From Technologically Challenged to Savvy Cyber Teacher:
Lessons Learned from Participating in the Alliance+ Project

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Introduction

The purpose of this paper is to share my experience as a teacher, with no Internet experience, that became a mentor teacher, sharing with other educators how to use the Internet and how to implement its use in the classroom to benefit students. I want other teachers to know that if I can do this, so can they. I also want administrators to know about the project that enabled me to accomplish so much.

The Alliance+ project is a five-year program that provides hands-on training for K-12 grade teachers on how to integrate Internet technology into the classroom. The course is run through Cuyahoga Community College in Ohio, Miami-Dade Community College in Florida, and Maricopa Community College in Arizona. It consists of 10 three-hour sessions of instruction on the Internet, with plenty of time for questions and practice. Detailed information about the Alliance+ Project's framework, implementation and evaluation is provided in the references cited below.[1]

Teaching and Training

My current role within the Alliance+ project is that of Mentor Teacher. I completed the *Savvy Cyber Teacher*ä training course (hereafter referred to as the *Savvy* course in the spring semester of 1999. I was excited to take the course because I had Internet access and did not know how to use it. I had made several attempts to find information to share with my students and ended up with nothing I could use after spending quite a lot of time looking. I gave up in frustration.

I then participated in the Eruditio Project through Arizona State University. This project involved putting a laptop computer in the hands of teachers to practice using the Internet. After a one-day training session where the computers were given out, all of the training was done on-line. For people who were not computer literate this was a very

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[1]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.

difficult and cold method of training. One important result from this training was the time and opportunity to be on-line at home. I believe this is very important for teachers, as there is not time during school hours to explore and practice using the Internet.

My training experience with *Savvy* course was excellent if not overwhelming in scope and content. There was human contact and questions could be asked and answered in teacher language, instead of computer language.   I learned how to use Netscape Navigator, how to do searches on the Internet, how to sign up for and use free e-mail accounts, and how to build my own Web site. The *Savvy* course Web site has also been an invaluable resource for me. The course has been very applicable to the teaching of science, social studies, reading, writing and mathematics as well as exposing my students (and myself!) to technology. I have since taught two classes of the *Savvy* course to teachers from my district and others. It is very rewarding to be able to share information with fellow educators, see their excitement, and find wonderful new resources as well.

Internet Connectivity and Access

My current situation regarding Internet connectivity and access in my district, school and classroom is as follows. The Cartwright District is currently bringing to completion their goal of districtwide connectivity. My home school, Cartwright, has had connectivity for the past four years in every classroom and in the 25-computer lab. In my classroom I had one computer connected to the Internet. Since completing the course and using the information I learned there, I have received an LTV unit from my district that projects what is on the computer to the classroom television monitor. I then brought an old television from home and now we are able to view two monitors simultaneously, one on each side of the room, using the LTV unit.

At home, I continue using the computer from the Eruditio Project which is connected to the Internet. I share a home with my 64 year-old mother and 14 year-old daughter. My daughter often has assignments from school that require Internet access, and she has learned computer skills since third grade when she entered the school district in which we now reside. This last year my mother has purchased a computer and Internet service. With the skills I have learned, I have been able to help her learn to explore the cyber world as she looks for genealogy information. The Internet is quickly becoming an important tool in everyday life and teachers need to catch up with society.

Integrating Technology in the Classroom

Since taking the *Savvy* course I have used the Internet to share information and to examine real-time weather data with the students. I have also completed two collaborative projects. I will share one of those projects with you now.

I have been teaching for eleven years, seven of which I taught second grade in a south Phoenix neighborhood with a large African American population. I then moved to the Cartwright District and have been teaching fourth and fifth grade. I am currently teaching a fifth grade, English as a Second Language (ESL), class. Cartwright Elementary is located on a neighborhood that is approximately 75% Hispanic and has a high percentage of the students that are on a free or reduced lunch program. In my

class I have 31 students, of which two are African American, two white, one Asian and 26 Hispanic. By the fifth grade most of the ESL students are fluent English speakers, but they need a lot of extra work in vocabulary development. They also benefit from real-life experiences and a lot of visual input. The computer is a good resource for these purposes.

Our Implementation Specialist, Bob Campbell, called me and said he was going to come and help me start a collaborative project with my class. Would I like to try this, this, or this? What would go best with my curriculum? The learning activity that I chose to implement was a collaborative project from Elementary Week Three of the *Savvy* class Web site entitled the *Square of Life* at http://k12science.ati.stevens-tech.edu/curriculum/squareproj/.   I chose the *Square of Life* because our fifth grade science curriculum includes a Foss Science Kit on environments. These kits include the materials for experiments, but not a lot of background information. I thought that the *Square of Life* project would help include some supplemental material needed for these lessons and cover more of the curriculum standards that I needed to address before the year was up. Several national and state standards for science, reading, writing and social studies were covered (see **Table 1**), as well as several fifth grade curriculum objectives This project required about 30 minutes a week over a period of two months. The equipment used includes clipboards for when the students were collecting data, four meter sticks that were taped into a square, and a computer connected to the Internet.

The learning goals for the activity were to have the students define "environment", become more aware of their own environment, and compare their environment with other environments around the world. The methods of assessment used to determine if the goals of the activity were attained by the students were the use of portfolios, anecdotal recordings, teacher made tests, classroom observations, conferencing, self and peer assessments, and learning logs. Some examples of these would be the data sheets and drawings, the discussions comparing and contrasting the environments and the final written summary.

As a new graduate from the *Savvy* class myself, I had seen **many** wonderful resources, but had not yet implemented any.   I don't know when I would have done so, had Bob not given me a push.   I was very nervous about actually implementing the class with my students. Bob said, "Don't worry, Josh Baron will be here from New Jersey and he will start the project out for you, then you can take over from there!"   So I said, "OK, let's do it!"

I looked over the site, reviewed the first lesson, collected the necessary materials, and prepared my students for a guest who was going to show us how to do an Internet project. Bob Campbell and Josh Baron showed up at school during a break so that we could discuss how the lesson would go. Both gentlemen were very supportive and set me right at ease on my abilities to run the project. Bob set up the computer so that the Web sites needed were bookmarked and ready to use. The students returned to class and we began!

The first lesson was entitled *Partners Around the World.* The purpose of this lesson was to introduce the students to an Internet-based collaborative project and schools around the world with whom they would be working. The activities included reading, writing, and geography.

Our first step was to show the students the Web site and give them an overview of the project. We showed the class the Web site where their information would be posted to be read by the other classes participating and anyone with access to the Internet as well. We then separated the class into three groups. One group was to locate and mark the locations of all the project participants on a United States and World map with colored sticky dots. The second group had large (3 ft. by 5 ft.) pieces of graph paper on which they would map the classroom environment. The third group would write an introduction of our class to the other participants in the project. The students were thoroughly engrossed in the activities for approximately 45 minutes, as the three adults circulated between groups, observing and directing the students' work. The students then left for a special class and we reviewed how the lesson had gone. Josh Baron was running the project from New Jersey and he gave me a few suggestions for the rest of the project and complimented the class on how well they had done. When they left I was confident that the rest of the project would go smoothly.

I had thought that the group writing the introduction would be disappointed at not working with the maps or drawing maps. I was wrong! Everyone wanted to be in the group to write the information that was going to be on the Internet. This was my first experience of the power of an Internet audience on student writing! I am also very involved in geography education and I am a member of the Arizona Geographic Alliance. The use of maps and geography in a science project was very attractive to me. Because of this, I shared the project with my colleagues in the Geographic Alliance to use with their classes.

The second lesson we worked on was entitled *Your Environment.* This was a student-centered activity that will allow students to construct a definition of "environment" through several open-ended exploration activities. These activities include mapping the classroom environment and describing the objects that are contained within it. The students then expand their explorations and investigate the school environment. As a final activity the students were to share their findings with other participating schools by posting their information to the project discussion area on the Internet.

First, we reviewed the classroom maps that the group had made during the first lesson. Then each student was given time to draw and label their own map of the classroom. This was a great time to review map skills and the compass rose. I told the students to look particularly for things that our classroom had that they thought other classes might not have. After giving the class plenty of time to work on the maps, we had a class discussion on what different student chose to put on their maps. I listed these items on the board as the students named them.

We then brainstormed important and interesting things in our school environment. I chose not to do a map of the school. When we completed the list it was time to narrow our choice and agree on 10 items in the classroom environment and 10 items in the school environment that we would post on the Web site. I was very pleased about the way the students were able to give reasons for their choices and come to a consensus. I left the final lists on the board and dismissed the students for the day. After the students had gone I submitted our data to the project manager on-line and took some time to read through some of the other participants' entries. Several had links to their school Web sites that included pictures. I chose several that I thought the students would be interested in viewing for our next session. I did not think it would hold their attention to go through every one. We were particularly interested in the classes in

Hawaii, Florida, Japan and Australia. When the class looked at the other submissions we discussed the similarities and differences. When we finished the students wanted to make a school Web site for our school! I was not quite ready for that this year, but maybe next year.

I chose to skip some of the lessons. That is always a choice when doing a collaborative project, as long as you submit the required data on time. The next lesson we did for the project was entitled *Field Trip to your Square.* For this lesson the students spend about half an hour observing the animals, plants, and non-living objects in their square. They then draw a sketch of their square based on their observations and use it to evaluate their initial prediction of what would be in the square.

On our campus is a historic landmark, the Cartwright House. I asked permission for my students to go there to observe a square of land that would be a little more interesting than the playground. Permission was granted and we began our observation. I chose to have groups of three go out to the square throughout the day, instead of over a one-week period.   The students recorded their information on the forms provided and drew a picture. We displayed the pictures on a bulletin board. The next time I do this activity I will do more work on describing and identifying plants and animal and insects. The site has excellent resources for plant and animal identification. We then tallied the plants, animals and insects seen in the square to submit to the site. We were lucky to have found a gopher on our square, which made it very interesting.

This time I went through the process of submitting the data to the project manager on-line while the class watched. We then looked at the data that the other classes submitted. We compared the submissions from the different schools. It was amazing how similar the non-living items were (trash). We looked at the data for about 20 minutes on 3 separate days. This was long enough to keep the students attention.

The final lesson of the project was entitled *Re-Constructing the Squares.* In the lesson plans for this activity the students work together in teams to review the data posted from their partners around the world. Each team was to be responsible for the construction of a final presentation that would include a model or drawing of their own square and a re-creation of a square from a partner school. Each group was also to write a final summary/report of their project and display it with the square reconstruction. Students, teachers, parents, and community members could be invited to view the exhibit.

Since we were getting ready for Winter Holiday, I adapted the lesson. The whole class chose the one square they wanted to reconstruct. We chose the one from Hawaii. All the students collected the materials to recreate the one square for the class. The students had already drawn individual pictures of our square. I had them draw a picture of the square we were recreating and write individual summaries of what we had done for the project. We displayed the work in the library.

After completing this activity I realized that doing on-line projects is not very hard. Most of the activities are well thought out and include the forms necessary to complete the project. This actually saves the teacher time and the extra effort of coming up with new ideas and projects and perfecting them over a few years practice. The project managers also take any comments and try to constantly improve the project to make it

easier to use or to address objectives more specifically. I now feel very confident of my ability to find and evaluate projects on-line, and to implement them in my classroom.

Mentoring and Support

I have received wonderful support from the *Savvy Cyber Teacher*ä course team at the community college, the school and district technology staff, and other teachers.

The community college staff has been great. I am given weekly tips and updates on teaching the course. Also, lots and lots of positive reinforcement and encouragement to do what I think will work best for my teaching style. I feel that they are always available if I have a question or need some help. One of the most important resources of the project is the implementation specialist. Bob Campbell gave me the nudge that got me started when I might not have taken the initiative to jump in on my own. He has always been available to me and to the teachers that have taken my classes. He is the important link between seeing and doing.

The Cartwright District has provided connectivity, the computer lab in which to teach the *Savvy* class, the LTV unit to project the computer to the television, and professional growth for taking the class. They have also been very good about getting LTV units for those teachers taking the *Savvy* classes that I have taught.

I have been able to help many members of my school staff with computer questions on software and hardware. I have also shared curriculum-based projects and ideas. In the last year I have gone from being technically ignorant to being a resource for my staff and friends. I don't think there is a better recommendation for taking this course than that.

Summary and Conclusions

As a participant in the Alliance+ Project I have learned a great deal about how to use the Internet and how to implement it in the classroom. I have been able to share this knowledge with other teachers and in doing so have learned much more through their questions and shared knowledge. A whole new world has opened up to me and I understand what other people are saying when they are speaking in *computer language*. I continue to learn more every day.

My students have benefited from their participation in collaborative projects through their interaction with students across the world, their chance to use technology to communicate, their opportunity to share their work on the World Wide Web, and the enrichment of the science program that they received. I saw a purpose and excitement in their writing, which I had not seen before. The students knew that they were sharing their work with other classes across the world and they wanted to do their best.

The *Square of Life* collaborative project is excellent and I plan on continuing to use it in my classroom to supplement my science program. I have highly recommended it to my other fifth-grade team members and fellow geography teachers. Next year I plan to use all of the lessons that the project offers. I have also noticed that the project had

some changes and improvements the second time it ran. I am looking forward to running it again, as well as discovering new projects to share with my students.

I encourage all teachers to join the information age, learn to use the Internet, see all the resources and lesson plans and compelling uses of the Internet in the classroom. I believe the first step is to have access to the Internet at home where there is time to explore and learn without the pressure of all other tasks required of us at school. Take courses to learn how to use this wonderful tool. Begin small and work up to bigger projects. The main thing is to begin.

The long-term goal of the Alliance+ project is to improve teaching and learning effectiveness through technology. Some changes need to be made in technology use for this goal to be accomplished. From what I have observed in my district and what I have heard about other districts, the first step is getting computers in the hands of the teachers. There should be Internet connectivity in every classroom. Districts buy computers and put in the Internet connections and think their job is done. That is only the beginning. If they are going to commit to technology they need to realize that that includes training and updating of hardware. Before I spent time on the computer I used to think that people who bought new computers every two or three years were being ostentatious, now I realize that the more a computer is used, the more memory and updates you need to be able to access information. My computer at school is so out of date that I cannot use several of the new skills I have learned.

Every teacher should be required to learn how to use this tool the same way they are required to learn to use new textbooks that are adopted. I believe that as teachers learn new skills they should be first in line to get the technological updates they need. The school districts need to support these teachers by getting these updates as soon as possible and encouraging ongoing education using computer technology.

Teachers who are learning this technology need to realize that using technology is not "one more thing I need to try to fit into my over-crowded day". It is a powerful resource that can be used to find activities to take the place of older, out of date lesson plans. To find lessons that connect students to the rest of the world. Computers are not the technology of the future, they are the technology of the present. We need to bring our education methods into the present.

Table 1. Standards Covered in the *Square of Life* Collaborative Project (as listed on the project's Web site).

Science

#15	Understands the nature of scientific inquiry
	- Plans and conducts simple investigations - Uses simple equipment and tools to gather scientific data and extend the senses - Knows that scientists make the results of their investigations public; they describe the investigations in ways that enable others to repeat the investigations
#16	Understands the scientific enterprise
	- Knows that scientists and engineers often work in teams to accomplish a task
#10	Understands the basic concepts about the structure and properties of matter
	- Knows that objects can be classified according to their properties

Life Skills: Working With Others

#1	Contributes to the overall effort of a group
	- Demonstrates respect for others in the group - Takes initiative when needed - Engages in active listening

Life Skills: Thinking and Reasoning

#3	Effectively uses mental processes that are based on identifying similarities and differences (compare, contrast, classify)
	- Understands that one way to make sense of something is to think how it is like something more familiar - Recognizes when comparisons might not be fair because some characteristics are not the same - Compares people in terms of important ethnic, religious, and cultural characteristics - Makes comparisons between countries in terms of relatively concrete characteristics (size, population, products) and abstract characteristics (arts)
#4	Understands and applies basic principles of hypothesis testing and scientific inquiry
	- Keeps a notebook that describes observations made - Attempts to verify the results of experiments done by others - Distinguishes between actual observations and ideas or conclusions about what was observed - Makes records of observations regarding time and place to formulate hypotheses

Geography

#2	Knows the location of places, geographic features, and patterns of the environment
	- Knows major physical and human features of places as they are represented on maps and globes - Knows the location of major cities in North America
#4	Understands the physical and human characteristics of place
	- Knows how the characteristics of places are shaped by physical and human processes
#6	Understands that culture and experience influence people's perceptions of place and regions
	- Understands ways in which people view and relate to places and regions differently

#18	Understands global development and environmental issues
	- Knows how differences in perceptions affect people's interpretations of the world

Technology Foundation Standards for Students

#3	Technology productivity tools
	- Students use technology tools to enhance learning, increase productivity, and promote creativity - Students use productivity tools to collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works
#4	Technology communication tools
	- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences - Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences
#5	Technology research tools
	- Students use technology to locate, evaluate, and collect information from a variety of sources - Students use technology tools to process data and report results - Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks

Language Arts

#1	Demonstrates competence in the general skills and strategies of the writing process
	- Prewriting: Uses prewriting strategies to plan written work - Drafting and Revising: Uses strategies to draft and revise written work - Editing and Publishing: Uses strategies to edit and publish written work - Writes stories or essays that show awareness of intended audience - Writes stories or essays that convey an intended purpose - Writes expository compositions - Writes expressive compositions
#4	Gathers and uses information for research purposes
	- Uses a variety of strategies to identify topics to investigate - Uses encyclopedias to gather information for research topics - Uses dictionaries to gather information for research topics - Uses key words, indexes, cross-references, and letters on volumes to find information for research topics - Uses multiple representations of information - Uses graphic organizers to gather and record information for research topics - Compiles information into written reports for summaries
#8	Demonstrates competence in speaking and listening as tools for learning
	- Contributes to group discussions - Asks questions in class - Listens to classmates and adults - Makes some effort to have a clear main point when speaking to others - Makes eye contact while giving oral presentations - Organizes ideas for oral presentations