HANAU SCHOOLS

A MODEL for the FUTURE

Hanau Model Schools Partnership Project Description

Using Technology to Support Systemic Education Reform

by

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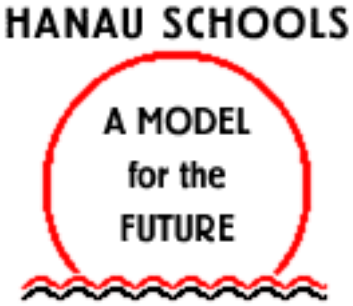

Hanau Model Schools Partnership Project Description

Using Technology to Support Systemic Education Reform

The Hanau Model Schools Partnership models ways that school communities can bring technology into classrooms to support the best classroom practices while deepening students understanding of content. The goal is to employ technology to meet the most fundamental aims of systemic reform: (1) to support the implementation of standards-based reform in core content areas (2) to ensure that all students have equitable access to resources and best practices, and (3) to build capacity within schools to sustain reform objectives from within.

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As Barbara Means said in the introduction to her book, *Technology and Education Reform*, "Rather than expecting, as many pioneers in technology did, that the introduction of powerful new technologies will be the driving force that transforms the U.S. school system, I have come to believe that the causal relationship flows at least equally strongly in the other direction—that is, that education reform makes a school ripe for technology" (p. xii). In this project, we have found that technology and system reform can become joint goals, and implementation of one can directly and mutually support the implementation of the other.

The Hanau Model Schools Partnership

Through funding by the National Science Foundation, our project team at TERC has provided direct support for in-depth professional development about infusing technology into the system's curriculum standards, cross-school community participation, and models for shared decision making about technology priorities.

We have been privileged to work with the Hanau Schools in Hanau, Germany, which are part of the Department of Defense Education Activity (DoDEA) school system. The four schools—Argonner Elementary, Sportfield Elementary, Hanau Middle School, and Hanau High School—are similar to

schools in the United States, both in structure and in the shared emphasis on national standards in the curriculum.

The project has the joint goals of technology implementation and ongoing research about what is working throughout the implementation process. Our research questions are

- how can schools infuse technology so that learning with technology becomes a deeply accepted part of daily school life for all members of the school community; and

- how will school systems support the development of exemplary teaching approaches which are integral to DoDEA's Strategic Plan, consistent with national efforts of curriculum reform, and make good use of new technologies?

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Four Critical Areas

The partnership is a blend of implementation and research activities taking place in four critical areas: building a school and community planning process, connecting technology and curriculum, professional development for technology infusion, and technology leadership and management. As we work with the schools in these areas, we use a qualitative research design to build a picture of what is being achieved, and to regularly reflect back those achievements to the whole school community.

Building a School and Community Planning Process

We began the implementation process by working with the schools in the first year to create a cross-school planning team. This Hanau Implementation Team (HIT) includes a parent, teacher, and the principal from each of the four school; union representatives; a military base representative; the assistant superintendent from the district; and other key district specialists—both in computers and in professional development. The team has been meeting on a monthly basis since January 1996. They work from a shared decision-making consensus basis, together preparing recommendations about professional development needs as well as technology policies and access.

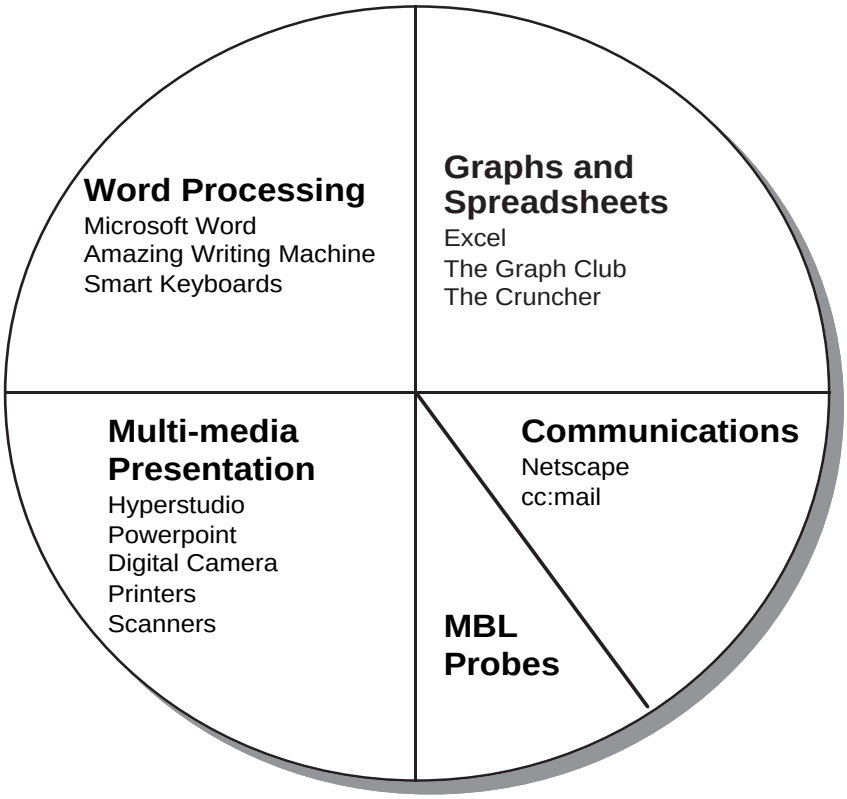
The first areas of focus for the HIT were key decisions about where the technology should be placed and what would be on each machine. When we did our early technology surveys, the schools were amazed at how many computers were actually available, yet how few were used in a normal school

day outside the computer lab. This process vividly demonstrated that just putting computers in classrooms is not enough. The needed ingredient was a commitment across the school to bring the technology to everyday instruction.

Our project team worked with the HIT to design a way to bring technology into every classroom, to ensure equitable access for students and teachers. We reached an agreement that minimally two multimedia computers with Internet access should be in every classroom in each school, as well as at least one lab of 26 computers and a cluster of up to 10 computers in each media center.

One critical decision was the selection of a small number of software products that would be uniformly available on each computer, across all classrooms and all four schools. We called this our "tool kit." We realized early on that we could not support the hundreds of different software products on the market now in individual content areas. Rather, we agreed that we could provide support for a common core of productivity tools, which could be linked in multiple ways to different content areas and grade levels.

The Model Schools Tool Kit



This first experience of making a key decision, garnering the resources to support it, and seeing it happen convinced the school community that this shared decision-making process was real.

Connecting Content to Technology

As the computers were being placed in the schools, we continued to focus on helping teachers decide how to use them to support teaching and learning. As we know, "learning to use technologies is necessary but not sufficient. Too often, new technologies are simply being pasted onto old methods" (Foa, Johnson,

and Schwab 1997). We set expectations for all the teachers to connect classroom practice far beyond using computers as rewards for students during free time.

We began in our first summer workshop by asking teachers to develop lesson plans, called Technology Action Plans (TAP), for which they selected a content or developmental area that they wanted to focus on in their classrooms, and then selected a software application to explore and integrate into this content area. The teachers worked on their plans over the school year in three phases, going from the exploration of software to teaching a lesson with technology. At the end of the school year, in May, they shared the result of that activity, not only via e-mail with the project team, but more importantly with each other in a full day inservice meeting with all four schools. In this second year, they are following the same three-phase process, but we are asking them to extend beyond a single activity to a whole unit or set of units. They still share their plans with us electronically at checkpoints throughout the year.

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The TAP process puts the content first and the technology connection to that content second. This allowed teachers to build from their own teaching strengths, while gradually bringing something new into their classrooms. Because of the extensive planning done before the computers were brought to the classrooms through the plans, teachers were able to use the technology to support their teaching almost as soon as they received it.

Professional Development

The next part of the puzzle was to provide ongoing professional development that met teachers' needs. We listened to the HIT and the teachers in a variety of settings, and they all told us the same thing—intense workshops are great to start with, but teachers need help right in their classrooms, where they need it, when they need it.

Based on this we have offered a mix of professional development activities, starting with two-week summer workshops for all teachers that introduce the content and technology connections and provide more intense training time on the software, followed by support right in the schools on a daily basis and shared inservice days for teachers to come together and discuss what they have accomplished. Right after our first summer workshop we brought an education technologist to the schools for the project. This person, Kevin

McGillivray, was already a highly skilled music teacher in the high school who shared a love of music with a love of technology. He is well respected by his Hanau colleagues and now works with them directly in classrooms to model how they can use the technology to support their work.

Kevin also keeps a daily log for us of what he is accomplishing, so that we know what's happening in the classrooms while we are not there, as part of the ongoing research function. Kevin's logs are a rich source of information about the changes happening across all four schools as well as with individual teachers. Our researcher, Judith Davidson Wasser, then looks at the patterns emerging from the logs and blends the information with the many observations, focus group interviews, surveys, and other forms of data we have collected. Her synthesis is brought back on a regular basis to the school and the district office, through the HIT.

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This year we've added in a new layer of professional development, which we are calling coteaching. This strategy was developed by Cathy Miles Grant as she worked with clusters of teachers in elementary math. As the teachers gained mastery of the software itself, they began to creatively struggle with how they would tie the software to math concepts in developmentally appropriate ways. Through e-mail, on-site visits, and shared materials, Cathy helped 15 teachers across the two elementary schools develop lessons that started from the National Council of Teachers of Mathematics standards for data representation. Cathy then went to Hanau for a week to coteach with each of these teachers, modeling how she might use the technology in a full week of instruction to support these lesson plans.

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We are continuing to use this model in elementary science, secondary social studies, and language arts across grades, with other members of our team and other experts who are developing new ways to integrate technology into content areas. As teachers have become more deeply involved, they have raised questions to the HIT about appropriate rubrics for judging student work produced with the software and appropriate districtwide achievement measures.

We have been delighted to see some of these teachers agree to serve as coteachers themselves, both in Hanau and in other schools in the Hessen district. Growing this internal capacity to share good, standards-based practice with colleagues has become a high priority this year and an objective for next year throughout the district.

Technology Leadership and Management

This brings us to the third piece of the puzzle, which is technology leadership and management. We could not have accomplished these tasks if the four school principals and the district superintendent and assistant superintendent had not adopted the joint technology and reform agendas as their own priorities. Creating a school-based decision-making team was a significant response for the superintendents' office. Their ability to see the advantages of working with all four schools made it possible to move forward quickly and lent credibility to our efforts.

The challenge for the principals went beyond the reform agenda to their everyday practices. Bringing technology into schools is a complicated process, from supplies to rewiring classrooms to helping teachers on technology committees look at policy issues. We have seen a change in all four principals in their willingness to use technology themselves, their knowledge of what it takes to support the technology, and their willingness to adopt new professional development strategies.

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This is most clearly seen in the changing relationship between the principals and the education technologist. The position of the education technologist was largely undefined, yet teachers expected him to be in schools and classrooms on a daily basis. Initially, this caused stress with the principals, who were uncomfortable with a "stranger" appearing in classrooms. Together, the principals and the education technologist have worked out a set of expectations, a schedule, and a method of reporting that gives the principals a better sense of control over what is happening in classrooms, yet provides enough flexibility for the education technologist to respond to teacher needs.

As the Association of Supervision and Curriculum Development study of schools that successfully use shared decision making showed, "In actively restructuring schools, principals were moving toward the role of manager and facilitator of change, and they worked hard to foster a strong sense of a school learning community" (Wohlstetter et al. 1997). We have seen the Hanau principals move more closely to these roles of manager and technology-change facilitator, and a correspondingly positive response in teachers.

Technology and Systemic Reform

In this project, we chose to focus on the whole school complex, on all four schools together, and on what would develop when all four schools infused technology into classrooms at the same time.

We used a shared decision-making model for the cross-school implementation committee and stuck to that model. That allowed all members of the school community to have a real say in the process and to structure the types of professional development that were really needed. Parents have played an increasingly active role in this committee, and the education technologist has conducted workshops just for parents to learn how to use the technology. Several of those sessions have actually been taught by parents themselves. This has reached more deeply into the community, and we are seeing a corresponding increase in interest and activity with the Hanau Army Base.

Our decision to be inclusive was based on the belief that the technology needs to be equally accessible to all teachers and students

Our decision to be inclusive was based on the belief that the technology needs to be equally accessible to all teachers and students. We anticipated what the national figures are showing, that "To the extent that computer skills are important in today's labor market, middle-class kids have a distinct advantage" (Benton Foundation 1997). We provided in-school access to all students and also brought small portable keyboards for home use with students who did not have a computer. Again, this emphasis on working with the whole school community most likely increased the speed with which the technology was adopted in classrooms, by creating a community sense of the importance of the schools' work with technology.

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By including all teachers and classrooms in the project at the same time, we were able to build more cohesive peer support among teachers. As different teachers became local experts, the conversations among teachers, even in the lunchroom, changed dramatically. Our ongoing qualitative research model allowed us to capture these informal, but powerful, connections among teachers, and the on-site education technologist verified the changes within classrooms on a daily basis through his electronic logs.

The partnership has actively shown that educational reform and technology changes can support each other on an ongoing basis. For example, we found that classroom practice changed toward more inquiry-based and project-based activities as

teachers learned how to use two computers with differing groups within the class. The scheduling for a student team to use the scarce resource prompted activities to be structured so that teams were working on different tasks at the same time. In addition, we found a new focus on understanding the curriculum guidelines and national standards themselves, as teachers questioned not only their own classroom management techniques but also the learning styles of their students, with closer analysis of student work both off and on the computer. In both cases, content knowledge has deepened as teachers expand the use of the technology beyond games or word processing.

Though the technology was the attraction at the beginning of the project, the rest of the program has proven to be much more important overall to the schools. We see teachers become strong leaders among their colleagues at summer workshops with teachers from around the world. We see revitalized technology committees within schools that have tackled the policy issues of acceptable use, parent involvement, and sharing of new equipment. We see a powerful endorsement by the district office, which in turn has validated the program with teachers. And we are seeing the desire to move all these parts of the model to the rest of the district, through the requests of the principals in those other schools. In all of these senses, then, the project has led to desired changes across the system.

Seeing is believing...

You can link directly to the Web pages created at each school through our home page:

http://modelschools.terc.edu

You can also link to the DoDEA home page and to the newest technology initiative in DoDEA, the President's Technology Initiative (PTI) home page, from the Model Schools home page.

What's Next?

The next steps belong to the schools and the district itself. The superintendent has agreed to make this the focus for the next two years across the Hessen district. The superintendent has endorsed the connection between infusing technology into the curriculum and the overall school improvement goals for the district. This "scaling up" to new schools, including the development of shared decision- making committees at each site, new professional development strategies, and close attention to standards of excellence, holds real promise for the district overall.

The key will be linking the power of this innovation to the everyday life of teachers and students. As with any successful reform, technology must become part of the real business of schools—using the tools at hand to promote high standards for teaching and learning.

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