

PALM BEACH COUNTY SCHOOLS

2005 COMPUTERWORLD HONORS CASE STUDY

EDUCATION

ONE OF THE NATION'S LARGEST SCHOOL SYSTEMS USES IT TO PROVIDE GREATER ACCESSIBILITY AND EQUITABILITY OF SCHOOL DISTRICT SERVICES AND RESOURCES TO SPECIAL NEEDS STUDENTS. [20055414]



SUMMARY

Providing greater accessibility and equitability of school district services and resources to special needs students.

APPLICATION

In a district wide challenge to improve the quality of educational services to students with special needs, the Department of Network Services - Communications shop decided to focus on our area of expertise, distribution and delivery of technical services. We identified two specific areas: 1) continuity of education for our hospital/homebound students, who for health reasons are unable to attend conventional classes, and 2) improvement of transportation services for special needs students. Through technology, we felt we could have an immediate positive impact in these areas while remaining within our budget.

The first area we addressed was the hospital/homebound program. A hospital/homebound student is a student who has a medically diagnosed physical or psychiatric condition which is acute or catastrophic in nature, or a chronic illness, or a repeated intermittent illness due to a persisting medical problem, and which confines the student to home or hospital, and restricts activities for an extended period of time. The challenge in providing hospital/homebound students with educational continuity during the absenteeism was to find a solution that would be affordable to students across a wide social-economic spectrum and to the district. This goal goes hand in hand with the ongoing district goals to increase teacher productivity by using technology to assist them in their job, thereby allowing them to spend more time teaching and less time on other activities such as technical problems and student distractions that were prevalent in the existing homebound system.

Our second area, improvement of transportation services for special needs students, was a joint effort by five teams: Avaya, Viacore, Geospatial, and two school district departments, the Department of Transportation and The Department of Network Services. Geospatial was working with The Department of Transportation to install a Global Positioning System (GPS) on district buses for the purpose of location tracking. Our plan was to expand on this application by bringing in our vendor, Avaya, and their partner, Viacore, to implement an Interactive Response (IR) System that would coordinate with the GPS and notify the parent/guardian when their school bus was approaching. Working with Avaya and our transportation department, we were able to identify those buses that were transporting special needs students and through the IR System, make a call to the student's home, notifying the parent/guardian of the bus's pending arrival. This would enable the caretaker to prepare the child for transport and alleviate long waits at the bus stop in inclement weather.

BENEFITS

The benefit of our newly designed Hospital/Homebound program, was to inexpensively expand the accessibility and flexibility of the homebound teaching program, and to make it more teacher friendly. You can now simultaneously teach as many subjects to as many individual groups of students as is dictated by the special needs student population and the teachers have greater control of the student's connection and participation.

As quoted in the Palm Beach Post in an article on homebound participation in statewide testing on Wednesday, March 2, 2005:

A student undergoing chemotherapy "never stopped going to the class. Rather, the classes never stopped coming to him."

Robert Carrigan,
Chairman of the Chairmen's Committee

Ron Milton,
Vice-Chairman of the Chairmen's
Committee

Dan Morrow,
Chief Historian

"For (another student diagnosed with Tourette's Syndrome) going to school is not an option." Tourette's "can be destructive to a classroom." At home (the student) is relaxed while he does his classwork.

As stated by the Palm Beach County hospital-homebound manager, "What we try to replicate, is everything a student would do at a regular school."

Specifically we were able to accomplish the following:

- Expanded capabilities - under the previous system, a maximum of two simultaneous classes could be taught with a maximum of 20 students per class. With the new system, there is virtually no limit on class size or number of classes. The 120 ports can be used in any combination - one class with 120 students or 120 classes with one student each, or, any combination in between.
- Capacity is expandable - the old system had no growth, the new system can be expanded to 576 ports.

- Access - under the previous system, anyone could dial into the class. There was one telephone number assigned to each of the two classes. With the new system, all calls come into one number. The student then enters a password for a specific class, and a pin number for personal identification. This also removes the need for teachers to take attendance. It is automatically done when the student enters their password and pin.
- Discipline/Control - With the old system, the teacher had no way to mute or drop unruly students. Also once attendance was taken, if a student dropped off after attendance was taken, the teacher had no way to know which student dropped off, unless the teacher manually wrote down each student's name and what port they came in on. With the new system, the system automatically shows the teacher which port each student is on, and the teacher can drop or mute a student with the press of a button. The teacher can also switch from conference to lecture mode at any time, changing the students to listen only.
- Flexibility - Under the old system, once the 21st student needed to join a class, he had to be put on a waiting list. With the new system the number of classes or class size can be changed at a moment's notice with simple programming.
- Teacher dial-out - If a student cannot access the system for any reason, the teacher can call out to add the student to the class. This was not possible under the old system.
- Reliability - The old system was outdated and needed maintenance performed almost on a daily basis. Classes were continually interrupted or cancelled due to system failures. The new system has been virtually maintenance free.
- During the 2003-2004 school year, 580 students in grades 6 through 12 participated in this program, and 68 seniors graduated on time, with their class, because of this system.
- During the 2003-2004 school year, 44 courses were taught by eight teachers using this system.

Transportation

Many of our special need students have health and emotional problems that make waiting for a bus on the side of the road in all types of weather and all times of the day undesirable. Our new tracking system allows the parents to keep the students in their homes until they know the bus is approaching. This is a great benefit to the students and parents. It is also beneficial to our drivers, as the advance warning will make it possible for the students to be ready and waiting when they arrive.

We accomplished this by doing the following:

- The parents of special needs students are being notified in advance of any delays/changes to the bus schedule. The IR System contacts them via telephone with the updated information.
- The IR System also makes a call to the student's home notifying the parent/guardian of the bus's pending arrival. This allows them to have

their children prepared when the bus arrives, and also not to have them exposed to inclement weather or other adverse conditions that affect special needs children.

- The program is expandable to all children.
- The IR System can also be programmed for parents to call into the system to check on the status of any bus. The district is planning to eventually extend this service to all buses.

IMPORTANCE

The Importance of Information Technology

The technology applied for these two systems had a positive impact on students, parents, teachers, and administrators in The School District of Palm Beach County.

For the hospital/homebound program, it allowed an antiquated manual system that had virtually no controls or flexibility to be replaced with an automated state of the art system that allowed teachers to gain control of their virtual classroom. The attendance was automated through the password/pin login procedure. Discipline was enhanced by the capability of the teacher to control the classroom through the mute, drop and conferencing features. The advanced technology of the system allowed the system to be virtually maintenance free, thus avoiding the disruption or cancellation of classes, due to technological failures.

For our transportation system, the combination of two separate technologies, GPS, and the Interactive Response System, allowed us to not only track our fleet of buses, helping us pinpoint their location in case of accidents or breakdowns, but to also notify parents of special needs children of the up-to-date status of their bus.

ORIGINALITY

Originality

In our case, it was not so much the originality of the technology, but the original way the technology was used.

The hospital/homebound program is using a system that was primarily designed as a business system to handle conference calls for remotely located individuals. We have transformed this into an educational tool, by using it to have a centrally located teacher conduct classes for students located throughout the largest county east of the Mississippi River. The teacher assumes the roll of the moderator and the students are the participants. By using the features of the Audio Conferencing System, the teacher has virtually all the control, and sometimes more control than a teacher in a traditional classroom. The attendance is taken automatically through the login procedure. The teacher can switch from lecture to discussion mode at will. The teacher can isolate a particular student or group of students for special projects or discipline purposes.

For the Transportation Interactive Response System, the originality comes into play with the interaction with the GPS. By combining these two systems, both of which are innovative on their own for a school district, the district has the dual functionality on not only tracking the location of the bus, but also the power to notify parents of the location and current schedule for the bus.

SUCCESS

Success

Hospital/Homebound

While the scope of this project was not global or even statewide, the immediate positive impact it had on the 580 students that were able to continue their educational experience with their classmates, and the 68 students that were able to graduate with their class, is immeasurable. The self-esteem and solid educational foundation facilitated by this program are a benefit that will have a positive impact on society for years to come.

Individually, as mentioned in an article of The Palm Beach Post on March 2,2005 a student undergoing chemotherapy "...never stopped going to class. Rather the classes never stopped coming to him". Another student diagnosed with Tourette's Syndrome, "Going to school is not an option, Tourettes's can be destructive to a classroom. At home (the student) is relaxed while he does his classwork."

In addition, the turn around in teacher morale has been outstanding. This was a program that was in danger of being abandoned a few years ago because of teacher frustration over having to work with a system that was continually out of service and even what it was in service, did not perform up to a standard that allowed teachers to perform at a proficient level. Now it is a system that in the 2003-2004 school year, served 580 6th-12th grade students in 44 courses administered by eight highly motivated teachers.

Transportation

The success of this system is not something that can be easily measured in a tangible manner. Fortunately, the stress and worry that accompanies the rearing of a special needs child is something most parents will never know. The transportation arrival notification has relieved a small portion of that worry. Maybe the best measurement is that because of the success of the system, it is going to be expanded from the original ten buses, eventually to include all 700+ buses.

DIFFICULTY

Difficulty

There were several obstacles to overcome to implement these systems.

The biggest obstacle to overcome for the hospital/homebound program, was teacher morale. The previous systems were so inefficient that teachers had basically given up on the program. We could not recruit teachers to participate in the program. To overcome this obstacle, we recruited teachers to be involved in the process of selecting the features for the system. We solicited from them, what features they wanted to see in the new system, and what worked and didn't work in the previous system that they wanted to be addressed in the new system. Once the system was installed, we gave the teachers thorough training before bringing the system online. By involving the teachers and the administrators of the homebound program in the selection process, they bought into the program and felt comfortable with the new system.

The previous system was laden with technical problems. Calls dropped off and there was constant noise and echoes on the calls, to the point where teachers had to constantly release students from the class or cancel classes entirely. The system was so old that the vendor had no technicians proficient in repairing the system. This problem was solved by making certain we purchased a state of the art system and requiring the vendor to guarantee their technicians would be proficient in repairing the system.

For the Transportation Interactive Response System, the largest difficulties were the merging of the different technologies and the coordinating of three corporations in three different states.

We had to make the Global Positioning System interact with the IR. The GPS had to monitor the location of the buses and the IR had to extract the information from the GPS, translate it, and relay the information to the parents via telephone calls. Further complicating the matter, is that the GPS vendor is located in California, the IR vendor is in New Jersey and the PBX vendor and the school district are located in Florida.

This was overcome with careful planning and regularly scheduled meetings. Each phase was thoroughly tested before moving to the next phase. When the project was completed, the school district made test runs with their buses, with no students on board, and tested the GPS and IR system thoroughly prior to making live runs with students on board.