

***Conquering the swell of the cyberwave:  
Is collaboration occurring in virtual schools?***

By Barbara A. Schulz  
[schulz@nova.edu](mailto:schulz@nova.edu)

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Dr. Timothy Ellis -Professor

Nova Southeastern University  
Graduate School of Computer and Information Sciences  
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## **Problem Statement and Goal**

As the dual reform waves of high stakes testing and technological reform hit education in this new millennium, virtual schools have become one solution that is riding on the crest of the swell. The proliferation from three virtual schools in 1999 to more than thirty across the country in the last year, is changing the face of education. But are virtual schools the best learning environment for our students? Researchers state many claims to support this environment. Martinez (2002) claims that the online environment has the potential to encourage precision learning by uniquely identifying learners and their needs, then personalizing content to meet those needs. In addition, online learning can effectively support, monitor, and assess individual progress. Cicognani (2000) contends that online learning works because it focuses the educational experience on the learner, enabling learners to dig for information and practical examples in a learner friendly environment. With the majority of researchers supporting the online environment for students, Ruhleder (Ruhleder, 2000) stresses that collaboration is the key in online learning as it provides the availability of feedback, and exposes students to other methods of solving problems and thinking strategies. The benefits of collaboration during online learning have been documented over the years, by many researchers (Cifuentes, 2001; Dringus, 2000; Gokhale, 1995). But how does one determine if collaboration is occurring in a classroom especially when that classroom is online? And is collaboration during instruction actually occurring in Virtual Schools?

The goal of this research will be to evaluate the amount and degree of collaboration taking place in sixth and seventh grade classrooms in virtual schools during instruction,

and give suggestions for ways to utilize this learning strategy in this dynamic environment. The research questions to be investigated during this evaluative study will include:

1. How much collaboration is occurring in virtual middle school classrooms?
2. What types or quality of collaboration is occurring in these middle school classes?
3. How does collaboration impact learning in the online environment for middle school online students?

This evaluative study will include the collection of artifacts and data from two different online schools in Colorado. The collection of artifacts will focus on three facets of the educational environment. The first collection will be of demographic data on students in the sixth and seventh grades in this environment. The analysis of this data will assist in creating an overall general profile of the types of learners utilizing this environment. Sixth and seventh graders will be chosen due to the importance of socialization at that age level.

The second collection of data will be of current curriculum materials being utilized by the online sixth and seventh grade students. The curriculum will be analyzed for types and quantity of collaboration planned for each lesson involved. From the results of this analysis, one of the highly rated collaborative activities will be chosen for further study. If no curriculum activities include collaboration, an activity will be created by the researcher to utilize for further study. The third facet of the study will include an action research study to determine whether learning is impacted by collaboration being included in the learning process. This third part of the study will involve a selection of students from the online sixth and seventh grade classrooms to

participate in a unit that includes collaborative activities. Students will be randomly divided into two groups, one utilizing the curriculum not involving collaboration, and one utilizing the curriculum with collaborative activities. Pretests will be utilized to establish the knowledge base of the participants on that particular topic before instruction begins, as well as to assess their higher level thinking skills. The control and experimental units will then be taught online to the students. Student's knowledge will again be tested following the research activities. The results will be analyzed to determine the impact collaboration played on the student's knowledge or thinking abilities.

It is hypothesized that collaborative activities will significantly increase higher level thinking skills compared to traditional online classroom activities.

### **Relevance, Significance, and Brief Review of the Literature**

The benefits of online learning have been documented by many researchers as mentioned above. Collaboration has also been documented as being an important tool in education. Lomangino & Nicholson (1999) noticed that when children collaborated while using computers, their cognitive development was enhanced as they expressed their ideas, whether in agreement, disagreement or as alternative solutions. Lomangino & Nicholson maintained that we still have a lot to learn about the actual responses to each other that students make, and whether their social skills hindered or helped this collaboration. Perry (2000) has discussed the need to promote self-regulated learners by identifying features of classroom environments because it promotes high levels of metacognition, motivation, and gives students a means of "strategic action". Mauriello

et al. (1999) makes Perry's concepts understandable by telling about students who could show off their collaborative web pages to friends and family. Their studies indicated that students felt pride and ownership, and found their voices on the web. In addition, the students received feedback through email concerning their work. Gokhale (Gokhale, 1995) stated that group interaction helped students to learn from each other's scholarship, skills, and experiences because reasons had to be given for their opinions and judgments. Cicognani (Cicognani, 2000) stated that learning experiences become more engaging when it is shared with other students without a competitive driver such as a test. All this research points to the benefits of collaboration, but is this collaboration happening in the virtual school environment?

Looking at the meteoric rise of virtual schools, as well as the unique needs of the virtual student (Schulz, 2003), and the types of programs available to students, it is unclear as to how much collaboration is taking place in this environment. Cradler (Cradler, 2003) concluded that how effective Internet based learning could be depended on the context in which it is used. Muir (Muir, 2001) pointed out that the goal of K-12 education should be to teach basic concepts and materials, and to teach students to maximize their learning style, improve upon other learning styles and develop into a life-long learner who can make the best use of material presented at a later stage in life. Martinez (Martinez, 2002) reminds educators that the primary goals should be to provide instruction to meet instructional objectives.

The newness of the virtual school field, as well as the lack of current research studying collaboration in those schools, makes it important to explore the environment to discover if student's needs are being met. The virtual environment for K-12 students is

quickly becoming the latest swell on the wave of reform in education. It is important for the swell to be guided by proper research so that students can benefit.

## **Barriers and Issues**

Barriers to this study include the limited research currently available on virtual schools, getting access to the virtual programs, and dealing with privacy issues with parents and students. As time goes on, the results of more research will become available, and will help to support this study.

Getting access to the virtual programs may be an issue due to the fact that most programs at this time are controlled by private enterprises. However, as more researchers approach the vendors or organizers, and as the benefits to their clients become more visible, the field may open up. Also, if the results are shared with the vendors, they may be more willing to participate in the research.

Privacy issues with parents and students will need to be thoroughly planned and dealt with in an ethical, legal manner. All proper protocols will be discussed and followed during the process of choosing students and parents for the study. Guidance will be requested from administrators and others working with the students in order to choose students for whom this will not be as much of an issue. Interviews will be conducted at the beginning of the study, and students or parents with reservations about the study will not be chosen.

An additional barrier may be the lack of collaborative activities included in current online curriculums. This barrier will be crossed by the development of

appropriate materials by the researcher, who has previous experience with this type of curriculum development. The challenge will be to find a match between topics taught in the different virtual schools at the suggested grade levels, so that phase three of the study can be applied without significantly disturbing the original learning plans of the students involved.

## **Approach**

This study will be conducted as an evaluative study of several virtual school programs. Sixth and seventh grade students from two different virtual schools will be observed as they progress through several units in the online program.

The first collection of data will be to gather demographic data on students in the sixth and seventh grades in this environment. The analysis of this data will assist in creating an overall general profile of the types of learners utilizing this environment. Sixth and seventh graders will be chosen due to the importance of socialization at that age level. The tools to accomplish this collection include interviews or surveys with:

- A. Administrators in two different virtual school systems
- B. Several students and parents in each system
- C. State level administrators
- D. Teachers at the sixth and seventh grade levels in each system

Artifacts collected for this portion of the study include but will not be limited to standardized and local testing samples and scoring .

In order to answer the first two research questions, the second collection of data will consist of examining current curriculum materials being utilized by the online sixth and seventh grade students. The curriculum will be analyzed for quality and quantity of



collaboration planned for each lesson involved. From the results of this analysis, one of the highly rated collaborative activities will be chosen for further study. If no curriculum activities include collaboration, an activity will be created by the researcher to utilize for further study. Artifacts for this portion of the study will include but not be limited to sample lesson activities.

In order to answer the third research question concerning the impact of collaboration on knowledge gained as well as thinking skills utilized, the above mentioned pretest will be given to both sets of students. The control and experimental groups will work through the curriculum unit chosen or created for this study.

During the execution of the planned units, observations will take place and include documentation of students, faculty, and parents. Students will be observed:

- A. at work on lessons,
- B. at social events, and extra-curricular activities
- C. during testing events

Faculty and administrators will be observed:

- A. during typical lesson times
- B. at student/parent orientation times
- C. during testing events
- D. collecting , aggregating and evaluating data

Observations and artifacts will be gathered, studied and evaluated. Artifacts collected will include but not be limited to:

- A. Teacher Journal entries
- B. Student Journal entries

C. Samples of communications between student and teacher, student & peers, students and experts.

D. Data Collection methodologies

A final assessment created by the researcher will be given to test the attainment of knowledge during the unit, as well as the ability to utilize higher level thinking skills. This test will be scored and analyzed. All collected data and artifacts will be aggregated, and examined for patterns and evidence of the use of collaboration by students. The quality of collaboration will be evaluated, and conclusions drawn about the impact of the collaborative activities on knowledge and thinking skills.

## **Milestones**

In order to prepare for the study, contact will need to be made with the administrators and teachers of the proposed participants during the summer. During the months of June, July and August, meetings with administrators can occur to discuss the research. In addition, the examination of demographic data and curriculum can be collected, aggregated and examined in order to create the materials needed for the study.

Interviews and surveys will need to be created and ready to be implemented during the month of September. In September, the virtual teachers will be meeting with parents and students, so the study will need to be explained to them, information gathered from them, and their permissions attained for participation in the study.

The development of the academic unit that students will be participating in during the study will take place from September to December. This unit will need to be matched to the current curriculum, with two types of activities occurring. The unit will be developed

with the assistance of the teachers involved, and the unit may need to be demonstrated to parents.

In addition, the data gathered during the summer will need to be analyzed and the reports written concerning the demographic data. The milestone for completing this task will be by the beginning of December.

The pretest of knowledge and higher order thinking skills will occur in the beginning of January. From January through the beginning of March, the experimental unit will be taught, and the observations of involved parties listed above will occur. In addition, faculty and students will be completing an online journal during this period.

All qualitative and quantitative data will be aggregated and analyzed from March until the beginning of June. Dissemination of results will occur through the summer with teachers, administrators, and other involved parties. (See Appendix A for Gantt chart of activities).

## **Resources**

Before the study can begin, contact will need to be made to the administrators of the Virtual Schools involved. Two already existing virtual schools that offer curriculum to middle school students are the Colorado Virtual Academy (COVA) and the Branson School Online. Access will need to be gained to the assessment data as well as to the environments being studied, therefore administrative approval of the study is crucial. Students will need to be chosen to be observed, and permission will have to be obtained from the administrators, teachers, students and parents involved.

An immense amount of qualitative data will be needed for evaluating this unique environment, therefore collection tools such as online forms for participants' journals, and a database of assessment data will need to be utilized. In addition, testing tools for evaluating collaboration will need to be researched and chosen to determine how often collaboration takes place and the quality of collaboration occurring.

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## Appendix A - Milestones Gantt Chart

Table 1 Milestones Part 1

Activities	June	July	August	September	October
Contact all participants					
Administrators of virtual schools					
Teachers					
Parents & Students					
Gather and evaluate demographic Data					
C-Sap Scores					
Standardized Test Scores					
District Data					
School Data					
Individual Progress Data					
Collect & Analyze Curriculum					
collect samples of curriculum utilized at both schools					
analyze curriculum for collaborative activities					
choose or develop an activity for study					
Chosen unit is delivered to students in both schools					
Pretest of Knowledge & Higher Level Thinking Skills given					
Observations of students					
Observations of teacher activities					
Teacher keeps a journal					
Student responds in a journal					
Post Test administered					
Data and artifacts gathered and analyzed					
Results written					
Results disseminated to interested parties					

Table 2 Milestones Part 2

Activities	November	December	January	February
Contact all participants				
Administrators of virtual schools				
Teachers				
Parents & Students				
Gather and evaluate demographic Data				
C-Sap Scores				
Standardized Test Scores				
District Data				
School Data				
Individual Progress Data				
Collect & Analyze Curriculum				
collect samples of curriculum utilized at both schools				
analyze curriculum for collaborative activities				
choose or develop an activity for study				
Chosen unit is delivered to students in both schools				
Pretest of Knowledge & Higher Level Thinking Skills given				
Observations of students				
Observations of teacher activities				
Teacher keeps a journal				
Student responds in a journal				
Post Test administered				
Data and artifacts gathered and analyzed				
Results written				
Results disseminated to interested parties				

Table 3 Milestones Part 3

Activities	March	April	May	June
Contact all participants				
Administrators of virtual schools				
Teachers				
Parents & Students				
Gather and evaluate demographic Data				
C-Sap Scores				
Standardized Test Scores				
District Data				
School Data				
Individual Progress Data				
Collect & Analyze Curriculum				
collect samples of curriculum utilized at both schools				
analyze curriculum for collaborative activities				
choose or develop an activity for study				
Chosen unit is delivered to students in both schools				
Pretest of Knowledge & Higher Level Thinking Skills given				
Observations of students				
Observations of teacher activities				
Teacher keeps a journal				
Student responds in a journal				
Post Test administered				
Data and artifacts gathered and analyzed				
Results written				
Results disseminated to interested parties				