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## Transcript of Conference Call Presentation

# Universal Design for Learning: Improved Opportunities for Access, Participation, and Progress

presented by:

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**MS. CLAPPER:** I am one of the associate directors here at The National Center on Secondary Education and Transition (NCSET), and I will be serving as the facilitator for today's teleconference. Our focus today is on Universal Design for Learning: Improving Opportunities for Access, Participation, and Progress, and our presenters are Grace Meo and Chuck Hitchcock. Both Grace and Chuck are with the National Center on Accessing the General Curriculum headquartered in Boston. Without further delay, I am pleased to introduce to you Grace Meo and Chuck Hitchcock to speak on the topic of Universal Design for Learning.

**MR. HITCHCOCK:** Thank you, Ann. Grace and I are going to go back and forth a little bit. I want to just give a little introductory piece before we get started with Universal Design for just a few moments. And I do want to mention CAST is a not-for-profit research and development and service organization. Our mission is to expand education opportunities for diverse learners with a special emphasis on the needs of individuals with disabilities. We are a fairly small organization. We are fewer than 50 people, and we are just outside of Boston in Peabody, Mass., in case anyone knows this neighborhood.

I would like to give you our Web site, and I am going to give you a second URL in a moment for the national center. The CAST Web site is [www.cast.org](http://www.cast.org). The national center is a cooperative agreement between the organization, between

CAST and OSEP. It was initiated in December of 1999 and runs for five years. The purpose of the national center is to improve access, participation, and progress within the general education curriculum as is required by the 1997 amendments to IDEA. And our high-level goal is fairly simple. It's to improve learner outcomes.

We are not doing the work alone. We are partnered with some good folks, and CAST is not just the coordinating party but is doing a lot of the work on curriculum development. Boston College has a focus on teacher practice, and Harvard Law School is working on policy studies, at this time is completing work on an analysis of state policies in fewer than a dozen states it will be analyzing together shortly. That work is focused on looking at policies that impact access to the general curriculum.

The Council for Exceptional Children is working on stakeholder issues and consensus building, and the PACER Center in Minnesota is working on family advocacy issues. Just to mention briefly what we are going to try to cover in the brief time we have this afternoon is a discussion of Universal Design and Universal Design for Learning, and that approach to teaching learning and assessment. We do want to make sure we point out a few resources that you can access from the Web. And I do want to have a chance near the end to talk a little bit about what you can expect in the

future and some things that you can do to help this endeavor.

When I give talks at conferences, I often put my talk on the Web or a reference document on the Web, and I do that so there is a version that is available in an accessible form to people who are using screen readers and other various assistive technologies. And I would like to give you the URL for that online master reference document that I continue to build as a way for people to get updated information about the projects that we are working on and also information about the various text to speech initiatives, a way you can get digital text and things of that nature. That URL is [www.CAST.org/master/reference](http://www.CAST.org/master/reference). It's there for you to use. We'd love to have feedback about it. And finally, in this introductory section, I want to mention the URL for the national center is [www.CAST.org/ncac](http://www.CAST.org/ncac).

Grace and I have split up the discussion about Universal Design and Universal Design for Learning. What I would like to do is start by just mentioning briefly some of the problems that we are trying to address. And so, here are a few problems that we think are issues worth addressing in schools. We don't feel that the general ed curriculum is designed very often to support diverse learners, and Universal Design and Universal Design for Learning is one approach to dealing with that problem.

We think there are too many kids failing to meet what we perceive to be inflexible system requirements. And one of three or four things often happens: Kids are removed from the general ed placement forever. They are removed from the general ed to be remediated, hopefully to be returned, or they are provided with a parallel curriculum within the general ed classroom setting or a parallel curriculum within an outside placement. That's one set of problems that we are trying to address through Universal Design and Universal Design for Learning. And just to assure you, we are going to talk about what that is in a few moments.

We also think there may be a general perception that access to the general curriculum is enough. And our approach is that access is just a starting

point, that probably of greater importance is participation and progress, and yet it's important to keep in mind that participation and progress requires a lot more than what we perceive to be a fairly typical emphasis on accommodation and modification of existing curriculum rather than designing a curriculum with the needs of diverse learners built in from the bottom up.

We think there is probably a little bit too much time spent assessing kids rather than assessing what's wrong with the general ed curriculum in the first place. And we have a great concern that technology, when it's used in special education, is often used to address lower order skills and is really not supporting the development of higher order skills with special education kids.

So, in just a few moments I am going to turn to Grace, but I do want to tell you about just a couple of things that we are doing in the national center to address some of these issues, some of the specific questions and study topics that we are working on right now. We are working on a list of the various barriers that prevent access to the general curriculum, and some number of those can be found on the Web site now. We are also doing research on various curriculum enhancements or media enhancements that can be used in classrooms by teachers to improve access, participation, and progress within general education settings.

And we have posted a number of — and I won't go through the whole list — but a number of research syntheses on our Web site pertaining to concept maps, text to speech, virtual reality, anchored instructions, various technology tools, the use of manipulatives, the use of models and modified text. Those research reviews are posted on the national center Web site, and you can download them as Word or PDF documents and print them out.

Another issue that we are addressing as part of the national center is what are teachers and publishers doing right now to address the problem of supporting diverse learners in the general education curriculum? And we have posted a couple of studies. We did a survey with teachers and a survey of textbooks, and we have posted

those reports on the Web site as well. We hope that if you have questions about those, that you will get in touch with us by E-mail.

We are very interested in the impact of standards reform on learning and on special education. I know there are a lot of questions about this, so I am going to gloss over this one for just a moment. We are also very interested in what the various laws and regulations and policies — what impact at the state level various policies have on the access to the general curriculum, especially for issues like teacher certification, assessment, reimbursement for various placements, and copyright issues.

So, I am going to stop at the level of Universal Design, and Grace is going to do the hard part, which has more to do with learning. I want to make just a couple of comments about Universal Design. When we say that, we usually mean that something is designed to be accessible from the start. It's not made accessible by adding various tools and support, but it's built that way from the beginning, not the same as assistance technology, which is usually something you add after the fact. You make something that has built-in barriers more accessible.

Just to go on a little bit further, we often think of Universal Design before we get to the L part, the learning part, as really having mostly to do with access in the context of sensory access, of vision, hearing or physical access. The best examples that we know of are software programs that have been designed, for example, by Edmark that have Universal Design or accessibility features built in. The programs are designed for all kids, but the features are built in from the very beginning. Wiggle Works from Scholastic, which is a program that we were involved in developing, also has included a great number of features for kids with various sensory, physical, and cognitive supports. So, we think of these as being Universal Design examples.

But this is just the beginning, and we are very interested now in better learning and cognitive access. I am going to turn to Grace to talk about learning and Universal Design.

**MS. MEO:** We find that the challenge that educators face today, is that there actually is greater student diversity within the classroom. And also, as we all know and as Chuck mentioned, there is a great emphasis on standards and accountability. And so, what we as educators have to figure out is how to improve achievement for all students.

Universal Design at CAST is the approach to teaching, learning, and assessment that draws on the current brain research in the learning brain as well as the new technologies that really will attend to individual learner differences. New insights into the learning brain help us understand the diversities of learners. For example, people used to think that there was one global capacity that an individual had or that individuals with disabilities fell into distinct categories.

But rather what we are discovering through the new brain research is that individuals have multi-faceted capacities. Therefore, a disability in one area may be countered by an extraordinary ability in another area. So, it's not that we can categorize students as falling within a certain category of disability, but rather learners fall on a continuum of learner differences, and therefore, we have to address our curriculum methods, materials, and assessments to address the diversity of the learners.

So, UDL takes advantage not only of the current work in the learning brain but also takes advantage of the new technologies that help us respond to the multi-faceted individual differences of learners. With digital media we can now think about what in the curriculum, or what in the methods and materials can be changed to support the student diversity. So, again, it's not categorizing individuals as disabled falling into a specific category of disability, but really gathering information about the diversity of the learning brain and recognizing that learners fall along a continuum of learner differences.

The key points in Universal Design for Learning are that learning is distributed across three interconnected neuro-networks: the recognition network, the strategic network, and the affective network. The recognition network is specialized in recognizing and analyzing information. For

example, all of you are listening, you have ability to hear what is being said through this teleconference, and you are able to understand the spoken message. And if you can't hear, you might have support either by someone signing or by using TTY. You find appropriate supports to help support your recognition network.

Your strategic network is specialized in planning and executing an action. So, when you think about students, you want to think about them relative to strengths and weaknesses in recognition network and strategic network. For example, in the strategic network, most of you set up a plan to be joining us in this conference call. You had to dial up. Some of you are using notepads for taking notes. Others might be recording. Some of you are starting to think about questions. In fact, if you are sitting with a group, you may have decided that different folks in the group will take on different roles. So, again, your strategic network is supporting a profile of what's happening right now.

And then, of course, there is the affective network. The affective network is specialized in evaluating and setting priorities. This would mean that participants in this call are motivated to listen, take notes, and ask questions. If you decide you don't want to continue on the line, your affective network sends a message to hang up at some point so we hear a little bleep.

So, what does this mean for education? Primarily, it means that individuals differ within and across brain networks showing strengths and weaknesses that make each learner unique. We recognize the diversity and the uniqueness of all learners. And now the question is what do we do with this information? What we say is that it's no longer "one size fits all." Traditionally, in schools, "one size" is expected to fit all learners — textbooks work for all students or lecture format works for all students or images or pictures work for all students.

We need to understand that learner differences don't just reside within an individual's capacity, but are defined by the ability and the tools that the individuals use. If an individual has difficulty learning from traditional materials — and the traditional materials are the books, the images, the

lecture — then the materials or the tools are barriers to learning. As Chuck discussed previously, he talked about barriers, and when we are talking about Universal Design, we are talking about sensory barriers, or barriers to get into buildings, or barriers to hear. When we are talking about Universal Design for learning, we are talking about barriers in the learning.

So, what's needed? We need methods. We need media. We need materials that address the diversity of all learners. We are finding that digital materials are transformable and malleable, and therefore, digital materials can address learner diversity. So, how do we design digital materials? Digital materials can represent information in multiple formats in media. Digital materials can provide multiple pathways for students' actions or expressions. So, students just no longer can write something. They can use the computer. They can use the audio equipment. They can manipulate materials. And digital materials provide multiple ways to engage students.

These three principals: representing information in multiple formats, providing multiple pathways to expression, and providing multiple ways to engage students implemented with new media improve students' access to learning, goals, methods, materials, and assessments. Chuck, is there anything you would like to add?

**MR. HITCHCOCK:** Well, these questions are for clarification primarily, so I should just say, I am in a few moments going to be talking about some of the tools that are available to help and some of the initiatives that we have initiated to ensure that some of the digital content that kids need, and teachers need, is available. So, why don't we stop for one second and ask if there are any questions just to clarify some of the things we have already talked about.

**MS. MEO:** We talk about some available resources that educators have access to today. The CAST Web site (<http://www.cast.org>), for example, it is a resource for information, teacher stories, articles, and tools. For example, on the Web site there are tools that are common to all Web sites, i.e., the search tool. But to create accessibility

of a Web site, one could change the interface of the Web site. So, if, in fact, your preference is something other than a white background, you can change it to a black background. You can change the size of the text. It's quite adaptable to your own personal interface.

Again, the Web site was designed to reflect the principals of Universal Design for Learning. There is a place where one can take notes on the Web site. You also can engage in a forum. If you want to collaborate or discuss issues with other educators in the field, you can leave messages and experts receive feedback. The Web site adheres to the principles of UDL.

Another resource is the National Center on Accessing the General Curriculum (NCAC) Web site ([www.cast.org/ncac](http://www.cast.org/ncac)). The goal of this Web site is to provide a forum or a place showing a vision of how new curriculum, teaching practices, and policies impact practical approaches to improve access to the general curriculum for students with disabilities.

The NCAC Web site posts a series of articles on teacher practices, curriculum methodology, and policy issues. The intention of our work in the Center as reflected on the Web site is to provide leadership in these areas. Through our publications, we have a number of informational briefs, which not only disseminate the information, but also are a vehicle for gaining information from the field.

Another resource to educators is the professional development opportunities (<http://cast.org/pd>) that CAST provides. These are both face-to-face professional development opportunities in terms of focused institutes on change, as well as Web-based PhD offerings. We also have a National Consortium (<http://www.cast.org/nationalconsortium>) in which we are engaging members from the professional community from across the country to participate in our movement of improving access to the general curriculum for all students. We welcome members to join and to be engaged in our community relationships. Chuck, would you like to talk a little bit about the digital tools?

**MR. HITCHCOCK:** You bet. I just want to reinforce one thing: That is, if you do go to the national center Web site, in addition to the literature reviews and the research reviews, we have also included the data tables for the research. If you are doing research or you know someone who is doing research on various media or curriculum enhancements, you can use the data tables rather than refer to the more wordy reports.

Also, just as a reminder, the master reference document also has a reference to these tools I am going to talk about so that you can go to that document at [www.cast.org/master/reference](http://www.cast.org/master/reference) and get some of the information that I am about to share.

One of the things that I started working on when I first came to CAST was a tool to help kids with reading problems, to convert digital content into voice. And some of you are probably thinking, well, that's pretty common now and there are lots of things that talk or there are screen readers for kids who are blind. What occurred to me was that we needed tools that not only converted digital text to speech but that we needed them to provide synchronized highlighting to encourage kids to follow along while the typed text was being read.

This is especially important, for example, for a fifth grader who could keep up with fifth grade social studies if only he could read the text. We have implemented such speech in a talking browser developed something called the e-Reader, the CAST e-Reader. Using a tool like this, it is possible for students, if they have the digital content or their content in digital form, to actually keep up either by listening to the content during the school day or by taking it home with them. And the resource material on the Web site actually points out a number of these talking tools and talking browsers that — some of them are free that you can get today and actually put in the hands of kids.

Now, the harder part is the digital content, so where do you get the textbook in digital form. And you have probably discovered if you have tried to do this, that publishers try not to make this content too freely available because they are very worried about what will happen to it.

So, we are working on a large initiative to create a database of all curriculum materials that we can deliver to qualified students, to teachers and parents so they can get, not just the public domain content which we know we can get from Guttenberg or the University of Virginia as html documents or as asci documents or Microsoft E-book documents, but we will also be able to get — and this is our dream and what we have been working on for the last year and a half — getting the core curriculum content — that's the textbooks and the worksheets associated with them — into a digital library to be able to deliver to qualified schools throughout the country. We are well on our way to building the infrastructure, and the hard part is still ahead of us, a lot of the conversion work of that content and then the agreements, of course, with the publishers, and then finding ways to protect and yet make it accessible, that digital content.

A couple of other tools I just want to mention very briefly: Some of you may be familiar with other talking browsers like the IBM homepage reader. I hope you know about it. You should look into it. For kids who do Web research and have trouble with reading, it's a great tool. That and the CAST e-Reader provide similar capabilities. Microsoft Reader, the new version of their open E-book reader also has text-to-speech built into it with synchronized highlighting and is quite impressive. And there are more and more free books available from the University of Virginia, from Barnes and Nobles, and various other sources that kids, teachers, and parents can get access to today.

The last pair of items that I would like to mention in this section is tools for helping universities, corporations, government offices, and schools make their Web sites accessible to individuals with disabilities. Some of you know the tool we have developed here is called Bobby, and it's used by Web developers throughout the world who wish to comply with the W3C Web access initiative guidelines for accessibility of the Web.

This afternoon we are releasing a new version of Bobby. The new version will also support the Section 508 guidelines, the federal guidelines for

Web accessibility. The user will be able to determine whether they want to use the W3C guidelines, and at what priority level, or use the federal access board guidelines under Section 508.

A second project that we have been working on for the last year, a parallel project, is sort of a shell around Bobby, designed more for educators to help them learn about accessibility, which is different than the process a Web developer would use for really accessing a technical Web site using something like Bobby. We have been calling it the Bobby trainer. I am not sure what we will call it when we release it shortly, and we plan to integrate that into our Web development work in our Web site so that teachers can use it to help identify problems but also learn how to avoid creating barriers on their Web sites for people with various sensory, physical, and cognitive disabilities.

Let me stop there for just a moment and ask if there are any clarifying questions. What I would like to go through next are just some things we are working on for the future and perhaps point out what we think are a few research needs and some things we are doing in the national center, and I would like to mention a couple of things you can do. But let's stop for just a moment and see if there are any questions.

**MS. BRIEL:** This is Lorie from Virginia. Are there any rules involved with putting textbooks in alternate formats? Are the publishers concerned that they are going to be losing money by people using the discs instead of purchasing the books? I work at a university, and we wanted to explore putting some books in alternate format for the students as part of a research study.

**MR. HITCHCOCK:** You bet. That's a great question, and yes, the publishers are very concerned about this. One thing you should know is that the federal copyright law was amended. There is an amendment called the Chafee Amendment that was implemented in 1996 which allows for organizations like CAST, the Recordings for the Blind and Dyslexic, and the American Federation for the Blind to actually convert core curriculum content textbooks and distribute them to qualified individuals.

The problem with the amendment is that some of the language in it is a little fuzzy. It talks about the needs of individuals who are print disabled but doesn't really qualify exactly what that means, and it's probably going to end up in the courts.

But yes, the publishers are worried. In fact, their biggest worry is that there will be another Napster on core curriculum materials, which is why we are working with the publishers and with the American Association of Publishers, with Steve Dreisler there, the director of the education division, who is also an attorney, to make sure that we are working closely with him every step of the way. But they are still worried about what we are doing and what everybody else is doing.

**MS. BRIEL:** Thank you.

**MR. HITCHCOCK:** You're welcome. Any other questions?

**MS. SWORD:** Grace and Chuck, this is Carrie Sword at the National Center on Secondary Education and Transition, and I wanted to ask if the Universal Design or Universal Design for Learning has the capacity to also challenge those gifted students or very intellectually talented students? Are there functions built into it for that purpose?

**MS. MEO:** Well, clearly that's another great question. In thinking about Universal Design for Learning, we are thinking about all students and providing the right amount of challenge as well as the right amount of support. So, if one considers the zone of proximal development for all individual learners, we design curriculum that has the right amount of challenge and support, therefore, gifted students will not, in fact, be bored or unmotivated but will be appropriately challenged. What it does require again is focusing on what the materials and methods are and what the goals are and to adjust those so they can fit the unique needs of all children.

**MS. SWORD:** Thank you.

**MR. HITCHCOCK:** One more question before I move to the future part? All right. What I would like to do for just a few moments is talk about some things that we are working on and perhaps a few things that are needed, and then we

will open it up for a more general discussion and questions.

I was asked by Jane Houser at OSEP to write a paper on the future of technology in special education along with — I was one of four — and that article, I was pleased to learn yesterday, has just been posted publicly on the Journal of Special Education Technology Web site, the JSET technology Web site. I didn't bring the URL with me, but it's the fall 2001 online version and that's something you can, if you have any interest, download and read today. And it will be printed in the JSET paper version shortly.

Dr. David Rose and Dr. Ann Myer, who are the co-executive directors here at CAST, recently completed writing a book for ASCD to be published in March, and we are calling it *Teaching Every Student*. And it does address some of the questions that have come up around special education providing the kind of education that addresses the diversity that we were just describing, including gifted youngsters as well. But it has a special focus on disability.

What's really interesting about the book is once it's released by ASCD, we will at the same time be announcing a Web site to support teacher training of professional development, and we are calling it the Teaching Every Student (TES) Web site. And we are going to begin taking some of the content that we have developed, when appropriate, from the existing Universal Design for Learning section of the CAST Web site, build a database of that library of material, and integrate it into various tutorials, lessons, and collaborative experiences within the TES Web site.

The timing may be a little odd. I would rather be releasing something like this, I think, in late summer or early fall, but we are probably going to be testing it in January and February, quite likely making it public in March.

I also mentioned the Universal Learning Center, the ULC. That is the initiative to convert, score, and provide a search engine on the front end to teach kids where they can get various formats of core curriculum materials. And I won't bore you with the infrastructure. If anyone is technical out

there and interested in learning about XML and how we are providing various formats, I will be glad to take a phone call here at CAST from you at some later point. But we are really looking forward to making this service available to schools.

Probably of highest interest to people here at CAST right now is some work that we are doing around imbedding learning strategies into core curriculum digital content. We call it ULE or Universal Learning Editions. We have been using various trade books and recently doing work on picture books. What we are trying to do is create digital versions that are smart enough to help kids develop the strategies they need to become better learners so that in the process of using the materials, the supports and the scaffolds that they need individually, are available to them and then are perhaps tapered off over time.

We have been doing some research in this area recently, and we are getting really great results; we only have begun to disaggregate the data to see which kids benefit most from this sort of support. Probably one of the most fascinating findings for us is that the teachers who have been watching what kids have been doing on the computer (and what we have done is to imbed some of Dr. Palincsar's reciprocal teaching into the digital content) are actually watching the kids using those and beginning to integrate those same technologies and same methods into other parts of their teaching, which we think is — well, it's a strategy that never occurred to us, but it has some interesting implications. But we are also seeing some really good data on student growth around vocabulary and comprehension, and we are going to be sharing that shortly in various research reports.

I mentioned the e-Reader, our talking browser that we have been working on for a number of years. We have started to do some work with the folks at the Recordings for Blind and Dyslexic to see if we can develop together a version which not only has text for speech, and this is especially important for young kids, but also has naturally recorded high quality voice so that we can synchronize using what are described as the Daisy NISO Standards for talking books so that we can

offer both text to speech, when it's appropriate, but also synchronized high quality voices as well.

I am skipping along here. Let's see, we have just gotten a grant to do some work on accessible assessments. As you probably know, I don't really want to talk too much about high stakes assessment. We are doing work in that area. And there is a very interesting paper posted on our Web site on that topic. We have some people here at CAST who are just beginning to look at what difference does it make when you offer an accessible version of a test to a youngster.

And you probably know that Boston College has done a lot of work in the area of writing. We have not seen much work done yet on comparing accessible versus paper and pencil assessments and their impact on various types of learners, and that's the work we are just initiating with the grant we have just received.

The national center is just beginning work on classroom practices of a different type from the enhancements that I mentioned a while ago. These are more along the lines of cooperative learning strategies, various strategy instruction, differentiated instruction, self-determination, explicit instruction, collaboration, pro-active behavior management techniques, and peer support, the idea being that, it occurred to us (and it should have occurred to us much earlier), that these various research-based strategies and practices should be described on our Web site, on the national center Web site, so that teachers can get the information about them fairly quickly.

But we also needed to think about these various strategies that are being used in classrooms today in the context of Universal Design for Learning. So, Tracy Hall who is on our staff here at CAST, is working on those documents, and we expect they will be on our Web site sometime in the next few months. And the folks at Boston College are also working on the question of teacher preparation. What are we going to do about pre-service and in-service?

And so we are working on various strategies on that topic along with specifically how do we address the needs of low incidence and as you know, this



gets quite complicated in the context of not just Universal Design for learning but also access, participation, and progress within the general curriculum, which as you already know, is not about place. It's about providing a continuum of services. And there are rather complex issues to deal with in terms of the best services for the kids and the desires of families around low incidence that we are really just starting to address, and we will have something on the Web site shortly.

There are a few areas where we think we need to do some more research or perhaps if there are university folks out there, perhaps you will do this research. One of those topics is this whole issue of the work of Vygotsky or the Zone of Proximal Development. How do you provide the right balance of challenge and support, which is sort of a critical topic for the kids we are most concerned about? How do you build it into digital learning environments and how do you offer it when you are standing in front of the classroom or when you are grouping kids, and how do you ensure that kids are not overly frustrated and lacking the supports they need to move forward?

When David Rose, our co-executive director, talks about this, he usually shows a slide, and it has something to do with glucose burning in the brain. And we know that when we have the right balance kids are burning glucose and when they don't, there is not much glucose burning. When they are not learning, they are not burning glucose. We also have a lot to learn about affective issues and learning and especially around issues like what happens when kids get to make choices about their personal interest.

What do we do about kids who really want to be in control of their learning choices, their learning environment? How do we give them that kind of control and yet keep them on a path that makes sense for their learning and progress? Grace mentioned the importance of helping kids develop the skills for determining what's worth doing and what's worth knowing and the whole issue of determining importance and motivation.

A third topic has to do with effective strategies for participating in cooperative learning

environments, working within the general classroom. How do we ensure that kids with special needs are really active and engaged participants in those types of learning environments? I think Cathy Morocco is doing some work on this topic right now at EDC, and we look forward to learning from her and we think there is probably a lot to be learned in this area still.

We also want to know how to imbed the learning of core skills and strategies within the digital learning materials, and our sense is that explicit instruction is not going to go away, but for some kids having instruction imbedded in the high interest materials, the trade books, and so on may be a good strategy. But we don't know much about this yet. And the Universal Learning Editions (ULEs) are going to help us learn, but we are really going to need help from others in doing this research.

So, what can you do? There are just a couple of things and then I am going to stop. We think you ought to be demanding accessible learning materials as just sort of a baseline. When you buy software or use Web sites for your school or for your university or if you train teachers, depending on what your role is, you should make sure that those things are models of accessibility and that they can be used by everyone, that they are not presenting new barriers to kids who should and could participate but can't because the materials that they use are inaccessible.

We also think that you can help expose the problems — those inflexible methods in the classroom, inflexible materials in the classroom — by watching for them and pointing out the barriers and making sure that publishers know that we expect and need flexible and accessible learning materials. We also need your help identifying effective models for teaching learning strategies such as Differentiated Instruction and so on. If you know a good model, we would like to know about it. And we also need good models for general educators and special educators working together. And around issues like designing curriculum right from the start where there are special educators involved from the very beginning developing new instructional strategies or enhancing instructional

materials for all kids or perhaps implementation of various strategies within general ed classroom settings.

So, there is a lot of work for us to do and there is surely work for you to do as well. And we are available and accessible. You can access us on our Web site and you can E-mail us; both our E-mail addresses are our first initial and our last name, so, [chitchcock@CAST.org](mailto:chitchcock@CAST.org) and [gmeo@CAST.org](mailto:gmeo@CAST.org). So, I think we are going to stop here for questions and discussion, and I appreciate your listening.

**MS. CLAPPER:** Thanks, Chuck and Grace. Are there questions from the field?

**MS. SWORD:** This is Carrie Sword with the National Center on Secondary Education and Transition again, and I am wondering if you have any information or comments about the cost of this for school systems to initiate?

**MR. HITCHCOCK:** Well, you know — good question. It's not a program that you can buy in a box, and so it will be very situational. The schools already have technology — and we know that for the most part about 15 percent of the technology that's available in schools today is being used at any one time, so we know we are not doing a very good job of using the technology that's already out there. So, we are not advocating that everybody run out and buy new computers.

Teacher training is a considerable expense and is in the central part of this as is the acquisition of digital content. We are not strong advocates for going out and buying lots of new learning software but instead to focus more on getting the core curriculum materials in digital forms. We have to figure out how to pay for this whole universal learning center so we have gotten some grants to build the infrastructure, which turned out to be very expensive. But the ongoing costs of conversion — let me just give you an example. To convert one textbook from a publisher can cost about \$25,000. So, the cost for providing digital materials should be absorbed by other parties like us, but we are also talking to states about ways of funding some of the conversions. At the school level we don't think there is going to be an increase in cost. We are really talking more about how we use the resources we

have more effectively, and so we are not proposing a program where you would have to run out and buy lots of new materials. When we have worked with schools like Concord, New Hampshire, and other places, Region 4 in Texas, schools in the state of Maine, generally the teachers work very hard at digitizing their own materials and find ways to implement the use of digital content in fairly cost effective ways.

**MS. MEO:** Also, a note about our work in Concord schools — we began with this initiative on Universal Design for Learning about seven years ago. And in fact, they started very small. The initial focus of the UDL work was grounded in a very strong parent volunteer group who actually scanned material on an as-needed basis. But again, it was a very small initiative. At this point after seven years, they have scanned most of their K through eight curriculum materials.

The Concord superintendent is committed to addressing the diverse needs of all students and in fact, has hired a part-time home-based person who is scanning information on an as-needed basis. The Concord schools have developed a digital resource bank that is available for eligible students with special needs. We are finding that many teachers across the country are engaging in the same grass roots effort of scanning text.

**MS. CLAPPER:** Thanks. Are there other questions?

**MS. ALLEN:** This is Mary Allen from North Carolina A&T in Greensboro. I was wondering — you referred to eligible schools and eligible students, and I think you were referring to the Chafee Amendment and access to the materials. Could you talk a little bit about the eligibility requirements and where they might be found?

**MR. HITCHCOCK:** Yeah. Actually, I think probably the easiest way is just to do a search on the federal register and you will find the actual language for the Chafee Amendment. Another place where you can find that information is the American Federation for the Blind. I think there may be something on the AFB Web site. And a third place if you don't find it in any of those, is send me an E-mail and I will send it to you.

But you know, the language is sort of interesting because it reads like it was written primarily to support individuals who are blind, and yet we know that that's a fairly small percentage of the individuals who have various print and reading disabilities. So, we are interpreting this more broadly, and we are working with the folks at Harvard Law School to help us really understand what some of the pitfalls are in our interpretation of who can benefit from these services, what students can benefit. We are interpreting it rather broadly at the moment and we think we are probably going to be okay.

But at the same time, I do want to mention that in order to be a little more comprehensive about this, I am working with an attorney and a law degree candidate at Boston University who is drafting legislation to actually update the language of the Chafee Amendment to provide a little more clarity about some of these issues. And so, I have proposed four changes, and those are to be drafted, and I am hoping that we can have a bill sponsored in Congress. It will take a while. This sort of copyright change is sort of complex, but I do want to assure you that this is possible.

I want to mention one other facet of this, which is complicated. Very often the publishers have agreements with their individual content providers, for example, someone who took the picture, and the contract says that the publisher can only use that image for a specific reference like the publication in a paper textbook. And when that's the case, it prevents the publisher legally from actually turning over their files, which are already digital, so we can convert them to XML and make them available to schools. So, we have a lot of little things like this that we are still wrestling with.

**MS. CLAPPER:** Thanks to the both of you. I think the two o'clock hour approaches. I will take this opportunity to thank you, Grace and Chuck, for your informative presentation on a very important topic. I would like to thank all of you folks in the field for participating in this teleconference, and we hope to have you back on line for one of our future teleconferences. If you would like to find out the schedule for our

teleconferences, you may visit our Web site. I'll give that to you. It's <http://ici.umn.edu/ncset>. Thank you again to our presenters and to all of you for joining us today. Good-bye.

(End of Teleconference)

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