inquiry, and sharing personal practice; and
6. leadership (Deal & Peterson, 1998; Eaker et al., 2002; Fullan, 2001; Hord, 1998; Lambert, 2003; O’Hair et al., 2000, Stein, 1998).

In addition, PLCs share a common professional language, communal stories of success, extensive opportunities for quality professional development, and ceremonies that celebrate the improvement, the collaboration, and the learning (Peterson & Deal, 2002). Furthermore, a PLC exists when a strong school culture is in place at a school. Cultures grow out of the day-to-day interactions among students, teachers, and administrators. “Culture is the underground stream of norms, values, beliefs, traditions, and rituals that have been built up over time as people work together, solve problems, and confront challenges” (Peterson, 1999, ¶ 4).

Saphier and King (1985) identified additional norms associated with strong school cultures: collegiality; experimentation; high expectations; trust and confidence; tangible support; reaching out to the knowledge base; appreciation and recognition; caring, celebration, and humor; involvement in decision making; protection of what’s important; traditions; and honest, open communication (p. 67). If these norms are strong, then improvements in instruction are significant, continuous, and widespread. Of the 12 norms, collegiality, experimentation, and reaching out to a knowledge base have the strongest correlation between changing the school environment and improving student achievement (Saphier & King).

In a professional learning community, administrators promote and sustain teacher leadership by establishing and maintaining structures for learning. These structures are composed of roles and responsibilities, inquiry, reflection, and a focus on student learning, (Lambert, 2003). The staff views the school improvement plan as the primary vehicle for sustained, continuous school improvement.

Professional learning communities do not just happen. Time, support, and persistence are just a few of the factors necessary in developing a professional learning community. Moreover, professional learning communities change the traditional way that we do business by reculturing the school within and by providing a conceptual framework for continuous school improvement.

## Networked Learning

Learning networks exist in many shapes and sizes. Some networks are small and exist within the confines of an office or an organization. Larger networks might exist among or across organizations, cities, states, and/or countries. Lieberman (2000) stated “networks are organized around the interests and needs of the participants” (p. 221). Participants in these networks share goals, visions, and communication. Lieberman (2002), further, suggested networks become intentional learning communities.

These networked learning communities are creating new classrooms and communities with no boundaries (Carroll, 2001). Professionals in one location can collaborate and communicate with professionals residing on the opposite side of the state or the world. Technology helps bridge these distances between communities and allows them to network with other communities, thus helping to reduce isolation (O’Hair & Veugelers, 2005) that may exist because of one community’s location.

One example of the networked learning community is the online degree programs that are increasing in number (Wikeley & Muschamp, 2004). Online course delivery allows communication and collaboration through email and online discussions, thus allowing the students to learn and complete assignments without being isolated from their peers. Online courses force faculty and students to re-think the delivery of lessons and the learning that takes place.

Yee (1997) supported the idea of using networks for leadership development. She stated that “Building a network for program participants promotes continuing professional and personal development, develops a trusted peer group, and creates time for reading, reflection and thoughtful discussion” (¶ 3). All of these lead to the formation of a learning community.

Networked learning communities support three types of learning: (a) knowledge acquisition (traditional), (b) knowledge adaptation, and (c) knowledge generation (Carroll, 2001). The collaborative nature of networked learning communities also allows what Carroll calls *intergenerational learning* in which “mature” and “novice” learners develop together. These networked learning communities, with the use of technology, can more easily move from simply transferring knowledge to the actual construction of knowledge.

## Online Communities

According to Paul Shrivastava in an interview conducted in 2001,

Online learning communities are groups of learners and instructors, supported by instructional and learning resources, pursuing common knowledge-interests in an online environment. Such communities extend beyond the traditional classroom and may include corporate managers, community leaders, and members of grassroots groups. This network of people and resources voluntarily accepts mutual responsibility for participating and sharing in the learning process. (Morrison & Shrivastava, 2001, ¶ 9)

Rovai (2001) identified components of a classroom community: (a) spirit (a sense of belonging), (b) trust (feel safe), (c) interaction (benefit results from interaction), and (d) learning (knowledge and meaning constructed within the community). Rovai's research suggested the current technologies allow for classroom community, but faculty must design lessons and provide structures to prevent feelings of isolation. Collaboration with open inquiry and communication "reduces isolation and establishes trust" (O'Hair & Veugelers, 2005, p. 3).

Wang, Sierra, and Folger (2003) conducted a study with students (USA, Hong Kong, Japan, Argentina, and Venezuela) enrolled in the same online instructional design class. The researchers found an online community formed through "active participation, the forming of shared identity, and the establishment of social network" (p. 53). Furthermore, the participants in the study were able to maintain a sense of "we" despite the distance.

Charalambos, Michalinos, and Chamberlain (2004) identified characteristics of successful online communities:

- They consist of people who cannot meet fact-to-face because of place and time constraints and who meet online to work together on a shared task.
- The tasks on which members work online are clearly defined and participants have a clear understanding of the expectations.

- A common sense of responsibility exists among participants towards the assigned task and peers.
- Easy access to technology...is available to all members.
- The tools of communication are accessible and usable.
- There is good leadership and coordination of online activities.
- There are capable moderators...
- Ongoing interaction among members is based on constructive dialog.
- A joint vision, control, and ownership of the community...are shared among the members of the community.
- There is mutual support among its members and sub-groups.
- The rules that govern participation in the community are clearly defined.
- A system is in place monitoring member participation and behavior and a system to sanction certain inappropriate behaviors.
- It is a safe environment.
- Activities completed are evaluated regularly, and feedback is provided in a timely manner.
- There is a certain degree of structural dependence that establishes the need for members to interact and share resources. (p. 138)

A successful online community will exhibit many of these characteristics.

Professional learning communities, virtual professional learning communities, learning networks, and online communities are all available at the undergraduate and graduate levels. In each of these, communication, shared vision or goals, and collaboration enhance the growth of the individuals involved. Technology provides a means for enabling the development of learning communities across states and countries.

## CONTEXT FOR THE STUDY

The K20 Center is a university-wide research center at The University of Oklahoma. The K20 Center “is a consortium of school-university-community partnerships committed to improving student learning from Kindergarten through graduate education (K20) through the development of professional learning communities” (O’Hair et al., 2005, p. 72). Research is a key part of the work undertaken at the K20 Center. Another very important part of the K20 mission is professional development of administrators and teachers.

As a K-12 initiative, Oklahoma-Achievement through Collaboration and Technology Support (OK-ACTS) trains, creates, and sustains networks of superintendents, head principals, and other educators through ongoing professional development designed to help them lead reform efforts in their communities (O’Hair et al., 2005). Through the training and networking these leaders learn how to begin the process of developing professional learning communities.

### ACCOMPLISHING THE ONGOING PROFESSIONAL DEVELOPMENT IS CARRIED OUT IN THREE PHASES OF OPERATIONS.

1. Phase I is the leadership phase through which *superintendents* and *head principals* participate in seminars dedicated to leading professional learning communities that integrate technology to enhance learning. Originally funded through the Bill and Melinda Gates Foundation Leadership Development grant, Phase I is currently funded through the Oklahoma Educational Technology Trust (O.E.T.T.)
2. Phase II of OK-ACTS works in partnership with the Oklahoma Educational Technology Trust grant to schools and builds on Phase I learning to plan and deliver professional development for *teachers*. OETT provides three-year grants to schools for integrating technology with curriculum and instruction.
3. Phase III continues the work begun in the other two phases, but learning is focused on *students* in specific content areas—currently science, technology, and mathematics.

4. Phase IV focuses on student engagement in order to develop, implement, and test innovative learning strategies for today's "digital native" students, strategies designed to produce substantial achievement benefits for all students.

In addition to these networks of practicing administrators and teachers, the K20 Center delivers focused graduate degree programs to train potential and current school leaders in professional learning communities, collaborative leadership, and technology integration.

## THE STUDY

A phenomenological study was used to gain insights regarding the effectiveness of existing technologies in facilitating a virtual professional learning community. The phenomenon under investigation was the virtual aspects of a current doctoral cohort in Educational Leadership and Policy Studies (ELPS) offered in collaboration with the K20 Center at The University of Oklahoma. Through a grant received from STLI—now CASTLE—the K20 Center received materials and training on various technology pieces, and these materials and training helped in the initial planning of the degree program.

All participants in this study are current cohort members and Educational Leadership and Policy Studies (ELPS) faculty. Participation is different for each individual. Some students, and possibly some faculty, are onsite for all courses; some join through distance technologies for part of the courses, while others join through distance technologies for the majority of the courses. This gives each individual cohort member a unique perspective on the phenomenon under investigation.

Students participating in the Educational Administration Curriculum and Supervision with an emphasis on Technology Leadership (EACS-TL) doctoral cohort take two classes each semester: fall, spring, and summer. Fall and spring courses are delivered in weekend-intensive formats taught by full-time and adjunct faculty. As previously mentioned, students attend class both on campus and through distance technologies.

Most of the course work is grounded in the IDEALS (inquiry, discourse, equity, authenticity, leadership, service) framework (O’Hair et al., 2000) and the *Ten Practices of High-Achieving Schools* (O’Hair et al.). These 10 practices are as follows: (a) shared vision, (b) authenticity, (c) shared leadership, (d) personalized environments, (e) teacher collaboration, (f) inquiry and discourse, (g) supportive leaders, (h) community connections, (i) equity concerns, and (j) external expertise.

Throughout the curriculum, students and faculty discuss how these practices integrate with emerging technologies to help students and teachers engage in learning. Moreover, students and faculty explore how the IDEALS and Ten Practices help schools to transform conventional schools into professional learning communities.

#### A VIRTUAL PROFESSIONAL LEARNING COMMUNITY MODEL

*A Virtual Professional Learning Community (VPLC)* is a distance grouping of professional educators that continuously engage in inquiry, discourse, and authentic learning experiences that help them develop as leaders. Developed as an outgrowth of the doctoral cohort, the Virtual Professional Learning Community (VPLC) model, allows instructors to offer content to local and distant sites using internet-based video conferencing, specifically H.323. The initial study group was comprised of doctoral cohort members involved in an EACS-TL doctoral program.

When real time audio/video connectivity and collaboration on electronic documents are needed, members turn to a solution called Marratech. Occasionally, it is necessary for groups of people from individual sites to come together and VPLC members incorporate H.323 video conferencing solutions to provide the highest level of quality and to promote full interactions among participants. Both internal and external websites provide “just in time” information on a variety of topics and allow for asynchronous communication. VPLC members incorporate the use of weblogs or blogs to receive asynchronous feedback on information posted to various sites. These technological tools effectively remove time and space barriers of traditional “face-to-face” conference meetings.

The individuals developed a small virtual learning community utilizing

various technologies for interconnection. In order to more flexibly facilitate the process, both synchronous and asynchronous forms of communication were deployed. Audio only conversations within the VPLC are conducted effectively with both Skype and iChat. Both of these free software packages allow for audio conferencing, text messaging in the form of chat and file sharing. What follows is a discussion of some of these technologies that have been used in this doctoral VPLC model.

### TECHNOLOGIES THAT ENABLE VIRTUAL PROFESSIONAL LEARNING COMMUNITIES

Zhu and Baylen (2005) identified eight technology tool types: (a) communications, (b) organization and presentation, (c) information search and resource management, (d) audio and video technology, (e) web-based course management systems, (f) creation and manipulation, and (g) disciplinary software programs and tutorials, and (h) distance learning systems. Several of these different technologies were used to deliver instruction and to allow students to work together on group assignments. A description of these technologies and relevant URLs includes: (a) Marratech, (b) SKYPE, (c) Discussion Groups (threads), (d) Video Conferencing (H.323), and (e) Codian (IP VCR).

#### Marratech

A computer-based video conferencing solution allows participants to join together in large groups or small groups with full-duplex audio and video, interactive whiteboard, real-time chat, and application sharing. This software application allows Windows, Linux, and Macintosh users to collaborate in real-time through multiple modalities. Users with low to medium bandwidth accessibility can either participate through chat or in audio only conferencing. Users with greater available bandwidth availability can collaborate with live video as well.

The strength of this interactive platform is the participants' ability to collaborate using a whiteboard area. The whiteboard is the virtual equivalent of a classroom marker board or poster board. Collaborating participants might (a) type and revise documents in real-time, (b) load images and

PowerPoint slides for review and revision, and/or (c) use traditional drawing tools to emphasize important sections of the document. One individual in the meeting can be designated as the moderator, and the moderator then has the ability to lead other participants to different whiteboard pages.

Furthermore, Marratech also provides participants the opportunity to share local applications with other members of the conference. Even if both participants are not using the same word processing software, they can still work on the same document. It is not necessary for each participant to have the same software to be able to interact and to collaborate.

The cohort members have access to a server that can host up to fifty simultaneous connections in a variety of protected and publicly accessible rooms. Additionally, each participant has the ability to create a local recording of the entire conference on his or her computer. This provides the user the opportunity to capture the content and review it later. The free client software is available at <http://www.marratech.com>.

## Skype

Another computer-based conferencing application, Skype, allows participants to join together through full-duplex audio and video conferencing, real time chat, and file exchange capabilities. Skype, like Marratech, is a cross-platform, synchronous collaboration tool. When compared to Marratech, Skype's disadvantage is the absence of a whiteboard and application sharing. However, Skype is a very powerful tool and has a wide adoption world-wide in usage. Recent additions to Skype include the ability to place "calls" to traditional land and cellular phone numbers. This process does come with fees. Free Skype client software is available for download at <http://www.skype.com>.

## Discussion Groups (Threads)

Online directed discussions were led by course instructors though the use of the Desire2Learn courseware software management system. These discus-

sion threads allow users to communicate asynchronously to questions or prompts posted by the instructors. Moreover, this delivery model allows students and faculty to discuss topics of interest to the entire virtual professional learning community. Although these discussions are mostly course centered, several cohort members have adapted the idea for use with their faculties, staffs, students, and community. Utilizing weblogs or blogs as an open forum for discussion has further opened the lines of communication for cohort members' districts. One site of particular interest that provides a free blogging service is <http://www.blogger.com>.

### Video Conferencing (a. k. a - H.323 Video Conferencing or Distant Learning)

Noncomputer-based equipment allows the students and faculty to join together with full-duplex audio and video conferencing with near television broadcast quality. This technology is the heart of the connections for course delivery. This technology provides full screen video at 30 frames per second. This is in contrast to the quarter screen video available in both Skype and Marratech with frame rates between 15 and 20 frames per second.

H.323 compliant endpoints are bridged together with a multi-point conferencing unit (MCU). This equipment allows up to 32 H.323 connections and transcoding for ISDN or audio-only phone calls. Additionally, the MCU is capable of interfacing with the Marratech equipment. This transcoding availability allows at least one cohort member to regularly attend classes from home. As this technology continues to evolve, exciting capabilities become a reality. One of these is the new H.239 standard. This standard allows instructors or students with H.323 equipment to transmit two simultaneous video signals to distance participants.

### Codian (IP VCR)

The Codian IP VCR is a recording device that encodes or records the contents of a conference or class for on-demand rebroadcast at a later time.

Additionally, this device can broadcast the conference live. When connection difficulties arise, participants who might otherwise be unable to connect, can simply access the Internet with a computer and watch the content. Although this format severely inhibits two-way interaction, it does provide access where and when it is needed. Students, who may be unable to attend a class due to scheduling conflicts, can watch the content later using the playback feature of Codian.

### DATA COLLECTION AND TREATMENT

A phenomenological study was undertaken to determine the lived experiences and perceptions of the networked virtual professional learning community. All cohort members were invited to participate in the interview. Seven cohort members responded to the email and were interviewed. Data for this study were collected in semi-structured interviews with four cohort students and four faculty members who taught courses within the cohort program.

Faculty interviews were conducted in a face-to-face setting. However, the student interviews were conducted in the distance environment. Three of the interviews were conducted using Marratech, and two were conducted by phone. Furthermore, interviews were recorded in digital formats. Phone interviews were connected to an IP VCR, a network device for recording audio/video and audio only signals from all participants in a given call or conference.

When Marratech was used, sessions were recorded in two formats. Once again the IP VCR was used in the connection to record both audio and video from participants. Additionally, the Marratech client software was capable of performing a local recording for any endpoint in the conference. This process recorded not only the audio and video content of the session, but also the contents of other accessible modules including, but not limited to, chats, whiteboard sharing, and application sharing. In the case of these Marratech enabled interviews, questions were posted to the whiteboard area so that participants would be able to have easy access to them at all times. Participants could also organize their thoughts by utilizing the questions typed in the whiteboard area during the interview process.

## FINDINGS

Analysis of the interview transcripts and field notes found three emerging themes: communication, relationships, and community.

### Communication

Communication serves as the critical link that joins the other two themes together for without this initial theme, the other two are nonexistent. Through the various technologies students and faculty members are able to share ideas, work together, and contemplate assignments. A new way of thinking, learning, acting, and reflecting in this virtual learning environment emerges. “Bridging research into practice” and “learning to communicate more broadly and more globally” are powerful statements that represent the predominant feelings of faculty members involved in the cohort. All agree that at first the use of the technologies for communication is awkward as students learn how to utilize the various pieces of equipment and faculty members step out of their comfort zone to build effective communication across the virtual environment. Participants offered the following descriptions of first experiences with distance communication:

At first, it was...it felt a bit uncomfortable to me being in the local role, because of...really wanting to pay attention and connect and make learning very interactive and connected for those that were in the remote sites. (Student)

Part of my role was to introduce (Marratech) system, and so I always like our first day of class you kind of set expectations and we all come together to discuss these expectations...I felt like our first day...was really a time when everyone had so many questions about (Marratech) that we had a hard time even beginning the class. So it was different for me—all the chaos going on... (Faculty)

[T]here are differences, truly there are differences, with talking to someone across the video camera, even though you can still see them...you can pick up maybe some of the language, body language, and things like that, but not being there is still a struggle. (Faculty)

In spite of some of the initial difficulties, a interconnectedness exists between the cohort members as they build off of each others' strengths and communicate together to achieve common goals.

## Relationships

Individuals engaging in sustained communication available in class settings and beyond form lasting relationships. Participants described relationships with the concept of members "building off each others' experiences" and "continuous contact" with other cohort members. These relationships, both positive and negative, were related in the interview process. Foundational relationships are the beginning of community building and the acquisition of knowledge (Fullan, 2001). One student put it very simply, "You just build relationships." Another student stated "you're working with the same group of people time after time, and you're building off of their strengths to complete your goals." Additional comments made by cohort members reflect the importance of relationships.

One student stated, "There is strength in numbers—we are all working together," Another student observed, "A cohort is working together to achieve success at the end and there is a success of graduation rates for cohorts." Additionally, another student claimed, "People aren't afraid to disagree with each other and there are diverse opinions of stakeholders."

The various technology components enabled the students to form relationships. Zhu and Baylen (2005) posited that technology helps community members to nurture these relationships. These relationships enable the students to become a community.

## Community

The participants were asked specifically, "What comparisons can you make to this cohort and a professional learning community?" The concept of "everybody working together toward a common goal" permeated all

interviews. One student stated, "I have access to 14 other people plus professors by pulling the computer up." Below are some additional examples of how students describe their community:

They are working toward a common goal...I've been able to learn from them and hopefully they have been able to learn from me...I think the neat part of that is that it brings people together from so many different aspects of education. (Student)

We go to dinner and stuff together with everybody so you know that helps. You can talk when we all get together and go to lunch. We're all saying the same thing...I feel better you're like good...we're all on the same page. (Student)

This is the best way to do it I think [because] you've got everybody working together...If you haven't thought of a question somebody else is going to think of the question...you can build off each other's experiences. (Student)

I think we're all there to learn as much as we can, but also to support each other I think that's a real key role...to be a part of a cohort we're not just all there for our own selfish needs, but we're all there to help each other get through this and to support each other and to provide whatever resources we can to each other. (Student)

Regardless of a participant's primary location or perceived role, all members are seen as contributing to the advancement of the cohort. Moreover, this cohort is joined together as a virtual professional learning community. However, some of those at the remote sites feel that they miss out on some of the community as exemplified by the following:

[I] would say that it's a different environment when you are the remote site especially if you are in one by yourself because you don't get the interaction the informal interaction that you do when you're in the room before class starts. You're out there in your own little world as soon as class starts...but when they break for lunch and they walk out of the room you don't know what's being said and what being discussed. There's really good things going on at lunch. Good discussions. Good networking.

One of the instructors made the observation that "it's easier to build those

relationships when you're there with the person and able to talk with that person." Communities within this cohort are established in both formal and informal ways. Through class work and assignments, students establish the formal community, but during those times not in class (i.e., at lunch) an informal community is developed.

## DISCUSSION OF FINDINGS

Extensive review of the data suggests that a foundation has been laid for the existence of a virtual professional learning community. Interestingly, communication emerged as a dominant element of the VPLC. However, all participants in the study recognized and addressed the fact that distance cohort members appear to be "left out" of the informal conversations that assist in building personal relationships. Two of the study participants felt that some professors "leave out" students at distant sites. One noted that distant cohort members had to be more "aggressive" to be full members of the class. These findings were anticipated due to the nature of the participants.

All participants believe that the basic communications, relationships, and sense of community developing through this cohort do share similarities with traditional professional learning communities. Many research teams within the cohort are comprised of partners separated by distance; however, they are focused on common goals. One participant most succinctly stated that regardless of locale, "When you're discussing issues with cohort members and doing research with them, you're fulfilling the roles of a professional learning community."

All participants discussed the power of the potential of the technology a changed their perceptions of distance learning. One participant had initially thought she would never join a class from a distance. Circumstances forced her to participate in this manner on several occasions. Although she missed the side conversations with peers, she "felt like it (the classroom content) was all there." Another participant asked about the availability of "distant learning" when she spoke with several prospective employers outside her immediate local context. In fact, she commented that, "No matter where I go, I can still finish this [program]." With all participants the availability of the various technologies seemed to calm fears of maintaining a full-time K12 educational administration position while pursuing the doctoral degree program.

Results from this study were somewhat predictable due to the fact that the cohort members have a genuine desire to participate in a learning community as a result of the OK-ACTS leadership training and their personal beliefs. In addition, the participants and their fellow students are highly motivated to seek and complete their terminal degree in a research-based program closely associated with technology leadership practice, but all are full-time leaders in their respective schools and districts. Therefore, the flexible delivery of the curriculum through technology allows the students to remain full time practitioners.

## IMPLICATIONS

This particular doctoral cohort has begun to move toward the foundation of a virtual professional learning community. This phenomenon results from several factors identified by the participants. All agreed that cohort members were “working together” toward attainment of a shared goal. All participants mentioned that each cohort member brought unique strengths to the group, and those combined strengths produce an exponential cumulative effect. In reference to this strength one participant stated, “We’re learning more than what is just taught in class.” Finally, all agreed that the concept of the cohort was the bond that provided a firm foundation for this virtual professional learning community.

This coming together of committed educators in the formulation of a virtual professional learning community holds great potential for other educational faculty. When technology is easy to use, reliable, sustainable, and accessible, it can become a vehicle for revolutionary change. Many educators face isolation from the professional discourse and discovery they desperately need to continually improve their skills. As iron sharpens iron, so must one teacher help sharpen another. However, teachers can only know this “sharpening” if they have access to a community of other like-minded professionals. The experiences of this cohort suggest that this VPLC model is attainable.

Logically, the first point of replication could be the schools participating in the University of Oklahoma K20 Center’s Phase One and Phase Two programs. The administrators and teachers participating in these programs share a common foundational framework for student achievement, IDEALS.

The common thread of this framework should be the organizing factor for schools participation in the virtual professional learning community model. Administrators and faculty members could begin with a discussion of best practices for achievement at a grade or subject level. With educators connected in an open forum of idea exchange, the VPLC model would flourish.

There is no way to completely replicate the onsite, face-to-face, environment when in a distance situation. Several actions might help to reduce some of the isolation felt by those at a distance. Issues with informal discussions can and are being addressed somewhat through discussion forums on the Desire2Learn site. This past semester, after most of the interviews had been conducted, students were encouraged to have formal and informal conversations concerning experiences. “Virtual Office Hours” in a Marratech room might also help students and faculty to build relationships in a less formal way; however, this tool is an excellent strategy for sharing information and for asking questions.

Some students expressed a feeling that the professors sometime “forget” that students are attending through the distance technologies. Faculty members should sit in a position so they are facing the camera. This makes it easier for the students to see the professor, and the professor then has a better view of the students. Students must remain active participants in discussions like the students sitting in the classroom

## CONCLUSION

This cohort, now one year old, will continue to evolve. Some unanswered questions at this stage are:

1. In which direction will the cohort continue to grow despite the distance barriers between members? Will the technology capabilities continue to transform this cohort by allowing these barriers to become more and more transparent?
2. Will professors teaching courses to cohort members fully embrace the environment and move the learning process toward a professional learning community?

3. Will cohort members choose to sustain this community beyond the confines of the assigned class meetings?

This initial study generates more questions than it provides answers. However, one thing is certain, all stakeholders, cohort members, professors, technology specialists, and K20 Center personnel are committed to moving the process forward, and they are embracing the possibilities that continue to unfold through this experimental virtual professional learning community model. This experimental model must continue to be documented and researched for viability and sustainability. In addition, continued research is needed to examine the possibility of replication of the model in various settings.

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