

Creating and Supporting Learning Communities on the Internet

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In 1980 a person could buy a personal computer for about \$4000 with the power of a 1965 IBM mainframe and today one can get a laptop with many times the power for about one third the price. In 1969 the US Department of Defense creates a secret communication system, ARPA net, in 1984 the National Science Foundation opened this resource to the science community as NSFNET. In 1995 it went public and commercial as the Internet and today over 98% of our schools have classroom computers most with access to the world through “the web.” The elements of space and time are now being removed from the “learning equation” as students are instantly connected to the world. These resources “...will, ultimately, redefine the meaning of the term *school*.” (Wiles, 2000, p. 299-308).

Purpose of the Study

This study will examine the nature of educational leadership in a cyberspace learning community. The subjects were teachers in school districts whose classes participated in one of three on-going cyberspace education programs facilitated by peers in the role of on-line mentors. Specific questions explored are

- What were the forces that continued to provide leadership and direction to these programs?
- Did programs benefit from non-authoritative leadership and support through the emergence of a community of learners lead by participants in the program?
- Had a transformation taken place in the mind of the teachers whereby they now saw the on-line mentors as supervisors?
- Did teachers see on-line mentors in supportive roles similar to that of educators in formal leadership positions in school districts?

Key to this study is an understanding of two leadership variables – a community of learners and peer mentors as supervisors.

Theoretical Framework

Community of Learners

Shared Vision. The concept of a community of learners has emerged as a leadership force. The current thrust of leadership is that of facilitating the creation of learning communities or learning organizations (Lambert, M .D., & Gardner, M. E., 1995; Little, J. W., 2000; Ogawa, R. T. & Bossert, S. T., 2000; Palmer, 1998; Senge, 1990) as a way of involving the school communities and/or extended communities in the development

and implementation of shared vision for the education of all students. Leaders who create such communities need to be self-reflective and reflective on practice, capable of eliminating ingrained assumptions, able to trust others' ideas and actions, and skillful in engaging people in dialogue, as well as discussions.

To teach people to become leaders or to hone their leadership skills requires opportunities to not only learn what is necessary, but to practice those abilities. A challenge to instructors in the field of educational leadership is how to become part of that community, to be accountable *with* students for its development and maintenance, and, above all, to understand what is necessary in teaching and learning (Marsh, 2000/1997) that will promote and encourage the development of that knowledge and those proficiencies.

Shared Accountability. To accomplish those ends ultimately to create a learning community, Parker Palmer (1998) suggests that instruction needs to go beyond teacher- or student-centeredness to something that transcends the teacher and student and joins them in a common pursuit of knowledge and a shared vision. The content, the subject of study, becomes that which “sits in the middle and knows” (Palmer, 1998, p.116). The content is the “It” which David Hawkins (1974) states it is responsible for joining a child and an adult (student and teacher) “in outward projection,” and which is the only thing that “creates a possible stable bond of communication, of shared concern” (p.58). To teach about leadership, then, requires the discipline of leadership to be the focal point around which teaching and learning take place, that is, around which *both* students and teachers teach and learn.

Internet as Community Builder. How best to do that when the instructional models have either fore fronted the students, who can do no wrong, or the teacher, who is the supreme authority? Harcourt (1999) notes that “the uses of technology have opened up the creative minds of [people] to be free...” (p.9) and Rud (1995) encourages us to recognize the possibilities that the internet affords to build communities of inquiry by linking various people together through technology. Through communication via electronic mail (e-mail) or a listserv language becomes a focus, how it is used, whether there is a sense of inclusion or exclusion, and the possibility of discovering a new way of dialoguing that would permit diversity while simultaneously creating solidarity and identity (Harcourt, 1999). Furthermore, computer technology would allow teachers and students to focus on new forms of knowledge creation and communication that may be linked to different political agendas, and which could be built on the collective knowledge of the challenges facing those participating. Above all, use of computer technology would open the spaces to build, “to overstep old frames of mind to create new values and to build new institutions” (Harcourt, 1999, p. xvi). Teaching and learning would focus on the subject in order to create a community of learners with a shared vision. Sernak (2000) studied two e-mail communications between two groups of graduate students, one in Illinois and one in New Jersey. She found that the use of computer technology to enhance instruction has the potential to build true community across boundaries, both environmental and human.

Role of Supervisor

Summative and Formative Another element at play could be the power of the peer teacher as a supervisor. The purpose of supervision is to enable teachers to improve instruction for students "...it is identical to leadership for the improvement of instruction." (Glickman, 2001, p.10). A major function of supervision has been teacher evaluation which has two purposes – summative, to measure teacher effectiveness, and formative, to support teacher growth (Glickman, 2001; Capie, 1979; Harris, 1984). Teacher evaluations are often done through classroom observations and viewed by teachers as something that is done to them when in essence evaluation should "...recognize, cultivate, and develop good teaching." The latter can be done through an evaluation system that promotes reflection, self-direction and professional dialogue. When this occurs opportunities for learning improve for all students (Danielson, 2001).

Traditionally, evaluation has meant meeting legal requirements to make value judgments about a teacher's performance by the stated deadline. The feedback to the teacher was often too little or too late to make a difference in instruction for the year (Sawyer, 2001). Teachers will make adjustments if they are aware of required performance changes. The absence of feedback only increases errors in their work and has a direct effect on student learning (Cunningham, 2000).

Peer Supervision. The primary purpose for teacher evaluation is teacher growth not accountability; supervision works best when the teacher and principal work together (Pointer, 2001). However, many feel that the same person cannot be coach, formative evaluator, and judge, summative evaluator (Glickman, 2001; Danielson, 2001; Howard, 2001). One solution to this conflicting role of evaluation is to use different persons for the formative and summative responsibilities. Wiles (2000, p. 280) notes three non-judging roles in which teachers assume supervisory responsibilities – peer supervision, coaching and mentoring. Wiles defines mentoring as "... [Utilizing] the assistance of a more experienced person with a less experienced or less knowledgeable person." Rooney (1993) reported on the use of teachers observing each other and noted that it brought collective expertise to the learning process. Allen (1997) reported on a peer observation system that resulted in a decrease in teacher isolation and an increase in professional interactions and collegiality.

It may be that peer supervision is a method for fostering a community of learners. The focus of the interaction may be on a shared vision and shared accountability. The supervisor role is that of mentor not evaluator. The results of this relationship are to improve the teaching and learning. It may also be that the Internet is an environment in which more experienced peers can assist and collaborate with less knowledgeable persons to create a community where all share a vision and contribute to its development.

The Study

Background

From 1995 – 99 teachers in approximately 80 classrooms in 17 states participated in the development and field-testing of three on-line instructional programs- a social studies program, The Electronic Model Congress (TEMC); a science program, Sky Is Falling (SKY); and a language arts programs, CyberHunt (CYBER) (White, 1995);

Gourley, 1999; Gourley, 1998). These programs were the product of New Jersey's Educational Information and Resource Center (EIRC) and the Columbia Education Center, Portland Oregon. The development was made possible in part from grants from the US Department of Education, National Science Foundation, and Intel Corp. These programs were organized into a program support and delivery system called EIRC Games On Line (GOL).

Through these GOL programs students in grades 4-12 studying social studies, science and language arts used the Internet to collaborate with students in other classes in the next town or in a school thousands of miles and several time zones away. Their products involved the collective use of current topics, research and ideas instantly accessible to all through their Internet connection. For example, students in the science program, SKY, were required to create research designs for growing food. Once the design was created it was instantly shared with their partner class via the Internet. The partner class reviewed the design and made recommendations for improving the design before it was carried out in an actual experiment. Thus, the learning equation no longer involved time and distance and the learning environment gave a new definition to the term "school."

Teachers reported that the students became self-directed learners; they discovered problems and invented solutions. The curriculum became interdisciplinary the social studies program involved mathematics, business and creative writing; the science program required mathematics and geography; and the language arts program incorporated research in science and social studies. Additionally, changes took place among the teachers. The email broke down walls between teachers and fostered communication on curriculum and instruction. Through the processes required to effect the programs, many of the elements of effective schools, such as shared vision, focus on learning, professional collaboration, were being accomplished (Cunningham 2000, p.221-225, Glickman 2001, p. 40-44, Gonzalles, 2001). The programs' success encouraged the program director to continue them beyond the grant period.

Support System

Teachers reported that a key to their continuation in the GOL programs was direct assistance and support. During the grant period the teacher support came from the GOL program director acting in a directive, controlling leadership role, making all decisions, directing all activities, controlling the programs' vision. It soon became apparent that the demands for assistance exceeded the time and knowledge resources of the program director. Working with teachers in a number of schools, a two- way support system was developed between a mentor and a classroom teacher. The program director asked teachers who had prior success with the programs, to assume the responsibility of mentor. The system would allow a mentor to go on-line to monitor the current and past Internet activity of any participating classroom. This enabled the mentor to determine if the class was

- following the program schedule
- completing all assignments
- implementing activities correctly, and
- communicating with other class, and
- monitoring the nature of the communication.

The system also allowed the teacher and the students in any class direct communication to the mentor who would provide a variety of assistance to the classroom teacher and students.

Context and Participants

The primary population for the study involved a sample of nine GOL program teachers with teaching only responsibilities and three GOL teachers with classroom and mentor/supervisors responsibilities. This group represented 42% of the participating classes in that some teachers had multiple classes participating in the programs. All participants were in middle and high school Internet programs. These on-line mentor participants taught their class and supervised approximately 80 classrooms in 13 states and one foreign country. The instructional programs were in science, language arts and social studies. All but one of the teachers had participated in traditional “live” training sessions before initiating the program(s) in their classroom(s). One teacher received all her training via the Internet. Each program required the classes of approximately 25 students each to interact, communicate, solve problems and create new information and concepts collaboratively with students in their own class as well as students in 10 –30 other classes. All of the interactions between classes were via the Internet. The classes represented urban, suburban and rural communities, with black, white, Native American and Hispanic populations. The greatest distances between the classes were over 10,000 miles and eight time zones. The instructional programs lasted from six to thirteen weeks. The content was sequential and based in part on the previous original information created by the participating students.

The mentors had been participating teachers in the GOL program but received all their mentoring training via the Internet. They communicated daily with classroom teachers. This teacher-mentor relationship resulted in a two-way relationship in which information was shared concerning both work and personal matters.

A secondary population in the study was 22 graduate students at Rowan University enrolled in a basic educational leadership course. They were not involved in the GOL instructional program. Their input was to establish a broad based perception of the functions of the traditional school level supervisor of instruction.

Data Collection and Analysis

The study involves both quantitative, questionnaires, and qualitative, conversations and observations, methodology. Much of the qualitative information is the result of email in which the vision of the program and the actions formulated were put in place to achieve the vision.

The quantitative data is the result of questionnaires concerning the role of school supervisors. The results from the completed questionnaires were compared for two groups:

1. Teachers representing 42% of the GOL classes, including mentors, and
2. Twenty-two non-participating teachers who were graduate students at Rowan University.

Quantitative Analysis

Data from both the GOL participants and the Rowan graduate students was collected to determine if both groups had the same view of the role of supervisor.. Additional data from the GOL teachers was used to determine if they held the same perception toward the persons who acted as GOL on-line mentors as they did toward their traditional in-school supervisor.

Since it was hypothesized that a learning community may be a leadership force facilitating these programs, additional data was collected from the GOL teachers/mentors to determine if they could identify elements of a community of learners as part of their participation in the GOL programs.

Methodology for Perception of Supervisor Four sets of questions were used to determine:

- a. If both groups had a similar perception of the functions of a school level supervisor;
- b. If the GOL teachers perception of the on-line mentor was different than that of the school level supervisor
- c. If the mentors saw their function as different from the school level supervisor.

The GOL teachers and mentors were asked to answer all four sets of questions. The Rowan graduate students were asked to answer the first sets of questions.

1. The first set of questions was to determine if both the Rowan and the GOL groups had a similar perception of their school level supervisor. The question and results are as follows:
 - a. **Question** - All participants were asked to characterize their current experience with their supervisor as useful and/or necessary.
Results - Both the GOL and graduate student groups agreed that the supervisors were useful and necessary.
 - b. **Question** - All participants were asked to identify the primary and secondary functions of their supervisor from the following list of functions:
“help, judge, evaluate, assist, collaborate, direct, observe, consult.”
Results - Both the GOL and graduate groups identified **all** as functions of the supervisor.
2. The second set of questions was identical to the first set except that it specifically addressed the GOL teachers’ perception of the on-line mentor. This was used to determine if the perception of the on-line mentor was different than that of the school level supervisor. The results to these questions were:
 - a. All agreed that the on-line mentor was necessary and useful.

- b. All of the eight supervisory functions were identified as functions of the on-line mentor with “judge” and “evaluate” being the least identified functions.
3. The third set of questions to determine if the on-line mentors saw their function as different from the school level supervisor. The results were
 - a. All agreed the supervisor/mentor was necessary and useful.
 - b. None identified “evaluate” or “judge” as functions of the supervisor/mentor.

Result both the Rowan and GOL populations identified “evaluate” and “judge” as functions of the in-school supervisor but none of the GOL on-line mentors identified “evaluate” and “judge” as functions of the GOL mentors. While there was a range of scores for each group for each questionnaire item, the differences between these scores was not statistically significant.

Methodology for Perception of Learning Community The fourth set of questions was to determine the GOL teachers perceived that the characteristics of a learning community existed among the participants (teachers and students) of the GOL programs. The characteristics examined were

- A common shared goal
- The need to collaborate
- Learning takes place through participation with each other
- Learning comes from both content and process.

GOL teachers were asked to use a scale of 0 – 3 (0=not at all) to rate the degree to which participants (students in their class, students in other classes, and teachers) recognize the characteristics of a learning community. Table 1 shows that all teachers rated both other teachers and their own students as high (between 2.22 and 3.0) in their recognition of the characteristics of a learning community.

Table 1. Results of GOL Teacher Ratings of Participants Recognition of Characteristics of a Learning Community

Question	Your students	Other students	Other Teachers
A common goal	Mean=2.44	Mean=1.55	Mean=2.22
The need to collaborate	Mean=2.75	Mean=1.75	Mean=2.75
Learning takes place through participation with each other	Mean= 3	Mean=2.5	Mean=2.75
Learning comes from both content and process	Mean=2.5	Mean=1.28	Mean=2.62

Qualitative Analysis

Data was collected on written and oral communication among the GOL teachers and on-line mentors with each other and with the project’s director. Most of this data is in the

form of saved email but some is from notes from meetings and phone calls. These communications occurred over a period of several years and can be characterized by some selected examples in relation to the evolution of a learning community as a leadership force in the GOL programs. This evolution has been broken down into three stages of development. In each stage the type of communication between teachers and between teachers and project director changed. The communication examples presented below are in relation to the criterion that The Internet builds a learning community in which the members share a vision and accountability for its development and maintenance.

Initial Funding Stage In the initial stages of the program the project director acted in a direct control leadership role. During this time the communication between the teachers and the project director can be characterized as the teachers requesting permission, resources, and assistance and the project director filling the requests when possible.

Examples of communication between teacher and project director:

- *May I have three more days to get my data in before the end of the programs first phase?*
- *I need another copy of the resource manual.*
- *I can't get my modem to connect with the server, please call with instructions.*

The dialogue between teachers centered on problems with the program or personal issues.

Examples of communication between teachers:

- *The manual has typos.*
- *The program is lasting too long my students are getting bored.*
- *The program is interfering with basketball practice.*

Initial Responsibility Sharing Stage Toward the end of the funding the project director realized that the program could not survive if all responsibility, authority and resources were to remain centralized. The teachers were invited to share in some of the responsibilities for developing and maintaining the programs. During this time the communication between the teachers and the project director can be characterized as reluctant acceptance of additional responsibilities.

Examples of communication between teachers and project director:

- *I'm not sure I can do this but will try if you help me.*
- *I'll do a workshop in my state if you send me a workshop outline and handle the financial arrangements.*
- *I'll send you a copy of the science standards for my state for you to include in the resource manual but you will have to match them to the program objectives.*

The dialogue between teachers centered on classroom instruction and examples that had worked in each other's class.

- *I'll send you a copy of the rubric that I used with my class.*
- *I'll send you a copy of the web sites that I found useful for my students to use in their research.*

Learning Community Stage In the two years since the end of the funding the project director realized that the resource that remained for continuing the programs was the teachers. Further, since they had implemented and managed every stage of the programs in their classroom, they knew more about the programs than the project director. If the programs were to survive it would be because the teachers wanted them to survive and joined together to ensure their longevity. The director asked the teachers to share in the development and maintenance of a vision for the programs. The dialogue between teachers and between teachers and project director was virtually identical regarding the scope and intention.

Examples of the dialogue at this stage:

- *Teacher to Director – I will send you a copy of the power point presentation I used for my training for you to use and share with others.*
- *Director to Teacher – you know more about the program than I do, I'll accept any revisions you make to the manual.*
- *Teacher-to-Teacher – I was a mentor last year and it wasn't that much work, you can do it and I'll help you.*
- *All in a discussion – where are we going with these programs in five years. How will we organize?*

Results

These on-line mentors and the teachers with whom they worked developed a greater understanding of the three programs and collaborated to improve the programs based on their collective experiences.

Two years later, participation in the GOL programs continues at approximately the same level as when the games were externally funded. The programs have been continually revised and up-dated and they have been expanded to populations outside of the United States. Plans currently are being implemented for further expansion. The support system worked. It also had defied the time and space equation. As we begin to redefine the term “school” as a learning environment that knows no boundaries, then school leadership must begin to understand and employ techniques for supervision and support in Cyberspace.

It appears that the teachers in this study had evolved into leadership roles, which were seen as supervisory in nature. They identified their function as similar to that of the districts supervisor's functions. Their role was to formatively assess teachers and to help improve instruction. These findings are consistent with those of Wiles (2000) Rooney (1993) and Allen (1997).

It also appears that the teachers and project director had evolved into a leadership style based on a learning community model in which all shared a common vision and took responsibility for developing and maintaining it. This is consistent with the findings of Gonzales (2001) who found that teacher leaders assume greater authority for leadership as they realize that leadership is not confined to those with formal titles but is part of a growth and understanding of oneself as a professional. These findings are further supported by Glickman's (2001) concept of developmental supervision. According to Glickman both the teacher and supervisor progress through stages of greater sharing of responsibility as the teacher-supervisor behavior evolves from *directive to non-directive*

supervision. These findings are also consistent with those of Sernak and Mitchell (2001), Harcourt (1999) and Rud (1995) who found that the use of the Internet was a good vehicle for forming a learning community.

Implications

If technology in the classroom is here to stay, and all indications are that it is, then one can probably agree with Wiles (2000) prediction that time and space will no longer be critical to the learning equation and that the definition of the *school* will change. This means that the school as a learning environment will not be a place and classmates will not be in the same physical environment. As this new learning environment becomes more and more reality, who will be guiding the education? What will be the nature and role of the cyber supervisor of instruction? Where will the classrooms be? Where will the teachers be? How will we hold this together?

This study examined a model for providing assistance and professional development to classroom teachers through a cyber-space learning community. The role of the supervisor is one of a mentor with the ability to directly monitor the activities in the classroom and offer a variety of assistance either at the teacher's request or based on the mentor's observations. Further the teachers identified the need for assistance and noted that the assistance received was beneficial.

The implications from this study may be that the more things change the more they remain the same. The nature of education and the role of the leaders in the process are governed by their interpersonal relationships not their physical environments. As we move further into a cyber space learning environment we go as people not bytes and bits and it is our relationship to one another that will be the measure of our success or failure.

This may be a model for assisting teacher and students working in a cyber-space learning environment to develop their professional skills and understanding of the instructional program. The on-line mentor system of this study has become part of a professional improvement program with teachers in three New Jersey schools serving students who are economically disadvantaged. The concept was introduced to the administration and faculty in the spring of 2002 and will be implemented, evaluated and modified throughout the 2002 – 2003 school year.

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