

Madison Elementary School

Student Consultant, Matthew Hardy

Community Partner, Susan Urbanek

Part One: The Situation

Organization

Madison Elementary School is part of the Pittsburgh Public Schools System. The school has a population of approximately 350 students. The grade levels taught at the school are from Kindergarten up to Grade 5. There are two classes for each grade (2 Kindergarten classes, 2 First Grade classes, etc.). The basic courses taught at the school include English, Mathematics, Reading, Spelling/Handwriting, and Social Studies/Geography. Other activity type courses taught at Madison are Art, Gym/Health Studies, Library Studies, Music, Science, and Title I/Technology. Other special programs the school runs are an emotional support classroom, a literacy program, D.A.R.E (Drug Abuse and Resistance Education) in a joint effort with the Pittsburgh Police, keyboarding lessons, *Everyday Math*, *Reading Recovery*, and a tutoring program.

In past years, standardized test scores at Madison have always been among the highest in the city. For scoring consistently high, the school received an award from the Pittsburgh Board of Education. Madison also is known for having a good teaching reputation.

The staff at Madison Elementary School is composed of 12 teachers (2 per Grade level; 2 Kindergarten teachers, 2 First Grade teachers, etc.), a special education teacher, a librarian, a gym/health teacher, a science teacher, a music teacher, an art teacher, a Title I/Technology teacher (Mrs. Urbanek's position), a principal and his office assistant, a nurse, a janitor, and a few other miscellaneous staff/aides. The present principal has been at Madison Elementary for about four months now. Most of the staff is in the 30 to 40-age bracket, therefore having graduated college before computers and knowledge of technology became such a desirable skill.

Technical Support Person

Mrs. Urbanek is the technology manager at Madison Elementary and is head of the "Tech Team" at the school. She has been teaching for 23 years, and has spent 6 of those years at Madison. She is responsible for the computers and printers in the school, on top of her teaching responsibilities. Tasks of hers include troubleshooting problems with the computers, maintaining the printers, teaching the staff how to use the machines and their software, and other miscellaneous tasks. When she is confronted with a problem that she cannot solve herself, she in turn contacts a computer troubleshooting team associated with the Pittsburgh Board of Education and they either lead her to a solution or come to the school to solve the problem first hand. Perhaps the most important role recently Mrs. Urbanek had recently was training the staff how to use software to assist in the staff's teaching. She has helped the rest of the staff at Madison to use a grading program, *Integrate*, Microsoft *Encarta*, *Word*, etc.

Technical Environment

Madison has two technology rooms, which are specifically dedicated to computer learning.

One of them is located in the basement of the school. It contains 14 Power Macintosh computers. These computers are not networked. They run the standard Mac OS, and have speakers. Each has a 17-inch monitor. The main type of software run on these machines is educational, which are geared towards reading and math. Software that is run on these machines includes *Math Workshop*, *Bailey's Book House*, *Sticky Bear's Learning Activities*, *Reader Rabbit*, *Imagination Express-Rain Forest*, and *Reading Academy*. This room also contains Mrs. Urbanek's personal Dell Windows NT workstation, and a Compaq school-wide server. Both of these devices are connected to the school's network, and have T1 access to the Internet. Mrs. Urbanek's workstation also has a local HP color printer.

Madison's other technology room is located on the third floor of the school. It contains 29 Dell Windows NT machines. All of these machines are networked, and have T1 access to the Internet. Each machine is outfitted with a 17-inch monitor and a pair of headphones (and in some cases speakers). There are two HP high volume printers that are networked also. One machine in the lab (the one the teacher usually uses) has a late model HP scanner and is also connected to a projector and *Smartboard*. The Smartboard is a blackboard like device that allows its user to do computer-like operations (ex. Typing) on the board itself. The board and projector are mobile, so that they can be moved to another classroom if needed. These NT workstations are used for the most part for Internet access, typical Windows programs (Microsoft Word especially), and some educational programs that focus on reading and writing, such as *Reading Academy* and *Essential Skills*.

As for miscellaneous devices, Madison also has a digital camera. This has been used to take pictures of the students for class projects and for display purposes.

Also, every teacher in the school has a personal Dell PC NT workstation with an HP color printer. Each of these machines is on the school network and has Internet access.

The computers at Madison Elementary were acquired at different times. The Macintosh computers were acquired in two installments: 9 were received in 1996 and 5 more in 1997, which totals 14 Macs. As for the Dell PCs, 26 were installed in 1999 and 3 more were installed in 2000.

In December of 1999, Mrs. Urbanek's son checked all of the NT workstations for Y2K compliance.

Technology Management

Mrs. Urbanek is responsible for managing the technical environment at Madison. When a problem arises, the staff calls on Mrs. Urbanek to address the problem, no matter how trivial it may be. If she cannot solve the problem, she gets in contact with the technology help center located at the Pittsburgh Board of Education, who try to walk her through the problem solving process. If that does not work, a computer repair service affiliated with the Board of Education is sent to service the problem. Mrs. Urbanek's duties include maintaining the printers (changing print cartridges, filling with paper), dealing with computer problems and network/connectivity problems, and solving furniture problems (placing orders for needed furniture).

As of now, all problems are not documented. Only major problems, such as repairs, are kept track of. Mrs. Urbanek has plans to start doing this next school year. She believes it to be a good idea because the equipment is aging.

The staff at Madison appreciates the punctuality with which Mrs. Urbanek responds to problems.

Because the computers and software at Madison Elementary are relatively new, there has yet to be any need to upgrade either.

As far as the server is concerned, there has been no need to backup the server as of yet because the need has not been perceived (nature of data is not that important; no real need to replace if lost).

All of the teachers at Madison have been taught how to use *Intergrade*, the software used to keep record of students' grades. This was something they needed to know and now make very good use of.

Third, Fourth, and Fifth Grade teachers are all required to have a good working background on the Dell PC Windows NT machines because they are supposed to use them 2 periods a week to assist with their reading and writing curriculums.

Part Two: Problems & Opportunities

My community partner Mrs. Urbanek and I addressed three issues that are important to the technology program at Madison Elementary School. The general problem that was addressed was that Mrs. Urbanek was apprehensive about troubleshooting problems, learning new software, and managing the network. We dealt with these opportunities by building confidence. First, we learned how to learn software packages such as Microsoft Word, Excel, Encarta, etc. by working with them and gaining valuable experience. Next, we learned about the peripheral devices at Madison, which include a scanner, a *Smartboard* (a projector screen like blackboard/dry erase board), and a digital camera. Finally, we addressed the issue of backing up the school wide server, and possibly learning how to administer and maintain the network in general. These tasks were well within both of our capabilities and we were able to address them quite effectively.

We dealt with these issues because they are the most important to Mrs. Urbanek, and have a great impact on what she can teach to her classes and to her staff. By knowing how to use the numerous software packages that are on the machines at Madison and learn new software, Mrs. Urbanek will in turn be able to teach her classes how to use them. This will increase the abilities of her students and staff, allowing them to implement their newly learned skills in their schoolwork. Mrs. Urbanek and I had also decided it would be beneficial to learn about the peripheral devices because she will then be able to use them in class. The scanner is quite helpful in student reports, and any other time something needs to be scanned. The *Smartboard* is extremely helpful in Mrs. Urbanek's teaching duties because it allows her to demonstrate computer related things, like software or typing technique, so that the whole class can see. Knowing how to back up the server and basic network administration tasks are also important for Mrs. Urbanek to know how to do. If she knows how to back up the server, she could possibly avert the disaster of the server crashing and losing staff and student data. Also, once Mrs. Urbanek knows how to administer the network she will be able to effectively troubleshoot problems and ensure that all of the computers are operational; meaning no students are short-changed.

Our work tasks were relatively simple. They consisted of researching each of our issues (if necessary), and then we applied what we learned through experimentation and hands-on experience. This hands-on experience is the manner in which Mrs. Urbanek learns best because it builds confidence, has structure, and is flexible.

As for the approach to addressing these tasks, we planned on attacking each of these learning experiences primarily through experimentation. We also referred to books or online guides as needed, but we both firmly believed that concentrating on hands-on experience would yield the best results.

Mrs. Urbanek and I expected this approach to be completely successful. By the time we finished, Mrs. Urbanek had learned Word, Excel, and then went on to teach herself Powerpoint. She can use it effectively in her teaching, and knows enough to explore and experiment on her own with each of these applications. Mrs. Urbanek also wants to know by the end of our time together exactly how to use the peripheral devices that are available at Madison for the same reasons. We both expected to have figured out how to back up the school's server by the end of our work also.

As previously mentioned, this work and approach improved Mrs. Urbanek's capacity to use, plan for, and manage technology at Madison. She will be able to implement what she learned during our process together in her everyday teaching, making herself more effective and her students and staff more productive. This experience has been invaluable to Mrs. Urbanek, and in turn can only have a positive effect on the technology program at Madison.

Part Three: Analysis of Outcomes

Problem #1

The first problem/opportunity that was addressed is the assisting of Mrs. Urbanek in the process of learning how to learn software. We applied this process to learning how to use Microsoft Word, Excel, etc.

Mrs. Urbanek is losing her inhibitions as far as being afraid of doing damage to software in an effort to experiment with new approaches/methods of doing things. She now goes forward and has no problem trying out new things. In light of this, she is not fazed when something does not happen to work the way she may have wanted it. She is confident enough to undo the unwanted changes and turn around and try a new approach to solving the problem. Because she has learned the methods required to learn any software suite in an effective manner, she is now able to affect this process with any package she may want to learn.

Concrete evidence of increased capacity on behalf of Mrs. Urbanek includes many things. After having done an exposition of software learning, Mrs. Urbanek went ahead and produced many original documents using the Microsoft Office suite using only her own knowledge and means of getting help on her own. She also laid out some computer usage guidelines that will be enacted next year at the school. (Please see Appendix).

As far as increased capacity is concerned, Mrs. Urbanek is more effectively able to use the computer to her needs. Whether it be more efficiently navigating through files, or making original documents, Mrs. Urbanek can do it. If she does not know how to do it, she knows how to find out how to do it, which accounts for the sustainability of attacking this opportunity. Mrs. Urbanek assures me that she it quite up to this task.

Increased capacity in this area will be sustained primarily through the practice of newly learned skills. Mrs. Urbanek realizes this is the best approach, coming from her education background. Concrete evidence that sustainability of this process is feasible is that Mrs. Urbanek has already begun teaching herself Microsoft PowerPoint. The only risk I can see that some of her capacity is lost is if Mrs. Urbanek does not continue to practice regularly; skill that are not used are often forgotten.

Recommendation

Mrs. Urbanek would like to make her learning of software an ongoing process. There are many software packages that can be quite beneficial to her teaching duties. She would also like to learn these packages to a deep enough extent so that she can turn around and instruct the rest of the staff at Madison Elementary. For this, I recommend that she take it upon herself to learn programs she sees fit, and do so in a hands-on fashion. Once she has learned these programs, she can in turn use them in the teaching of her students. She can do this quite easily using her own know how and readily available free instructional material online.

Solving this problem will be of great value to Madison Elementary. The students and staff at Madison will accomplish more than they will have before, because they will have the knowledge necessary to using the software to its fullest potential. Mrs. Urbanek will be able to more effectively teach her classes because she will be able to use the software to a much fuller potential extent than she would have previously. Again, by learning these software packages, Mrs. Urbanek will be able to integrate them into her teaching, making the students' learning more productive. If Mrs. Urbanek learns these software programs, and because she is a teacher, they will become more of a mainstay in the technical environment at Madison. In other words, they will become more proliferated among the students and staff at the school.

Here are a few references:

<http://www.microsoft.com/education/tutorial/default.asp> These free resources provide step-by-step instructions designed to help you learn Microsoft applications quickly and easily. Covered applications include Office 2000, FrontPage 2000, Internet Explorer 5.0, Outlook Express, PowerPoint97, FrontPage98, and Internet Explorer 4.0.

<http://www.microsoft.com/education/lesson/default.asp> Provides some great ideas on how to integrate technology into a curriculum. These are classroom-tested resources.

<http://cnets.iste.org> This website will be helpful to Mrs. Urbanek when she believes she has reached a level of software knowledge at which she can effectively proliferate technology at Madison. This website provides information about initiatives to integrate technology into education. It also links resources that cover what administrators should know when managing a technology program.

I recommend that Mrs. Urbanek work to include the following benchmarks in this process:

First, work to understand the basic functions inherent to software packages.

Next, once a basic understanding is achieved, use tutorials to put newly found knowledge to the test, and at the same time fill in blank spaces in understanding.

Work to produce original documents that you can use for a real-world practical purpose.

Attempt to prepare lesson plans to help implement what you have learned to the classroom environment.

Now, with all this experience, the rest of the staff can now be trained to take the same approach to learning. This will not only be beneficial to them, but will greatly help you also because you will be talking and thinking about software, which is good mental practice for remembering skills. This process will build the staff's confidence while providing structure and being flexible at the same time.

Finally, using newfound knowledge, work to integrate technology into the curriculum so that both staff and students are regularly exposed to it so this process is sustained.

Problem #2

The next problem that was addressed was the assistance of Mrs. Urbanek in the backing up the school's server and maintaining the network in general. By knowing how to do this, Mrs. Urbanek will be able to better manage and insure against staff and student files being lost.

Having brought up this opportunity, Mrs. Urbanek went right ahead and got the necessary documentation and contacted the necessary people at the Board of Education in order to carry out this task. The only sticky point of this task is that when we sat down to back up the server and review the procedure, we found that the server was not configured correctly to allow for this (configuration is the responsibility of the Board of Education). When the server is repaired, we will address this task. If this does not happen within the rest of the consulting time, Mrs. Urbanek is competent enough to affect this task on her own.

We were not able to effect any changes on the school network to make it act more like a "real" network with a central server. Mrs. Urbanek and I have reviewed the desirable traits of a network so if time runs out before we address this task; she knows what to say when dealing with the Board of Education's Office of Technology in order to remedy this issue.

As of right now, there is no concrete evidence of increased capacity. There will be when Mrs. Urbanek is able to regularly back up the server and if the setup of the network is changed to allow for greater user mobility. The instructions to be followed, that we reviewed together, are quite explicit and helpful.

The same goes for increased capacity to an extent. I believe Mrs. Urbanek is completely capable of backing up the server on her own. Once the server is configured correctly, she will be able to effectively perform this task. The same goes for the network. Because Mrs. Urbanek will be carrying out these tasks on a regular basis, and they are relatively simple tasks, I do not believe there is any risk in that Mrs. Urbanek will lose any capacity, but she can only gain capacity.

Recommendation

There is not too much that can be said along the lines of recommendations and references for this task. As far as recommendations are concerned, there is one set way to back up the server/administer the network, which the Board of Education prescribes. Also, no outside references are necessary because all of the required literature/reference materials are available either at Madison or on the Pittsburgh Board of Education Office of Instructional Technology's website.

Solving this problem will also be of great value to Madison Elementary. Knowing how to back up the server would save the staff and students' work if something unfortunate were to happen to the server. Knowing how to backup the server will not have any great affect on the staff and students, except for saving valuable work that they need, and would be in a dilemma if it were to be lost without any chances of retrieval. Also, knowing this will just help Mrs. Urbanek manage the technical environment at Madison more effectively if anything. I do not see having the ability to back up the server having any impact on the program per say, with the exception of saving irreplaceable material that is necessary to the running of the program at Madison. Knowing how to maintain the server will help Mrs. Urbanek to better manage staff and student files, so that if the server ever crashes, there are backups of work.

Here is a reference Mrs. Urbanek may find helpful:

<http://www.athana.com/html/dc-howto.html> This site discusses how to and when to back data. It also included media storage, and how to ensure that your backups work, and will protect you in the event that you need them.

However, I do recommend that Mrs. Urbanek make it a point to address the following points: Because she already has the directions to perform both of these tasks, I recommend that she first make it a point to do both of these things on a regular schedule. This will allow her to become more familiar with the process, and therefore she will be much less likely to forget.

When dealing with the Board of Education's Office of Technology, make it a point to listen to them. If she does not understand something, make sure to ask to explain. By the very nature of her job (she is a teacher) she knows to do this. I believe the Office of Technology can be a valuable tool for her during this process.

Get another person who can perform the backups also. If Mrs. Urbanek is for some reason unable to carry out a backup, the other person can cover for her.

Meet with the rest of the staff at Madison to inform them that their work is not currently being backed up. Also, tell them about the benefits of backing material up so that they know it is available to them.

Consult the Office of Instructional Technology (OIT) at the Pittsburgh Board of Education. They can help you and point you in the right direction as far as administering the school's network.

Problem #3

The last problem that is being addressed is assisting Mrs. Urbanek in the learning of how to use peripheral devices. We applied the same hands-on experimentation process as we did in Problems 1 and 2. By learning how to use these devices, Mrs. Urbanek and the rest of the staff and students at Madison will be able to make use of these devices, allowing for new opportunities and approaches that can be taken to doing work.

Mrs. Urbanek now knows how to use the digital camera, the scanner and the *Smartboard*. She paid special attention to the process we used to learn about these devices, and is now more confident and can apply this process to any new devices she sees fit to learn.

Concrete evidence of increased capacity on behalf of Mrs. Urbanek includes numerous things. Mrs. Urbanek now knows how to use the digital camera to take pictures and how to put these pictures on a computer so that they can be used in documents. She also knows how to use the scanner to do the same thing, and has even written up directions to help the rest of the school's community use the scanner. Mrs. Urbanek has hard copies of these pictures in her portfolio. Mrs. Urbanek now uses effectively use the *Smartboard* regularly for classroom presentations. (Please see Appendix)

With regards to increased capacity, Mrs. Urbanek now knows more about the technology at Madison. She also has lost her inhibitions regarding learning about devices. With this being said, she

can learn any device she deems necessary. Again, the driving force behind this is that Mrs. Urbanek emphasizes process: research, practice, and sustaining working with it.

Primarily Mrs. Urbanek will sustain increased capacity in this area through practice and discovery of how to use new peripheral devices as the need arises. Again, Mrs. Urbanek realizes that the best approach to sustaining this is hands on experience. Concrete evidence that sustainability of this process if feasible is that Mrs. Urbanek knows how to research and learn about devices, as she did with the digital camera and *Smartboard*.

Recommendation

Mrs. Urbanek would also like to make her learning of peripheral devices an ongoing process, just like her learning of new software packages. New devices come out all the time so she needs the confidence in her abilities to learn these new devices as needed. Again, she would also like to learn these devices for the same reason that she likes to learn new software, which is so she can eventually instruct the rest of the staff and students at Madison. Mrs. Urbanek is now at this point because I believe she can learn any device effectively enough to at least use it for the most basic of tasks that it may happen to be intended for. There are no websites per say that walk through the learning of peripheral devices, and for that reason, Mrs. Urbanek and I have also reviewed a process very similar to that of learning software: first research (read manuals), then experiment doing original things on these devices, next come up with a process to perform tasks on these device, and finally work to integrate them into everyday work (i.e. her teaching duties).

By Mrs. Urbanek learning this, she will be able to show the rest of the school how to take advantage of these devices, which will in turn increase productivity at Madison. There should be no effect on the staff and students in general, except for allowing them to use new equipment they were not able to use previous to learning how to take advantage of. The scope of the program can increase (which is a good thing) if the people at Madison are taught how to use them. Madison already has these devices, and just needs to learn how to use them. Technical management will need to expand to encompass managing these new devices, if they are going to be used by the general school community.

Here are a couple of references (of which there are few and far in between) Mrs. Urbanek may find helpful:

[http://rtec.org/](http://rtec.org) The Regional Technology in Education Consortia (R*TEC) program helps states, local educational agencies, teachers, school library and media personnel, administrators, and other education entities successfully integrate technologies into kindergarten through 12th grade (K-12) classrooms, library media centers, and other educational settings, including adult literacy centers.

[http://millennium.aed.org/](http://millennium.aed.org) Be part of a community forum on the evolving role of technology in education. Participate in lively discussions, online polls, resource sharing, and more.

I recommend that Mrs. Urbanek make it a point to address the following points:

This process can be further explained by the following benchmarks:

First, work to learn and understand the basic functions that devices have.

Next, once a basic understanding has been established, experiment to put new found knowledge to the test, which will also help to fill in blank spaces.

Produce original documents on your own, that you can use for a practical purpose.

Work to integrate this technology into day-to-day work, by writing it into lesson plans that help to teach in the classroom environment how to implement this technology.

Now, with this experience, she can in turn teach the rest of the staff. She will know what works and what does not, and be able to pass this valuable knowledge onto other teacher, who can then also proliferate it among their students.

Appendix A

Work Plan

| Activity | Who Owns | How long? | Target Date | W1 | W2 | W3 | W4 | W5 | W6 | W7 | Resources |
|--|----------|-----------|-------------|----------|----------|----------|----------|-----------|-----------|----------|---|
| | | | | 2/28-3/6 | 3/7-3/20 | 3/21-4/3 | 4/4-4/10 | 4/11-4/17 | 4/18-4/24 | 4/25-5/1 | |
| Learning Microsoft PowerPoint | | | | | | | | | | | Microsoft online references |
| -getting references | SC | 1 day | 3/6 | | | | | | | | |
| -learning through experimentation | CP& SC | 1-2 days | 3/7 | | | | | | | | |
| -practice skills | CP | 2 days | 3/7 | | | | | | | | |
| -developing a lesson plan for Powerpoint | CP | 2 wks | 4/3 | | | | | | | | |
| Learning Digital Camera | | | | | | | | | | | Manuals at Madison |
| -learning through experimentation | CP& SC | 1 day | 4/4 | | | | | | | | |
| -practice skills | CP | 1 wk | 4/10 | | | | | | | | |
| Backing Up Server | | | | | | | | | | | Manuals at Madison and reference at Dept. of Ed. |
| -getting references | SC | 1 day | 4/10 | | | | | | | | |
| -learning through experimentation | CP& SC | 2 wks | 4/17 | | | | | | | | |
| Overall Review | CP& SC | 3 wks | 5/1 | | | | | | | | All previous resources with emphasis on online lessons for review |
| Refining of Final Presentation | CP& SC | 3 wks | 5/1 | | | | | | | | Hopefully everything we will have learned! |



USING THE SCANNER

1. Place picture or document in top right hand corner of glass, and close lid.
2. Go to START – PROGRAM – HP SCANJET SOFTWARE – HP PRECISION SCAN PRO (click)
3. Click OK on warning window.
4. Click on Preview Scan button (left first button) *be patient – lamp may need to warm up.
5. If the scan preview is okay, go on to STEP 6 – if not, go back to STEP 4.
6. Click on SCAN – SAVE AS – choose either
 - *scan selected area
 - *entire glass

*If scan selected area is chosen, a cross hair will come up. Draw a box around what you want then click SCAN – SAVE AS – (file name – whatever you decide to call it) SAVE AS TYPE – (jpeg image) SAVE IN – (desktop or 3 ½ floppy) Click on SAVE. Close HP SCANJET PRO.
7. Go to START – PROGRAM – HP SCANJET SOFTWARE – ADDITIONAL SOFTWARE – ADOBE PHOTO DELUXE BUSINESS EDITION 1.0
8. Go to FILE – OPEN FILE – double click on your file. Click GET AND FIX PHOTO – click on TOUCH UP tab – click on EXTENSIS INTELLIFIX. *this is a quick fix. You can get more involved using other tools.
9. Go to FILE – SAVE AS – JPEG FILE *be patient, this is a short wait – FILE NAME (whatever you decide to call it) SAVE IN – (desktop or 3 ½ floppy.)