

**Alliance+ Project:  
A Successful Way to Use the Internet to Involve Children, Integrate Curriculum,  
and Invigorate Teachers**

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## **Introduction**

The use of technology and a connection to the Internet is a high priority in most American schools. School Districts around the country are wiring classrooms to allow their students to get on the Information Highway. My classroom is no different. We have computers and an Internet connection. But, that is where the similarities end. My students are using the Internet technology in new ways because I have received valuable professional development that has set me apart from my colleagues around the country. My students are using the Internet to participate in unique projects that allow for the integration of many curricular areas. This is all possible because of my involvement with the Alliance+ Project.

My story is important to read because I work in a large urban district plagued with problems of low income families, poor attendance and low achievement. Within that same district I work with students identified with learning disabilities, the students that most people feel cannot achieve success yet alone work with technology. I have had success with my students and it has been because of the integration of technology into the curriculum areas. My training with Alliance + has given me the background and the materials to plan projects that has introduced the power of the Internet to my students.

Many factors contribute to the success of children in a classroom. The integration of technology paired with highly motivating content areas is a combination that is hard to beat with students in today' world. My special needs children have found success using projects that are technology based. My story is interesting and offers to other educators a reason to include Internet projects into their curriculum. The Alliance + Project is a well-planned carefully executed program. I invite the reader to look into the references cited below to learn more about the Alliance+ Project's framework, implementation and evaluation.<sup>1</sup>

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<sup>1</sup>Friedman, E.A. (2000). *Conceptual framework and organizational structure of Alliance+: A national model for Internet-in-education professional development*. Hoboken, NJ: Center for Improved Engineering and Science Education, Stevens Institute for Technology.

Baron, J.D., & McKay, M. (2000). *Alliance+ project: Lessons learned from the development and implementation of an Internet-in-education professional development program*. Hoboken, NJ: Center for Improved Engineering and Science Education, Stevens Institute for Technology.

Yepes-Baraya, M. (2000). *Lessons learned from the evaluation of Alliance+: An Internet-in-education professional development program*. Princeton, NJ: Educational Testing Service.

## **My Involvement with Alliance+**

The Alliance+ *Savvy Cyber Teacher* course has enabled me to use the power of the Internet to impact my classroom teaching in ways that I would have never thought possible. Imagine my special needs students are collecting weather data that scientists around the world will use. Or, who would believe my students would be linked with a class across the continent comparing schoolyard habitats. This is all possible because of the *Savvy Cyber Teacher* course. This course has had a great impact on my teaching. That sounds like a statement that many educators might say after they have taken any well-planned, highly motivating course that uses the Internet as the basis of instruction. However, the Alliance+ course is different. The course not only demonstrates how to use the Internet as a new technology, but it also becomes the springboard for classroom projects that integrate technology into the curriculum. Built within the course are ongoing activities that link classrooms around the world. Students begin doing meaningful projects that address national and state standards in math and science. My experiences with the Alliance+ Project have been both as a district trainer and as a classroom teacher who uses the projects from the course with my students daily. While my experiences may not be unique I hope they paint a powerful picture of how important the integration of Internet technology into the curriculum can be to enable students to learn. My involvement with the Alliance+ Project was the catalyst for this integration.

In order for you to understand the true impact that this training can give to the teacher and students in an Alliance+ classroom you need to know the background of my students and my district. Their success is remarkable. It needs to be told.

## **Background on My District and My Classroom**

I teach in the Cleveland Municipal School District in Cleveland, Ohio. We are the state's largest school district. We are an urban district with a high poverty rate. While the district has made gains in the measurement of our student's academic proficiencies, we still rank the lowest in the state in all aspects of our state mandated testing programs. I teach at Jamison CompuTech Center, an elementary magnet school with 750 students in grades K-5. Our school population is 98% African-American and we have a 94% poverty rate. The focus of our magnet school is the integration of technology into all aspects of our curriculum. All the classrooms have an assortment of computers available to the children. They range from Apple II's to IBM Internet-compatible computers. The staff has developed unique objectives in word processing, databases, multimedia, graphics, telecommunications, photography, and videotaping. These objectives give the teachers a developmental guide for the integration of technology into the classroom.

At Jamison CompuTech Center I work with the students who are identified as learning disabled. My classroom has students who are in grades 1-5. They all have individualized education plans that dictate the amount of time they spend in the classroom. The students all have different strengths and weaknesses in the many academic areas. Many of the students are mainstreamed in some of the curriculum areas, and many of the students are self-contained in my room. Within the classroom I must cover a wide range of curriculum concepts across many grade levels. I am responsible for teaching all the reading/language arts, mathematics, science, and social studies classes to the students. This all must be done while there are many different groups of students in the classroom at the same time. My teaching strategies must be

creative, highly motivational and meaningful to assist the students as they work together. The integration of technology has allowed me to find success with many of these students who have experienced failure constantly in their school years. Ironically, the students are not hesitant in their use of technology. While many of them will not select a book to read, they will try to read directions on the screen from software or they will try to read selections from the Internet. It is this natural interest in technology that I use as a starting point for the projects in my classroom.

In addition to my special education classroom responsibilities, I am also the science lead teacher in the building. This teacher leader role was created by the district to allow for the revitalization of elementary science teaching in the schools. Through the eight years I have been involved with this movement I have been trained to teach science using hands on inquiry based developmental methods. The materials that I use allow the children to work cooperatively and they promote the use of higher level questioning skills. My role as teacher has changed to one of a facilitator in my classroom as I watch and encourage the children to inquire and process important science concepts. At the core of the instruction are the National Science Standards, which provides the basis of my teaching. Within my building I model what good science instruction should look like through peer coaching and workshops. Science has become the focus for most of the instruction in my classroom. Integrated units in life, earth and physical science allow the students to practice reading, math, and writing and even social studies while studying a science concept.

### **How the Alliance+ Course has become a part of my Science and Technology Curriculum**

Now that you are familiar with my students and my teaching situation let me show you how the Alliance+ course has become a part of my science and technology curriculum.

When I received the invitation to join the initial training group of mentor teachers in the Cleveland area for the *Savvy Cyber Teacher* course, I was elated and jumped at the prospect of merging math and science with the technology. I knew that they would be a powerful combination in reaching my students. I was trained as a mentor teacher in January 1999. At that time I was familiar with the Internet and its huge resources for teachers. I was using the Internet at home to get email and research topics for the class. I was constantly searching for lessons and new ideas to “hook” my students into learning. However, I was not using the Internet as a source for projects with my students at the time. The district was looking at different servers and Jamison was being used as the test case. The availability of Internet was there, but the connectivity was not as reliable as it could have been. My total Internet usage was being done at home.

My students were using the classroom computers to create Hyperstudio presentations, write reports, and use CD Rom software in reading, math and science to supplement classroom instruction. We had just begun to use digital photography to record classroom projects in science instruction. The students were using the digital camera to record the events in their science lessons so they could use the pictures to better explain their findings as they processed for meaning in their science groups. I was not planning any incorporation of the Internet at all. This was due in part to my limited

understanding of the many classroom applications of the Internet. I enjoyed using the Internet at home to surf through Web sites that helped me plan lessons and find information for my own enjoyment. However, I could not imagine how my learning disabled students would be able to read the volumes of information yet alone find information that was appropriate for their education. This all changed when I received my Alliance+ training.

When I began the *Savvy Cyber Teacher* course, I was impressed by the focus of the project to use the Internet in “unique and compelling” ways. Unique and compelling means that the Internet is not only used by the students to research a topic assigned by the teacher but it allows the students the opportunity to use the Internet to enrich student learning in ways the traditional library could never do. The Alliance+ Project introduced me to the use of email by students, collaborative projects, real time data projects, the publishing of student’s work and the use of the Internet to find unique sources of information. With the use of these unique learning strategies I knew that I had a way to get my students involved in projects that would strengthen their skills while they were participating in a project that would interest kids. The projects that were explained and explored were interactive and rich with science content. I knew after the training that I could take these ideas back to my classroom and integrate the Internet with the science content that I was teaching.

The first aspect of the Alliance+ course that I used was the “Ask an Expert”, a compelling use of the Internet. My class had decided to study the solar system for our annual Technology Fair. As an Alliance+ course participant I designed my personal web page around space/astronomy links. I wanted to have the students use some of the links as they wrote and learned more about the solar system. The “Ask an Astronaut” Web site <http://www.starport.com/live/astro> became a popular tool in the classroom as the students planned their projects for display at the Technology Fair. Questions that the students asked and were answered on the Web site included:

- How does an astronaut go for a spacewalk without being left behind?
- How does food taste in space?
- Would you like to have done a spacewalk on your shuttle mission? (one of many questions to John Glenn on his most recent shuttle mission)

The students searched through the archives as they looked for first person information on being an astronaut. The students soon realized that they could use this site to ask questions on many topics that they asked in science. Exposing the children to a resource that answers their questions validates what the National Science Standards say about inquiry: “Full inquiry involves asking a simple question, completing an investigation, and presenting the results to others.” The power that students have in contacting an expert to answer a question is truly a unique and compelling feature of the Alliance+ course.

## **Implementation of a Collaborative Project**

As the new school year, 1999-2000, began, I planned to incorporate many of the projects from the Alliance+ course in my yearly science plans. One of these utilizes the collaborative project concept, another compelling use of the Internet that allows students to interact with people from around the world. Several years ago, I received training in the GLOBE (Global Learning and Observations to Benefit the Environment) Program, a science/technology project started in 1995 by Vice President Al Gore. This project calls for students to take daily weather observations in cloud cover, cloud type, min/max and current daily temperatures, rain/snowfall amounts, soil moisture readings, land cover observations and hydrology studies. Each school location may do all or part of these measurements. The only criteria are that the students do them daily and with scientific accuracy. Once the students have gathered the information it is entered into the GLOBE Web site where scientists use the data for studies. The entire mission of the project is to have students all over the world reporting data from the ground. This data combined with satellite imagery allows the scientists to study the earth's weather in a unique manner. Although I had received the training I did not implement the program because of the school's lack of connectivity at the time.

With the Internet hook-up accessible in my classroom, I was now able to train my students in the GLOBE protocols and encourage them to work as scientists. I was confident that partaking in this project the students would be meeting The National Science Content Standard (K-4) of changes in the Earth and the sky. The students would be experiencing weather changes from day to day and over the seasons. They would be able to describe the weather by their daily measuring of the temperature and precipitation. The students would then have the measurable data to make predictions about the weather that would have them meeting the Ohio State Science Proficiency outcome of making predictions about the weather from observed conditions. The children would need to read thermometers, use meter sticks and record the data accurately. By collecting the data the students would be meeting the Ohio State Mathematics Proficiency outcome of applying the use of tools to measure as well as the use of data analysis to make predictions from tables, charts and graphs.

As we began to collect the weather data, the students took their responsibility seriously. They knew that scientists were using the data they were sending to the GLOBE site. It was crucial that the information be accurate. In all my years of working with special needs children I can honestly say that I have always struggled with the students to take more care in their work and to look over their answers. I have not had to do that at all with the GLOBE Project. The students question data as it is collected and the students have taken on leadership roles within the collection group. If a student is not sure of the temperature reading they call over a classmate to verify their findings. That could not be accomplished by simply teaching reading the thermometer in a classroom. The "real world" application of the project makes it come alive to the student.

When the students send the data across the Internet to the GLOBE site, once again there must be a high level of accuracy. The GLOBE server will not accept data that seems suspect. The students must get a system check approval before they can leave the sight. Within the GLOBE site there are opportunities to have GLOBE chats with scientists and learn more about the protocols. We get GLOBE mail from around the world. But, more importantly, my students are a part of a collaborative project that extends to classrooms around the world. Their data is being used to assist scientists.

There is no better way to teach a child how science and technology link together than through the involvement of a collaborative project.

Collecting GLOBE data continues daily in my classroom and the students never miss doing this important job. Even when a meeting calls me away from the building, the GLOBE data is collected and reported to the site. The dedication to the project by the students is a true testament to the importance of the mission.

If I were to assess how the collection of GLOBE data has impacted the students I would have to say that in math and science class the students are able to measure temperature and distances without a refresher lesson. Traditionally, in Ohio the students have done poorly on the measurement subtests of the Ohio Fourth Grade Proficiency Tests. Children do not retain the concept of how to measure the length of a line or how to accurately read a thermometer. The application of the GLOBE project takes those two difficult tasks and gives the students daily practice. When we use the measuring tools in other lessons the students immediately know how to use the tools. The Ohio Science Fourth Grade Test also requires the students to use a wide range of scientific tools. The GLOBE Project introduces the students to weather devices and their proper use. The experiences the students have in the application of collecting the weather data allow them to use the equipment in the same manner as the scientists. The students make the connection in a way that is very powerful. They do not forget what the tools are for because they have used them. The use of the metric measurement system reinforces concepts on both the math and science tests. The daily practice of reading a centigrade thermometer assists students to see the connection between the two forms of measurement.

Through this collaborative project my students have taken on the responsibility of collecting data accurately, reporting the data correctly and drawing conclusions about the weather through the data. I have seen the students show great growth and maturity as they have taken on a project that requires their attention and dedication. I would have never been able to plan a better program that blended science and math with technology. Our involvement with this collaborative project has been a powerful learning tool.

The success with the GLOBE Project has motivated me to begin the Square of Life Project in the spring of this year. This project will integrate science, language arts, technology, math and social studies. We will select a school in another part of the country and work together comparing our schoolyard habitats. The students will learn about mapping as they decide on a site in our schoolyard to study over the next two months. They will then research and discover what living things are in our special square. They will report their findings to a partner school as we begin to learn more about the life in our special square of life at Jamison CompuTech Center.

## **Summary and Conclusions**

Involving my students with an Internet-based technology project has had many interesting results. The children have taken their role as data gatherers very seriously. The students know that the information is crucial to the scientists' work and that they must take their measurements carefully. They cooperate with each other and ask each other to verify the results they have recorded. It is a true teamwork approach for a group

of children who have had difficulty working cooperatively with other students in the past. The actual collection of data using the thermometer and the meter stick has reinforced the Measurement mathematical strand which has proven difficult for all Ohio children on the State Proficiency Test. The daily reinforcement of taking measurements has allowed them to practice a difficult skill in a real-life application. The students record their data with an accuracy that I have never witnessed before in any classroom-based project. I believe that the students feel a sense of pride that a worldwide project needs their input for completion. They know that they have a responsibility to do their best. And, they do it with great success.

Parents have told me that the students have a new interest in the weather at home. They have told me that their children pay closer attention to the weather forecast on the television news and have told them about the GLOBE Project. This is another interesting result because most of these children have not in the past shared any information with their parents about school projects. This is quite common for special needs children to block out a school day because they have had so much difficulty in the past with classroom activities. The dialogue with parents proves that students who are engaged in meaningful projects will internalize their importance and relate them to others.

In my work with special needs children, I am always searching for learning strategies that will tap their strengths and help them improve their academic weaknesses. The use of project-based learning integrates all curriculum areas and allows the students to see connections between the subjects. An Internet-based project opens the students to a new audience. Reporting data to GLOBE scientists or detailing the schoolyard habitat to a class in Arizona allows the children to have a real-life application to their work. The power of technology allows the students to express their knowledge in creative ways that use word processing, databases, graphs, multimedia, and the Internet. My class has had success integrating technology into their curriculum. The use of the Internet has made the success more pronounced. The students ask meaningful questions, they write more thoughtful responses to open-ended questions and their reading levels are improving. This is all because I have included projects in my lesson planning that integrate technology with the subject areas. My plans for the future include participating in more online projects and including them in my year round plans. I know that they have a direct connection to the National Standards in Math and Science and also to our Ohio Learning Outcomes. I have seen the success with my students and will continue to look for ways to improve their learning.

I have witnessed success in my classroom with the integration of technology. I have had the outstanding support and encouragement of my administrator to push the envelope and try projects with my class. This has led me to be passionate about the integration of technology with all curriculum areas. However, not all schools and not all teachers feel the same way. Many questions come to mind when you think of change. For example, How can you reach those teachers who are afraid of technology? How can you convince a teacher to become a facilitator of learning and let the students become more active learners? How can you reach those teachers who fear that if they add technology to a lesson they will not be meeting their state's learning outcomes? How do you convince a teacher that technology should not be saved for only the brightest students in the classroom? There are many questions that I can only hope to answer briefly. My suggestions for the teachers who are hesitant to add technology is for the educators to become acquainted with a few notable Web sites that will open doors for

them. Teachers love learning and creating excitement in their classrooms. Learning about a project such as “Square of Life” or the “Wonderful World of Weather” at the CIESE online classroom project Web site at <http://www.k12science.org/currichome.html> will give teachers lesson plans, links to national standards and a basic how to that cannot fail.

Teachers need to have the support of their Districts as they begin projects. Being tech-savvy is as important to a teacher today as knowing the curriculum they teach. Professional development must be offered to teachers at all levels. It is important to know how to maneuver a mouse and to load a piece of software on a computer. Training must be offered to all levels of teachers. The crucial piece of staff development lacking in most technology training is teaching the staff on how to integrate the use of the technology into the classroom. Having computers as learning centers is fine, but it usually becomes secondary to the lesson and not an integral part of the lesson. Teachers who have had success bringing projects to their classroom and meeting the curricular outcomes must instruct their colleagues in order for success. When you are planning a math or science lesson, how can you bring a project from the Internet into the lesson. How can making a graph or looking at a real time weather map strengthen the lesson and encourage the students to become better problem solvers. The use of the Internet in a classroom needs to be regulated and well planned in order to have success with students. Teachers need to be trained properly by their peers to begin to make a change in the way we instruct our children.

In order for teachers to use technology more effectively in the classrooms educators need to receive training in the use of the equipment. They need follow up sessions in the integration of the curriculum with the technology. They need to be held responsible for the integration of projects throughout the year. They need to “publish” their efforts in a way that the school can see the results. This could be in a hall display, a school fair, a parent newsletter or even a personal web page.

Teachers need to feel confident that they are being supported by their administration as they begin technology-based projects. They need the support of their administration as they integrate and teach children in ways that are new to the educational arena. The confidence that the administration will give in their support of trying new ways to increase learning will assist the teachers in trying new methods. Evaluations need to include a category on how well teachers use technology in their lesson planning. Parents need to be instructed in the new methods of teaching so they will equally support their schools. The use of technology in the classroom is a powerful tool. We need to help our children become the best in this new century. We also need to support our teachers and administrators as we lead our children forward.