



Transcript of Conference Call Presentation

Learning Technology Systems: Promoting Success for ALL Students

presented by

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Louise Meyer: Welcome Everyone! My name is Louise Meyer. I am a Senior Project Associate with the Council of Chief State School Officers, one of six partners that form the National Transition Alliance.

Each month, NTA conducts an audio conference on a topic of interest to professionals and organizations as part of our technical assistance component. This month's presentation is entitled *Learning Technology Systems: Promoting Success for All Students*.

Our first speaker for today's call is Ms. Barbara Reeves, who currently serves as the Director of Instructional Technology at the Maryland State Department of Education. She provides leadership and coordination for the implementation of Maryland's long-range State Technology Plan. As part of that implementation, her Instructional Technology Unit administers the State and Federal programs that provide funding for technology in local schools and school Districts. Previously, she coordinated several technology projects for the state

education department and was a high school teacher in Baltimore County for 15 years.

Our second presenter is Ms. Joy Inness, who currently serves as a Program Facilitator for the John Hopkins University's Center for Technology in Education. She trains teachers to use technology to improve learner outcomes for a diverse student population using training institutes, workshops, and on-line resources. Previously, Ms. Inness worked as a teacher in the Baltimore City School System while also serving as a school facilitator in a technology program that trains teachers how to integrate technology with SCANS competencies.

Finally, our third presenter is Dr. Ann Thompson. She currently serves as the Chair for the Department of Curriculum and Instruction at Iowa State University. Her department received the AACTE Award in 2000 for Best Practice in Technology Teacher Education. She also serves as President of the Society of Information Technology in Teacher Education, Editor for the Journal of Computing in Teacher Education, and is the author

of numerous books and journal articles on technology in teacher education.

We welcome our speakers today. We will start our presentation with Ms. Reeves followed by Ms. Inniss and then Dr. Thompson. Barbara, would you like to start?

Barbara Reeves: Thank you, Louise. I have to say that this is quite incredible to be doing a presentation knowing that there are people from all over the country on the line. There are probably folks on the line now from more states than just New Hampshire, New Jersey, and Idaho.

What I wanted to talk about today was our state technology plan and how, embedded in that plan, is not only the commitment to provide access to technology for all learners but also some very specific strategies to address the needs of a very diverse student population. The vision for the plan — and most states have a technology plan and a vision, but in ours, the theme is resounded — is that every learner in our state, by the year 2003, will not only have access to but the use of technology in classrooms and schools. We also envision that the technology is going to support their achievement, enabling all of them to be independent, competent, and creative thinkers as well as effective communicators and problem solvers. This probably sounds like a typical vision statement, but, as we have written out strategies and various activities, we have really tried to make sure that we were living up to that philosophy.

One of the strategies that I want to focus on is that we want to make sure that the technology is used first as a tool that accommodates diverse learning needs in all students. A second part of that strand is that we want to ensure that diverse learning needs are taken into consideration when tech-

nology is integrated into the classroom. This is a good philosophy and strategy, and I want to go over three particular actions or activities that are in place to help make that happen at the classroom level.

The first one is probably the most direct, and it's what we all call developing a "habit of mind" in teachers — that considering diverse learning styles and diverse learning needs becomes part of their professional development and thinking as they learn to integrate technology effectively. Each year, our department sponsors the Maryland Technology Academy Summer Institute. It is done in partnership with Johns Hopkins University and Towson University. The emphasis in the curriculum at that three-week summer institute and the follow-up sessions is less on teaching teachers how to *use* the technology and more on learning good teaching and classroom management *strategies* using technology.

One of the required strands for all of the Technology Academy Fellows is on differentiating instruction. It is based heavily on the work of Carol Ann Tomlinson at the University of Virginia. One of the things that the Technology Academy Fellows learn is how to use technology and particular types of software to accommodate various learning styles and learning levels. In addition, they learn how students can be given choices and options in their technology-based projects and products. Instead of having everyone work on the same project or product, there can be a lot of flexibility based on the needs of their learners.

They learn how to manage the use of technology in the context of flexible grouping and pacing of activities and also how to use technology to extend and accelerate lessons for students who actually are progressing at a faster pace. We tend to

think of diverse learning needs as applying to those who may be behind, but there are those students who are well ahead of others. Technology can be used to help give those students an outlet for additional work very productively.

The summer institute also has a strand on using assistive technology, and that strand is a very popular one because it is a long learning curve for many teachers who are teaching in inclusive classrooms, and — I will say this because I was a secondary teacher — it is especially true for high school teachers who really are less accustomed to having to make accommodations in their classroom than elementary teachers.

Another strategy, other than that of professional development, is that we do have some information dissemination. In Maryland, as I am sure throughout the United States, working toward an inclusive educational environment has been a major focus in our public school systems for several years now. This again has presented a challenge for the general education teachers. One very important area of learning is how technology could and should be used to support those students that they have in their classrooms who have a variety of learning disabilities, and not just the severe disabilities, but those that might be termed mild.

One of the really nice pieces of information was done in partnership with Hopkins Center for Technology in Education, of which Joy is a part. It developed a monograph that is called “Together For Good in Maryland: Planning and Integrating Technology Accommodations In Schools.” I just wanted to give you an example from the first chapter that says: “What is assistive technology and how can it help?”

Just to paraphrase what is in that chapter:

Assistive technology is not necessarily limited to high tech devices and augmentative communication devices and switches; it is broader than that. Some of the examples they give are really nice in that technology can include a whole wide range of technology and software that could accommodate, again, not only the severely disabled but those that might be termed mildly disabled. For example, students having difficulty with handwriting could use word processors and even computers with arm supports to improve accuracy.

They also suggest how important motivation is for students with learning disabilities and how the World Wide Web has helped them in conducting their research and giving them some authentic tasks using that kind of research strategy. Producing multi-media products can also help with motivation.

The monograph is a really nice one. It is geared not as much towards the special education teacher again but for those many, many general education teachers in Maryland who have these questions and really need to know how the technology can make their jobs easier for them. This is not just for those students who have been labeled special education, but also for many of the students who might need accommodations.

Johns Hopkins is working on a web site as well. This is a second area that is being used to try to get to our teachers through information about technology as a tool.

I think the third important area in our state plan is providing some accountability to make sure this is happening. How do we know that all of our students have access to technology? We have a lot of different data collections that we do. We now have an online web site that shows down to the school

level what the level of access is for computers and Internet access. It also includes a question on assistive technology to ensure that there is a clear process in place in the school and that teachers use it as they need to. That accountability system is very important in making sure that, even as we track it, teachers know that it is an important enough area for us to make it visible on our state inventory and that we publish those numbers and have various reports.

From the state level, it is more difficult to really impact the classroom, especially the things that are happening in any individual schools. However, we are sending a message with our state plan. Even in some of the activities that are state sponsored, we are making sure that we are developing teachers' knowledge and skills.

Louise Meyer: Thank you, Barbara. Our next presenter is Joy Inniss. Joy, if you would go ahead and show us a little more detail on what Maryland is doing at the school level with learning technology.

Joy Inniss: Today I will be talking about what is being done in Baltimore City High Schools. Our aim is to change the way teachers teach the curriculum. Ultimately, we want students to have the skills they need to solve problems and think about issues; especially regarding issues that they will face in their careers. Students will acquire the same academic content knowledge that they would in a regular classroom, but will also have the opportunity to use technology as it becomes infused in the content of classroom lessons.

The strategy we use to do this is called TeamTech; a project-based approach that incorporates the use of technology in the classroom. This is where SCANS skills are very important. The

strategy aims to assist teachers in managing their classrooms while providing a structured framework for the creation of project-based learning units that incorporate technology. We want to see all students succeed especially those that are placed at risk by economic conditions, community or family disorganization, or disabilities. In other words, a major focus of the program is to create a classroom that encourages students to become self-regulated learners.

As I mentioned earlier, one of the methods we use to accomplish this is through the use of the TeamTech Learning System (created by Johns Hopkins Center for Technology in Education). TeamTech provides teachers with a structured approach to using many cooperative, project-based teaching and learning strategies. In class, students are placed in heterogeneous groups where each student has a particular role. The roles include facilitator, supply manager, coach, data manager and recorder. Designed to model positions that students would encounter in a workplace setting, these roles allow the teachers to organize lessons in a cooperative way so that students become exposed to work-related responsibilities. In addition, the use of a simulated experience where students use CD-ROMS or different software applications to enhance the skills that they are learning in the classroom is a benefit of our program. Together we work not only with students, but also with teachers and administrators. Teaming is a very important part of our work.

When students are placed in cooperative learning groups, for example, they are able to work with and learn from their peers. In this way they encourage each other to be successful and to meet the content needs and classroom expectations. We

find that because of the TeamTech Learning System's structured approach, there is much more opportunity for students and teachers to learn from each other — not to mention the opportunities that the system provides the teacher for well-designed classroom management.

Another important component of this program is to provide staff development for teachers about the uses of technology. We believe that it is important for our teachers to be comfortable working with technology. Unfortunately in many cases, we find that the teachers are not as comfortable using technology as they would like to be. So, before we even go in to work with the students, we want to make sure that we provide the training up front for the teachers.

In summary, we aspire to make students self-regulated learners and facilitate this endeavor through the use of structured, cooperative classrooms. Students have consistent roles similar to those found in the workplace. In practice this means that students are encouraged to help each other and take responsibility for their learning.

Assessment is another important part of our system. For example, we help teachers to understand how to create and use rubrics relevant to project-based learning and the SCANS skills. Typically we find it most helpful if we assist teachers in creating rubrics for units that they are currently teaching. In this way they are able to relate to and use the final products of our training. Essentially we are going in with the intention of demonstrating to teachers how to integrate their particular curriculum with technology and to show the teachers how they can engage and assess students with a project-based learning system.

The success of this model has been enormous!

We have a good deal of research from both Baltimore City and other schools in the county that indicate that students in TeamTech classes show academic gains including increases in time on task, attendance and decreases in tardiness. They come to school, they want to learn, and they are interested because they want to be on the computer in a structured environment where roles and expectations are clear.

Louise Meyer: Thank you very much. Dr. Thompson?

Ann Thompson: Thanks, Louise. I am pleased to be here. I will have a little different perspective on the issue. I am going to be coming at this from the point of view of work with pre-service teachers in the area of using technology. I would like to give you a sense of how we are thinking about that issue and then also give a relatively specific and brief description of what we are doing in our teacher education program at Iowa State.

I think that I do not have to spend much time in terms of the rationale for the importance of technology in pre-service teacher education. We are all very well aware of the need for teachers who are carefully educated, not just in how to use the technology, but who have experiences using the technology in ways that truly improve student learning. I know all of us are involved with in-service teacher education; and, in fact, I have spent a good deal of my career working with in-service teachers in the area of technology. It was in 1991 that I had the hard experience that taught me that, although I was working a lot in K-12 schools and really enjoying that work, what I really needed to be doing in terms of maximum impact was working with our faculty here at Iowa State University in the College of Education so that they could be using

technology in compelling and meaningful kinds of ways in teacher education. It turned out that it was a lot harder than working with the K-12 teachers, and I am going to tell you a little bit of that story.

In terms of our rationale, we are very interested in preparing new teachers with both the capability and vision of using technology. We are also quite committed to the idea that technology properly used in a teacher education program can help us do things that people in the field and people in teacher education have known for years that we need to do. For example, one of the things that we are very excited about is the ability of teacher technology to better connect us with schools. We are experimenting with a number of low-cost, assistant-education capabilities that involve two-way audio and video to help us connect with schools and make direct connections for our methods and foundations classes. This is one way that we are using technology to do something that we have always wanted to do in teacher education.

We are also extremely interested in using technology to create a model, learner-centered, authentic environment for our students in teacher education. We think that if they have learned in those types of environments, they will be better able to construct those environments for their own students. For example, one of the things that we are doing is we have a collaborative project with our College of Liberal Arts and Sciences with the Meteorology Department. They are teaching a beginning course for our teacher education students where the students use the web. In order to learn meteorology, these students predict the weather in different places on different days and then get authentic feedback on how well they did with their predictions. What we are hoping is that students

will learn meteorology in this authentic kind of environment. In addition, our real goal is that, when they are teaching, they will be models of how to use technology to create these kinds of environments for their own students.

Another piece of it in terms of teacher education is that technology is a way to attract some of our brightest and best. We have a very active technology component in our teacher education program. Some of the leaders in that program are our undergraduate students who, as many of us know, tend to have a better knowledge and capability with technology than the older generation. I see that as something to celebrate and take advantage of, not something to demote. In our case, many of our undergraduate teacher education students are constructing interesting computer-related environments working with in-service teachers, so all of our pre-service teachers come into the environment as leaders in this particular area and they learn a tremendous amount from in-service teachers.

In terms of rationale, it seems to be very clear that this is an area in which colleges of education need to be involved. In terms of history, that involvement has not been very impressive. I imagine a lot of you have read the reports about colleges of education, and in general the conclusion is that colleges of education need to be working to integrate technology in meaningful kinds of ways throughout the curriculum, and they are not there yet.

In many cases, K-12 schools are ahead of colleges of education in terms of the kinds of technology applications and teacher training that we see; however, that is not always the case. One of the things that I am especially interested in is that we set up collaborative environments so that K-12

institutions and colleges of education are working together on this issue. My experience up to this point is that there is a tendency for a lot of blaming to go on in this particular area, perhaps in other areas as well. Teacher education institutions may say, "We are doing a great job of preparing our students in the area of technology," and they are doing interesting things like authentic learning and problem solving. However, when the students get into the schools, there may not even be an Internet connection and the students can get somewhat disillusioned. The reverse of that blame is from the K-12 schools who say, "We are really working to get this to happen in the K-12 schools, and the colleges of education just are not keeping up with producing the kinds of students we need to lead in this area."

If you want to get into blaming, I think probably both points of view have some kind of accuracy, but this is a totally useless way to look at the issue. We are going to be able to do more for student learning if we set up collaborations between colleges of education and pre-K-12 schools so that we can learn together and share expertise. Basically, what we are doing is addressing the issue together.

We have attempted to do that at Iowa State in our teacher education program. I would like to highlight some of the major features of what we are doing at this institution in technology and teacher education and give you a bit of context. We are a very large teacher education program with about 1,000 undergraduate elementary education students and 500 students who are preparing to be secondary education teachers.

We began our work intensely in about 1991 and, at that time, the Department of Curriculum and Instruction made a strong commitment to making

technology integration one of the basic goals of the Teacher Education Program. That was relatively early, as many of you know, in terms of what is happening in technology and teacher education programs and it gave us a bit of a head start. Like most places, we started slowly. We began with just making the hardware available for the faculty and then eased into the integration piece. I think the "easing in" part is one of the reasons we have been relatively successful. We have never required faculty to do anything with respect to technology, and I think that has been a positive part of our program. I think that probably carries over into K-12 schools as well. Most of our faculty are now definitely on board and doing interesting and innovative things with technology in their teacher education classes. However, the process has been slow and gradual. We still have a few who are not doing much of anything, and that is okay.

I heard a doctor present at a conference several months ago and she was talking about the issue of what to do about the teachers who do not want to become involved. What she said is, "I have one piece of advice after my years of experience in this. My advice is, 'work with the living.'" That is something I would carry around in the back of my head and, in fact, we have ended up with almost total buy-in from our faculty to this technology and teacher education effort.

Probably the main reason for that is a program that we call Tech Mentoring. It has been going on in our department since 1992. It is very simple and very generalized with the K-12 schools. We use our students to mentor our faculty in the area of technology. These mentoring experiences, as the words suggest, are one-on-one. The faculty sign up to have a student mentor. We do it on a semester basis. The

student meets with the faculty member for one hour per week to talk about issues of technology. Generally, at first, the faculty determines the agenda. For most of our faculty, the first agenda item is to learn PowerPoint because they want to put their lecture notes on the computer. We are all well aware that this is not really what we are thinking about in terms of the many uses of technology to create student-centered environments. However, it is okay with us because we see it as a starting point.

As the semester progresses, in most cases, the faculty learn more about compelling, authentic uses of technology and begin working with simulations and different kinds of tools. If I had to cite one piece of our program that was the most influential in terms of making the difference, it would be the Tech Mentoring. In the year 2000, we are still doing the Tech Mentoring and have some faculty who will very cheerfully tell you that they have had a Tech Mentor for seven semesters in a row. That's just fine because they are growing and changing and learning. In addition, our students very much enjoy working with the faculty.

This semester, for the first time, we are using the same model with our K-12 partners. We are using our pre-service teachers as technology mentors for many of the teachers who are involved in our K-12 partnership. This is not to say that these new teachers know everything there is to know about teaching, but that they bring in expertise in technology that they can share. In these relationships, they learn a good deal from the classroom teachers.

The second most influential piece, in terms of our programs, is our emphasis on technology field experiences for our students. If they only see tech-

nology in teacher education classes — we've done some interesting research on this — it is not a total waste of time, but close. They need to have experiences out in the field with teachers who are using interesting and student-learning related uses of technology. We have worked very hard to set up collaborative relationships so that we are working with teachers in the schools and they are working with us. We let them come in and teach our classes, sharing their ideas about what they are doing with technology. We also use video a good deal so that our students are able to see what this looks like in K-12 schools.

One of the things I think we have to keep in mind is that most of us teach the way we are taught. Although we might have models in our head of good reading or mathematics instruction, your students leaving in the year 2000 also have models of using technology, uses that have improved their own learning. These collaborations are extremely important in terms of making those models available.

Another important piece of our program is integration with the Colleges of Engineering and Liberal Arts and Sciences. We've talked a little bit about the meteorology course. Another thing that we have going on in the program is we offer a minor in educational computing. Our goal there is to give students the background to take almost immediate leadership roles in the use of technology in K-12 schools. These students take about 21 credits of courses in techniques in educational computing. In addition, they take a psychology course and a computer science course to develop that expertise.

The last thing I will mention is that we have developed a Tech Club. These are pre-service

teachers who are especially interested in technology. Their major focus is the relationship with the K-12 schools. One of their regular annual projects is to adopt a school and work with the faculty and the students in that school in the area of technology.

We have a number of different things going on, and these have developed over a ten-year period. I think the most important thing that we have learned and the most important statement I can make about this is that it is absolutely critical that these technology and teacher education programs grow up in collaboration with K-12 schools. The models come from the K-12 schools. There are things that the college of education can help with in terms of the K-12 schools, but it has to be a very close collaboration. The beauty of it is that technology helps us develop closer collaborations with the K-12 schools because of our new capabilities with two-way audio and video, not to mention e-mail and the web kinds of things that we are doing.

Our teacher education program in the year 2000 is much stronger than it was in 1991. It is not totally because of technology, but technology has provided us with the tools to do the things in teacher education that we simply could not do in the past.

Louise Meyer: I would like to thank each of you for really excellent presentations. If there are people that would like to make a comment or a question, just please say your name, title, and affiliation.

Bill Conrad (Illinois): This is Bill Conrad with the Illinois State Board of Education. Barbara, did you get a chance to talk about your MDK-12 site? It is a very nice teacher portal. We've been working with the UAQA on developing an Illinois version of the MDK12.org. I would just like to thank you for

all the hard work and effort that you put into making that a very great site for teachers and administrators to use.

Barbara Reeves: That is great. That is a great testimony to it. I will explain briefly what it is. It is basically a site that has the student performance data from our state assessments. That's at the heart of it, but it is a larger site than that. Schools can go in, access their scores, and compare themselves to other schools that have the same demographics.

Bill Conrad (Illinois): What is the address?

Barbara Reeves: It is www.mdk12.org. There's a lot of information about the school improvement process, instructional resources, and wonderful sections on teachers giving teachers advice about how students can be better prepared for the state assessments, which are pretty rigorous.

Bill Conrad (Illinois): One of the components that we are really intrigued with again is this whole performance assessment in rubrics component where teachers can actually take student work and apply the rubric to it and see what they get. Maryland also has experts who have looked at the same piece of work and applied the rubric. It is a nice way for schools to get some reliability as it relates to using rubrics for assessing student work aligned to the Maryland standards. I think it is helpful to look at both kinds of tools.

We are also working with SRI. I do not know if people are familiar with the PALS site, but it is a National Science Foundation-funded site that aligns the national science standards with a valid and reliable performance assessment. The address is pals.sri.com. Again, this site provides teacher administration information, student or teacher directions, and research that has been used to make sure that these assessments are right, reliable, and

valid. What is neat is they also provide sample student work at the different performance levels. We also want to be able to utilize that site as a template for aligning our standards.

I appreciate Maryland's lead in providing online tools that teachers and administrators can use for a more data-driven, question-driven approach to improving student achievements. I think that there are some great things on the horizon.

A consultant with SRI came out to Illinois last week and has been working with our staff in aligning our standards with their performance standards. They have a new way of doing that by aligning our standards with the national standards. We automatically have a linkage to all of the performance assessments that exist on their site. What we want to do is to take this tool and adapt it to maps and language art. We see that as a really powerful tool for teachers and administrators.

Louise Meyer: Thank you for sharing. Anyone else with a comment or a question?

Pam Syntemire (Iowa): This is Pam Syntemire calling from Iowa. The question that I have is for the folks in Maryland and it has to do with the three-week summer institute. Do they get a good cross-section of not only the "pioneers" in technology, but also heavily recruit the "middle of the road" people?

Barbara Reeves: Yes. We have an application process and ask questions to try to screen for those kinds of things. The ones that we do not really accept are those that are still novices in using computers because there is just no way that they are going to be taught how to use a computer or basic software. We do make sure that they have at least a minimal level of technology competency, but we also try to signal on that application that this is not

for folks interested in computer networking and other technical aspects such as installing software. This professional development is designed for those teachers who have a keen interest on really making sure that they are using technology effectively in their classroom.

We had a wonderful cross-section last year. Last summer was the first summer institute, and we had 120 participants. We had 700 applicants for 120 positions. We had a K-16 because we do target higher education instructors as well. We had almost every subject area represented with a balance between elementary and secondary. It was a wonderful cross-section and the "people networking" with other teachers around the state is what these teachers all said was the best part. Every district except one from our state was represented.

It is definitely not just those that are at the advanced level, although they are recruited. We also have those that really could benefit most from just learning how to teach well beyond the technology.

There is a web site that you can access at [HTTP://cte.jhu.edu/techacademy](http://cte.jhu.edu/techacademy) that tells more about the tech academy and some of the teacher products that were produced last summer. There are some nice products that came out of that institute.

Pam Syntemire (Iowa): I've got a question regarding when teachers get beyond the "How do I turn on the machine and load the software, et cetera?" phase and really want to see some models specifically in their content area. We hear this especially from secondary people: "Don't just show me general applications. I want to see something in chemistry or physics or whatever the content where I am." How did you address that in the institute?

Barbara Reeves: Because it was three weeks and we had such a cross-section, we had smaller sessions

that were either grade level specific or content area specific. That kind of discussion does not happen a lot at the larger institute. One of the things that we are doing this summer is what we are calling satellite programs. Throughout the state, there are going to be regional “mini versions” of the tech academy where they will be able to target a particular content area or learning level using the core curriculum, but configuring it specifically for that content area or learning level. You are right. This does become an issue, so we do have some elective, smaller sessions.

Pam Syntemire (Iowa): One final question. How is this being funded?

Barbara Reeves: Half of the summer institute is funded through a federal innovation grant. The other half is through state funding. The satellite programs this summer are being totally funded through some additional state funding.

Pam Syntemire (Iowa): Do you have any idea how much money the state has put in for the project?

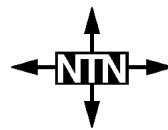
Barbara Reeves: Well, last summer was the first summer and that was approximately \$500,000 for 120 participants, for three weeks, partially residential. If they had to travel farther than fifty miles, they could stay at Towson University. That figure included everything, including a lot of supplies and materials, and each participant was given a \$1,200 stipend. In addition, they are given MSDE credit, and are eligible for graduate credit through Towson or Hopkins.

We are doing 20 satellite programs and just got the proposals for those, and each one is funded for \$80,000 — about \$1.6 million for this summer in addition to the \$500,000 for what we call the main academy.

Louise Meyer: I would like to thank Barbara, Joy, and Dr. Thompson for offering their time today. If you have any questions, please contact me at louisem@ccsso.org and I will do my best to help you find an answer. Again, we thank our participants for making this a very informative and lively session.

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