SUSAN GILL: Good afternoon. Welcome back to the second part of our video conference on Challenging Access Issues. We are going to be proceeding this afternoon with expanding on some of the earlier topics and seeing some more video tape. I would like to just take a moment before we get started to just talk for a moment about students with challenging access difficulties project that I mentioned and Karen mentioned earlier this morning. For those of us working with students who have very complex bodies and limited or compromised communication skills, all of our work with them, education with them is a challenge. What we asked for with this project was, show us some of your most challenging students from whom other could learn as we observe and look through some of the solutions. By presenting across the state, by teams coming to us with some of their biggest challenges, we see some challenging students whom, as I said earlier today, we hope are familiar and, I suspect, are familiar to many of you – you think, 'I have had that problem' or 'that happens to me' or 'what was the solution here?' because as unique as each student is, these complex problems do offer us, as we look across these fairly low incidence populations, we see these similarities. You don't get that much opportunity to see multiple students with these problems.

Our purpose in this whole project was to present these challenges. Because we asked for challenging students, we're seeing students for whom great work has been done, but with all the work that you see and all of the systems and the equipment, you see that there are still things not working right. For those of us working in assistive technology, that's our world. That's what happened. Every student is a challenge in that respect. We didn't ask teams to show us what is working well. So these video tapes that you see are absolutely not students for whom everything is all together yet. If you're seeing students whose teams are with them on this journey to get things right, and it is a challenge. For that reason, before we move on, I am going to say what Karen and I have both already said, which is, we thank these teams for giving us this window for teaching others what some of the issues are as we move forward. We know that, and I know, every time I go to see a student, I think 'I'm figuring it out.' I'm figuring out a lot of it as I go, and I take the risk as these teams do of having what I don't know, what I haven't gotten right, the technology I don't necessarily understand or the part that I have less experience with, and of being wrong. We figure it out and we move forward.

This is absolutely what you are going to see her. We think that that's the wonderful learning opportunity that we are presenting you with. Because we have such challenging students, it takes these teams, these students, these families, these teams have to be so persistent and so open minded in moving forward that that's really the nature of the teams that you are looking at. As a testimony to that persistence and open-mindedness, I am going to start out with an update on Kaitlin whom you saw earlier. We will able to get a nice update on Zach, which was terrific. The update on Kaitlin, which I will read to you, is: "Kaitlin had surgery about 6 weeks after Karen's visit to straighten her spine as a result of a letter that the PT wrote to the orthopedist as a followup to Karen's consult. She now has a new power chair with a tilt function that she loves and does use to reposition herself when she slides." Isn't that terrific? "She also has a new mounting system that is much more stable. We do not yet have a good solution for the docking of her pencils." So, as you see, even as we move along and have successes, there are continued challenges. "FYI: Kaitlin won second place in the district science competition for her project on paper chromatography. She presented it with the use of her device through the distance

learning equipment at her school. I wish you could see her now! Kaitlin will be transitioning to high school this fall. She is very excited about this new adventure. Thanks for your consult, Karen; it made a difference in the quality of Kaitlin's life." This is what we are doing this for. We are trying to arm all of you who are watching this video conference, this video with tools to change student's lives in little ways. We are anxiously awaiting an update on our other student, Christopher, and we really look forward to showing you a few of these other wonderful teams and kids that we have seen along this project. I am now turning things over to Karen. KAREN KANGAS, MD: Welcome back. I hope you all had a nice lunch. This afternoon is going to be probably one of the most challenging topics that we deal with all of the time. And that is, again, many of the times that we have all been in the field of assistive technology, everybody's first question is, 'what access am I going to use?' What I'm hoping that can change after this afternoon is, I hope you will first start out when you meet a child with what activity am I going to be engaged in. To try to get to that point, I want to bring you very carefully to once again trying to make a shift in paradigms.

The paradigm is the classic standard assessment approach, which not developed for pediatrics but which, unfortunately, is still a place that we seem to hand out hat. These two definitions of access are what I am going to talk about today. Now, that definition of access isn't something that you are going to find in a book. Again, I am trying to find a clinical or a process-oriented definition that will help us be on this path we are going to talk about today. To me, access is really how an individual is able to manage an activity of interest with intention independently. That's our biggest goal. It is also how to manage a particular machine at a particular time for a specific activity which will produce an output. Those two things actually do make some presumptions in them. The presumption is that you aren't, as soon as you first meet someone, going to say, 'what is their access site?' Instead, I'm hoping what we are going to say is, what is an activity of interest, what kind of attention are they demonstrating, or what particular machine are we using at what specific time with what specific software, and with what specific output? When we really look at, the way I've set this up is that I want to look at old paradigms I think we need to leave behind and new paradigms that we need to embrace. I think if we start to think this way, particularly for young children or for children we are meeting for the first time, I'm looking at issues of access; I think this will be tremendously helpful.

This old paradigm we need to leave behind is that our access is going to be assessed first, and I mentioned that a bit this morning. Instead, what needs to happen is that we need to have a child engaged in an activity. A lot of times we start thinking well, but they aren't engaged in an activity. How do we even see that there is an activity engagement? The way we first look at it for children who are very involved bodies is that they're interested. So, a lot of times, just like in pre-school, a teacher does not say, 'are you left-handed or are you right-handed? Shall I give you a fat crayon or a skinny crayon? Would you do better with a magic marker or a paint brush? I am going to decide that before I give you the paper and the opportunity to do that activity. We don't do that, do we? We, instead, like everyone to finger pain. We like everybody to have an opportunity with various utensils. We use them in different ways, and as we see how the child is interested in the activity, that's actually how we give them different tools. We do not judge right off the bat how they are going to do something. Instead, we look

at are they interested? Have they experienced this activity? Let's provide a way for them to experience this activity and we can then go after it.

The next thing is that in our assessment paradigms we have also been told to look for an optimal site, as if there is a secret, magic, one site that is going to manage everything. The reason I have a problem with this is I primarily work with people who have complex bodies, and I also primarily work with children. Children are not yet mature. I can guarantee you switch sites will develop. So, where you start is never where you are going to end. You can't be looking for optimal when you haven't even started. And the whole idea of optimal, once again, was with someone who had weakness, so we are looking for a site that they could manage over time for a particular activity not for a child who's first starting out. We need to really then lose term optimal and lose the term site. I want us to look at multiple sites for multiple activities. I want children to gain opportunities and experience, increase their repertoire of activity and, in that way, access will grow. In terms of looking at an AAC device particularly or how a computer works, we have to understand those are machines, and we need to know how it works. I still remember the very first time I tried to use a head mouse, and I also remember the first time we had a mouse, because I am old enough that the first computers I used did not have a mouse. We didn't even have hard drives, so we had to switch those things back and forth and had to remember to put the print thing in or you couldn't print if you didn't put the disk in, and we had floppy disks and they really were floppy. They weren't like really pretend, and a hard disk was a hard floppy disk, a smaller floppy disk. The thing is, in order for us to do that – Apple first came out with – you had to take a little tutorial of how the mouse worked. Someone had to actually explain how you moved it around, how you clicked it, what were you doing dragging it, so you literally had to learn the machine. Now usually those of us who are learning this could already read. We also could manipulate objects so we could manage putting the disks in and out. But, they didn't look like anything else we had in our environment. I mean, with the way we managed computers, actually putting things in things and how – I mean it was really a whole new experience. We had to understand how that machine works.

We then had to understand how the software in the machine controls – what's it real activity? Now let me give you an example here. When we were first introduced to a MacIntosh, and I am not knocking P.C.s, this is not a commercial for Apple, it just is that we know that P.C.s have even gone the same route as we have gone through graphical interfaces. When you saw on your desktop something that looked like a folder, it is because they were supposed to look like a desk top, and those folders still look like a folder. They look like a manila folder that you would pull out and put on your desk top. And when you open it, you open it, and, in fact of the matter, who I first met and that's what I used to have; I used to have a desk top that looked like the desktop that was on there. I had the real folders and when the folder opened up, what it opened up to, if it was that particular software, that is what I had in text in this folder. Why? It made sense. Now I understood. Oh, that thing that I am seeing is a folder; I am opening that up. Now this was really quickly able to occur for those of us who are adults.

That's again where computers got put into use first with adults. We knew about filing cabinets, we knew about files. Most kindergartners don't know what a file folder is. Most 3 year olds don't. Many first and second graders might; it depends upon how people at home keep their records, it kind of depends upon whether there are actually filing cabinets, more and more we have home offices and have

filing cabinets, but I know originally when I first started doing bills, I used to take Scotch Tape and tape them into like a tablet to keep track. My mother just had a drawer; that was the bill drawer. That's where the bills went in and that's where the bills went out, and that was her bill drawer, and then there was a box, just a cardboard box that was listed "Bills paid" or "1952." There weren't even file folders at my house. When we start to then bring a kid to a computer and, although we can have software that immediately opens up and somebody doing something, we still are managing, as we go through those computer programs, we are still basically dealing with mouse activity. And when we are, and when we know how much a computer can make a difference in a person's life, not only all of ours, but everybody's, is now how we get to the library. I still say the internet is the primary library at home that we are able to get into at anytime, get information, but particularly for people with disabilities.

What a difference it has made for them for shopping, for managing their banking, for things they are going to be able to do that we would want children to do when they grow up. As we are doing this, we need to understand that our switch access is really one piece of mouse access. And when we are dealing with a computer, no matter what the software program is, we're dealing with the ability of being able to manage tasks on a computer. As we understand that, we then need to teach what those pieces are. I've kind of given up talking about a mouse to someone who is never going to actually manipulate a mouse. Instead, though, I do like to talk about how you can move around, how you see the cursor and it can be a pointer, you can give it a name, you can call it the arrow, you can call it – it's going over there when it touches that and the arrow touches that folder and you touch this button, it opens – sometimes with young kids I call it Mr. Pointer, I wonder where Mr. Pointer is going to go, always you're moving Mr. Pointer, look, he went over there. Maybe Mr. Pointer would like to open this up. Anyway, it is that whole idea of we're teaching somebody how these things work before we are expecting them to work it. I can't emphasize enough that is exactly how we learn. We don't understand how to do something well until we are interested in it and have experience with it.

I want us to understand that the paradigm we need to embrace is that before you worry about what access method, let's have the activity be interesting and let's utilize the activity. We need to also clearly help students understand before we even deal with access, we need to help them understand what the beginning, middle and end of an activity is. This is how we process information as human beings. When I say that, is when people bring up the issue of consistency of access, what are they really saying? They are wanting something to happen repeatedly in a way they can predict. That's what we're talking about with consistency, right? I want you to not just do it once; I want you to do it enough that I can count on it. I want you to not make mistakes with it, and I want it to be accurate. That's what we're talking about, consistency. Consistency doesn't develop without practice, and the practice to develop consistency from being a child does not happen from practicing that particular act. And that's the part that's hard to understand. When you are an adult and you want to become better at a musical instrument, you may already be able to read music, you may already be able to identify the keys, and you're used to practicing the way you manipulate those keys. But that is not how a child learns a musical instrument. We don't have them practicing by hitting a key over and over and over again knowing they're using the right force and selecting the right key.

Instead, we have to give them a song that they want to hear themselves play. When they know the song and love the song, they then try to find the song in that instrument and that finding of the song can have mistakes as long as it is getting close to where the song is. Dealing with access first for children who are not experienced, who have not had independent repertoires of control, is then asking them to play a musical instrument without having heard a song. It may work okay for a while, you directing them, but it's not going to be consistent and they're not going to understand how it is going to be able to be a part of them. The other thing you have to understand about physiology of movement is the way we become efficient, what we call automaticity or we want to call efficiency, competency or mastery, any of those things, comes from a very particular process, and that is that we develop from repetition of being engaged in an activity that we can identify its beginning, middle and end we will develop then a shortcut and normal pathway. That's what looks efficient; that shortcut. That shortcut can only occur when I can anticipate the beginning, middle and end of an activity and then practice it.

That's how it occurs; the beginning, middle and end of an activity. Any one of these shortcuts, it is that shortcut in their own pathway that makes you efficient. We can look at any 3 year old. Most 3 year olds are perfectly capable of opening the lid on a jar of a bottle of juice or a mayonnaise jar, a much bigger lid, and at any given moment they cannot. They will look at you and say, 'can't do this mommy. I need your help.' You will say, 'well, try again.' Now when you get older, it's always the pickle jar and it is one of the reasons you get married. However, when you get divorced, you figure out, 'I just need to leave the pickle jar, say a couple really bad words, and when I come back it will open. What you begin to understand is that there is a way; there is a process I have to deal with. If the process was, 'this is too hard, honey, please help me' that is your shortcut in your own pathway. When you don't have the honey there to call upon, you have to find another one. What happens is, if we want to look at consistency of access, we have to insure that the child understands the activity; that they have experienced the beginning, the middle and end and are then able to put the how to the what. We also need to understand that where we start with a child is not where we are going to end. What is really interesting is, even when we deal with children who have primary weakness, who have a degenerative disease, it is very interesting that because they are children, no matter where we start they inevitably still develop some switch sites. Switch sites develop because they are not formed. We are maturing. We are developing and changing, and as we mature, develop and change, our interests grow, our endurance grows and actually control of our body grows. So we look at those switch sites develop just like I talked a little bit about this morning, it's one of the reasons why I'm so strongly – I feel that when we look at scanning, it needs to be a more directive scanning. Now, the reason those terms are a little bit weird is once again let's go back that develop paradigm.

We were all taught, and still if you pick up any kind of a textbook manual or you take your ATP exam, or you deal with RESNA, all of those organizations began dealing with adults. When you first start looking at direct selection, everybody will say direct selection is the most efficient method of access. It just like makes a statement that direct selection is the most efficient method of access. That's making a presumption once again that you're a reader or a writer and that what you are selecting is a letter of the alphabet. I am here to tell you that scanning itself—scanning and selecting—is a human process. Let me give you an example. Even in the morning when you wake up, you open up your closets, you scan, and

you select something. You open up your underwear drawer, you look and then select something, unless of course, it's the end of the month and you live alone. Everywhere we go, we go to a restaurant, and we scan the menu and select something. Okay? So scanning, a visual scan, and then making a selection from a group. The ability to look at a group and pick something out is an absolutely positively neurophysiologic characteristic of us as a species. We never just simply react unless we have no choice, and that is a true survival mode. Any other time there is no time we're not making those choices. There is no time in those situations that you just don't get in and take a look and then make a selection. That's how we are set up. So when we talk about direct selection and we talk about scanning, the presumption of direct selection versus scanning was that scanning was a single switch scanning and that that was a timed reaction. It was never about 2-switch scanning because 2-switch scanning is really not scanning. Just like a joy stick directed selection is not really direct selection. It's just a little more direct than waiting. Some of these terms – well, when you have scanning in and of itself means that something is happening that you have got to interrupt.

Now, instead, if I use it in its most true physiological sense but instead scanning is me looking and from my group selecting a member of a group. That is not only cognitive and visual motor, but it's a characteristic of the way in which we function. You don't see dogs really looking at a group and pulling out a selection. Now they can in some opportunities; they have favorite toys and they have favorite situations, but one of the things that's really unbelievable about those of us as human beings how we as a species react is our vision gives a cue to how to react to circumstances, and we really are choice driven. So, when we start looking at whether you want to be a direct selector or a 2-switch scanner or a single-switch scanner or directed selection, I believe your children need opportunities at all of these opportunities of access. But, I don't want you to give one activity and have it be done 10 ways. That's again managing adult. So, if you are with an adult and you say, 'here is one way you go after the letters by the way you already know, here's one way you can go after to the vocabulary you already know, here's another way you can go after to the vocabulary you already know, here's another way you can go after the vocabulary you know. Instead, we need to understand that when we are finger painting we don't look at the child and say, 'by the way, I can draw lines on here and you could use pencil.' No, finger painting has finger painting paper, a finger painting time. When it's finger painting time, I have to put on like a little bib thing. But when I am going to have a pencil and I am going to have paper with lines on it, I have to deal with a pencil. When I have a coloring book, I am given colors not pens or magic markers. I am supposed to do something with that. So what we actually do with children right off the bat is we try to match a method of access to an activity, and we begin to expand repertoire of control. We don't give them a fork to pick out the play dough. We first have them use their hands. Could they use a fork to use the play dough? Sure they could. But we give all of us an opportunity that that method of access and that activity can be something that we can anticipate. And it's from building that repertoire that we actually develop mastery. We do not develop mastery as a child by practicing the same act over and over again.

Just to give you another example of that; when children are first learning to stand up and walk and they can take steps, they actually do not become good walkers by practicing walking. In fact, they don't become good walkers until they are climbing. Their climbing is what gives them the skills to

actually manage their walking, not practice walking. Their pulling up to a stand does not teach them stand but is the mechanism that teaches them to manage seating. And as they pull up to a stand, they then can control themselves from falling over while seated. So they don't learn how to sit and not fall over by sitting. They learn how to not fall over by pulling up to a stand, and as they pull up to a stand they have the kind of control that helps them manage themselves from falling over while seated. This is how we learn. We were set up that, in fact, mastery is not an isolated task in a child, but it is a developmental frame of reference that as we take a risk and expand our repertoire and use of our body, we are then able to add competence to the previous or the foundation of movements that we have. That is why it is very different looking at access for children than for adults. Again, adults can deal with isolated motor practice because they are already fluent in the activity. But when children are learning the activity, they are learning how to use their body, how to use their eyes, how to pay attention, when they are supposed to do this activity; there are lots of variables in there that they need. What's really challenging is our kids, who are not mobile and whose hands don't work and who are unable to communicate independently vocally, it is very hard for us to read lots of times what their interests are or anticipate how they are anticipating what's about to come next.

It is one of the reasons why I think it was so easy for us to fall into trying to look at how they could be consistent with their access. The other thing I want to tell you is not only are children not consistent, human beings are not consistent. So looking for consistency in terms of motor accuracy, we can't even say toy boat 10 times in a row. We can't say she sells sea shells by the sea shore 10 times in a row. You can't tell me that you could even lift a weight in the weight room 10 times exactly the same weight in exactly the same position that consistently. Consistency is not a human trait; process is a human trait. In that process, it allows us to get to the end of an activity no matter what mistakes we make in between. So it is that we will make mistakes. I am always looking, and still haven't found anybody as many times as I have taught, for someone to come up to me and tell me that they have actually been able to, for one week (that's 7 days) all their waking time been able to get through every doorway that they had an opportunity to meet without touching an edge. Think about it. You don't.

Some days we are just like ping-pong balls banging from one to another. Now, one of the reasons I can use that as an example for myself is that I am a one-tripper. That means that it doesn't matter how many grocery bags, it doesn't matter if I have a backpack, two computers, and a suitcase, they are going in in one trip. I spend too much time in my car. I load and unload it, I have to pack and repack it, so when I am home, it is one trip in. Somehow, as I load up the shoulder and load up everything, I still imagine that I am just this size. And as I open the door, I have actually dropped something, banged something as I am trying to get in because I have forgotten that I have in one trip I have now really expanded the size that I am. Some people, on the other hand are, 'can't you just make another trip?' No, I can't go out there one more time…it's impossible. Okay? That's what I am trying to say. In fact, we don't not make mistakes in our judgment and particularly motor. We are very motor vulnerable as a species, which is one of the reasons why we have so many senses to help us out. We need to be able to understand that process oriented doesn't mean that you, without mistake, will know how to get from one place to another. After all, we know who those people are who don't make mistakes. We send them to therapy. We actually know! Wait, oh, you're close to almost being inhuman.

You need some serious psychotherapy! The more obsessive-compulsive, the more not a mistake, the more problems you have over-controlling. I want us to understand in that process oriented approach, it is very, very important that we look at and identify for children what the beginning, middle and task is so we can look for more consistency of how they are going to interact in that task. That's what we are looking for: more consistency, not consistency.

Another old paradigm we need to leave behind is that seating for function particularly kids who have the most involved bodies is to be restricted, that there is too much movement. Let the seating that is used on the child when they are on the bus and they come to school, that is the best seating; that is the optimal seating and that is the seating we are going to manage. Now, I don't have enough time to really explain in this short period of time how this is not enough; that seating on the bus and being strapped in to control you is seating to keep you safe while you're doing nothing. It is the same seating we use for children in strollers and it's the same seating we use for children in car seats. When you are in a stroller, you're supposed to be tired. When you are in a car seat, you're supposed to be tired. We hope that you will do nothing and the most nothing is sleeping. We do everything we can to induce it. That's why you have a DVD player, that's why we give you a little bottle. If you start asking for utensils, it's not going to be happening in your car seat. The car seat, the way we want you to be safe means we want you relaxed. If you are relaxed, and I add a restraint it means even if you are somehow the car is hit, you are safe. Now that kind of safety, in terms of control, is not what we do when we get to the school. I don't see any chair in this room that has a seat belt on it with a shoulder harness. I don't see any seat in this room that has a pelvic belt on it. I don't see any seat in any of our classrooms that has those same kinds of things because in order to use our body we have to move.

Although we first thought the children we are talking about today, those with the most challenging bodies, we didn't expect them to be able to move and we though all of their movement was wrong movement or too much movement in a way that wasn't helpful and that if we strapped them down and stabilized them, our word stabilization was stopping them; stopping them from movement to relax would help them work. But the trouble is human beings, when relaxed, are relaxed and when you are relaxed you're not working. So when you're in a seating system that you have a lot of contact with the surface you're restrained and you're strapped and held to be safe, to be managed because you are not managing yourself, it does not assist you in that same seating to be able to learn to use your body. And children can learn to use their bodies. Probably the most common situation I am asked to come in to see is that we cannot find a successful switch site because the person doesn't have head control. I am here to tell you that unless you have a diagnosis like spinal muscular atrophy I or II or Werding-Hoffman disease or you have been in some very unusual car accident, in fact if you want your hands to work, you have to have head control. Your hands don't work unless they have head control. And because head control is a demonstration that the shoulder girdle and pelvic girdle have a relationship to gravity. That relationship to gravity is how we get power to our limbs to use them intentionally.

Now, when you are relaxed, you can move but you don't move with strength and you don't move with power. You are simply moving with range of motion. So what happens is, our children who are strapped in and are relaxed, that's it! They are relaxed. But when we want them to work and move, they have to fire themselves up. As they do, the strapping is frequently in the way, because in fact, we

are trying to hold them in a position of safety. If you could imagine that we would go into kindergartens and provide instead of carpet squares that they are to sit at to listen to a story, we would give them all car seats, I don't think we would have them paying very much attention. It's just like if I gave you all La-Z-Boys. Now many of you would want them today. Many of you would like them. There were many of us in college that hoped, 'could we not lay down on our textbook and it would by osmosis go in. The fact of the matter is when you are relaxed, what you're meant to do is relax. You can daydream, you can think, you may even solve some problems, but you can't work. What is work? Work is using your hands intentionally, using your eyes intentionally in a focused task and in order for those eyes to work, that means visual convergence with attention for duration, you have to have to have a relationship with gravity. The seating that the child comes to school in is generally not the right seating for the activity. If only the student could their head up, then we could work. Again, the reason the student is having difficulty holding their head up is because they are not in the position where their body is having a relationship with gravity. The student wants to use their hands. I don't want to use their head because the student wants to use their hands. Well, how about this? How about that when I say to you where I like to start is the first extremity because that is the first extremity to gain control over and that first extremity is our head. And if I gain control of our head, and I am having you engaged in an activity particularly if I am using electronic switches in the head is managing the communication device, then your hands are free to be involved with the toys. If your hand is engaged with the switch then that's all the hand can be engaged in.

For children, I want them to be able to talk about what they're doing. I want them in their power chair to approach things to touch them, to explore them. That is not the same as an adult driving a power chair around an environment that they already know. Children need to approach things. They need to leave things, they need to touch things, and they need to figure them out. And whether they are able to do that extremely competently, it doesn't mean that they don't need to do it at all. They really need to do it. So head access, although I started thinking it was neurologically sound, that it made sense, that if I wanted the upper extremities to work I would start with the head. I have to tell you that when it comes to children, I still love looking there first because I like the hands to be free to be able to be engaged in other activity. We need to look at seating that can allow for task participation and performance. That seating, when I talk about it being involved with gravity, it means that I am primarily talking about pelvic weightbearing. When I say you visual convergence, that is what I mean. For those two eyes to come together in a focused intensive task easily, automatically, and for them then to include the hands, they need to be in a pelvic weightbearing position. That means the pelvis has a direct relationship to gravity. And when we talk about this pelvic relationship to gravity, it means that stability in a neurophysiologic sense is not stillness, but it is control of movement.

So true stability in a body is: I have control of movement in these situations. It isn't that the pelvis or the hips are in the right position, they need to be in a position that I can control movement from them. The seating also needs to change and be situationally specific. We don't wake up in the morning and say, 'wow, the chair I am sitting on, good, it's black. I've worn black pants, it matches my outfit, okay, this is the one I'm taking today. This is my chair. Oh, wait a second. This chair – I'm going to lunch and I don't think this chair is going to fit in the restaurant. But, oh no, it works in the office, it

works at the school, it works…is that what we do? No! We go to a place and the seat is there. What you have to understand is that our own preparation for consistent motor control are the cues of the situation. The actual physical configuration – I love to teach adults in this setting because a table and desk replicate school and you all know how to behave. You come in, you sit down, and you know how to behave. You also feel comfortable. If I just took away all the tables right now and made you face me right now, most of you would feel much less comfortable. It doesn't matter, you as adults can decide on taking notes or not taking notes, I can take my shoes off or not take my shoes off; I have a barrier there in front of me, I know that I have like a…I know all about being a student and there's the teacher.

Now if she takes those things away, and I am supposed to have what? Leave my shoes on? Not have anybody look at me? How close are you? All of a sudden things very dramatically change. Well, it is the situation that helps you understand what's going on. When you go to a bar, something else adults all like to do. The bar stool itself and the bar itself tells you how to behave. They tell you what to do. It helps identify the activity. And as soon as you are there, you are ready for that activity. Nobody looks at a bar and says, 'oh, I was hoping they were serving ice cream.' Well, maybe some women in the 50s because we know they were unpredictable. Pregnant women, also. But the rest of us are like, okay, I'm thinkin' margarita, I'm thinkin' mojito. I'm thinkin' a beer. What's on draft? I'm thinkin' a glass of wine. That hand is already getting ready. You're sort of tasting it. You're already feeling a bit relaxed; just seeing the bar stool is already starting to relax you. So, what happens is, the situation and seating in that situation prepare us for what parts of our body we're going to use. Another difficulty with children who have complex bodies is, because we have to manage them because they can't manage themselves and move from seat to seat, they don't get the clues. From where is the activity? How am I supposed to behave in this activity because I'm in the same seated position; either someone shows up and brings me something so it looks like it appears.

What's happening now? I don't know if it's lunch time, are we going to finger paint, or what are we going to do? Or I am brought to a place and I have to wait until an activity gets organized. That is one of the problems. When we have chairs that are there that we have to manage somebody in, we don't think about the issues of what the environmental cues are to prepare for the readiness of and activity. We don't get up to a table to get ready. We come up to the table to be ready. If any of you have ever taught in a pre-school program where there are two year old, where you have a 2-year-old classroom, a 3-year-old classroom, and a 4-year-old classroom, the 2-year-old teacher is always either the newest one or the one everyone knows needs a drink by Friday. Because the new 2-year-old teacher is the teacher who stayed up late last night until 11 o'clock making 52 activities of which all are done by 9:15. That's because as you start to understand a 2 year old is not involved in the whole process of the activity, so whatever it is that you have done…this is finger painting…I'm done now and I want to hang it up. Because a 2 year old could care less about that, but they want to hang it up. Where's the clip? Can I hang it up? These are my colors. Can I make another one? Now where can I hang it up? So, if all the activities are you have them seated at the table and you bring things to them, the activities are done just like this (snap) as opposed to them having to get things to do it. The same thing happens with snacks. If you try to tell them before the snack is seen to go wash their hands, you might as well have two hours

spending if you tell to wash their hands. But all you have to do is, the snack has to come to the table, they see the snack and go like this, you say you have to wash your hands.

Now, all of them will run right over there to wash their hands and they know that the context that that told me was I am supposed to wash my hands. Not you, I have got to listen to you to tell me to wash my hands. That's how human beings learn. Just like we gaze around to get an idea of what is going to happen, the way we develop shortcuts, efficiency of movement and understanding of action, which is motor consistency. It is that the very environment itself speaks to us about how we are to behave. We actually have these very automatic pathways because we are prepared for the transition in approaching the seat that is a part of the activity. We need to, what I am trying to get at in a round, long, hopefully fun way, (I know you will never forget that poop story, will you?) is that our children who are stuck in the same seats, we have to have ways that would begin to signal that they are ready for an activity. We have got to be, if you are interested in consistency of access, it is not the access technique you have to worry about as much as you have to worry about have I set up the situation that they can anticipate the beginning, the middle and end of this activity. When they know the beginning, middle and end of the activity, they know it, that means that you are not controlling it. Let me tell you what we all do with the kids we work with because they are such a challenge. We prepare and prepare and prepare for the beginning. We are usually pretty good about doing the beginning. But as soon as the child gets engaged in the task, we extend the middle. You know why? Because we are so excited that it's working. It's like a pat on our back that we figured it out right and plus they are engaged! Oh my God! Oh my God! And you know when it ends? When they're tired. If it ends when you're tired they can't anticipate the end. You need it to end before then. So, what happens is that we need to become extremely conscious of beginning, middle and end. We need to understand that in order for hands to work in a consistent way, I am not saying that our kids don't have sheer will power to make a hand work or to make their head work, but for hands to work, the head has to work. For the head to work, the pelvis has to be weightbearing. This old paradigm, again, that we want to leave behind is that consistent switch sites exist and are supposed to be found in your assessment.

The single-switch scanning is where to start because it is the simplest. I am hoping that you are learning, as I am pointing out to you, that it is not simple. And when you make it simple, then it's actually not interesting. If a scan is a choice of two or three, how is that interesting enough in terms of what it is going to be? Again, and if you don't believe me, then try any of the single-switch scanning software that you have, go into a pre-school classroom, go into it if you are working with the 5 year olds, the 6 year olds, or 7 year olds, go find a classroom of that age kids, show them that software and see how long they will play with it. It isn't going to be happening. It is not interesting. It is the same thing as a switch toy. A switch toy that does one thing, well, even furbees. How long did they last? As soon as your kid figures out that it is only like 15 things it is saying, even those robosapiens that do a hundred things, because they don't really do it when you tell them to (which is why the child thinks it's magical), look, he can really open his hand, but when the child realized that…it's not very exciting anymore. And it is interesting because a Barbie, which actually doesn't do anything, is more exciting. Why? Because you are going to put to it all the things that are interesting as opposed to something that only does one

thing. The other thing we tend to do with really involved kids, and it has happened and has been a process for a long time is – it actually did not start with kids who had physical disabilities.

It really started first with people whose hands worked but who were worried. Hand over hand activities began with children who had fears, and then was successful. But it was successful not because it taught the hand what to do but because it was a social relationship saying you don't have to be afraid. I am literally holding your hand while we get involved with this activity. That's really how hand over hand started. Now, what I want to tell you is that I don't have a problem when you understand that hand over hand is a social relationship. Your holding hands. But if you think it is teaching a hand how to work, you've no idea. It has nothing to do with that. A hand does not learn to work by your hand over it. A hand will work with your hand over it as long as your hand is over it. What you are teaching is how to do this activity hand over hand. That's okay if that is the point of your activity, but if the point of your activity was, 'I want you to do this independently,' then hand over hand can not be the technique that you maintain. It can be a method to introduce something, it can be a way to reassure somebody, but the activity that your teaching is how to do this activity with my hand over your hand. And it does not generalize then to no hand.

Now, our new paradigms. We need to look at access sites that develop from interest, intention and experience with the activity. We need to look and understand that consistency is not what is needed. Interest, intention and attention are needed. Now, attention is not first. This is another place where I think we have really had a misunderstanding of that word, in terms of an English word. When I get your attention, the poop story was entertaining. I got your attention. But attention, me bringing my attention to a task does not come from entertainment and doesn't come from you calling my attention; it comes from my intention. Intention brings attention. Intention, that's personal, self-driven. Intention brings attention. When you are getting my attention, you are entertaining me. Entertainment is passive. That's why it is hard to see an attention span grow. Because look at what stand-up comics have to do. You laugh once; you better expect another laugh, another laugh, another laugh. And then they have three not funny things in a row? You're out of here. Really! Its like, 'I need another drink now. Please don't put me in the front row, it's embarrassing. You know, I want a laugh, oh, it's so bad, ha-ha, ha. And because we, being entertained, need a lot of stimulation to stay entertained. Entertainment is passive. I can get your attention, and I can keep your passive attention with a lot of stimulation. It doesn't teach you anything. It's keeping your attention while I'm entertaining you. And if you don't believe me, you try and do a comic routine when you go home. Very few of us can remember anything except things are funny.

We can't always remember the joke, we can't remember…we can remember we had a good time, but it isn't the same thing as being able to read a book and understanding something that we learned from that book. So, what I want you to understand is, we're spending too much time getting attention because we are having trouble seeing intention. How do we see intention? Generally by children's mobility. When they go get something, when they leave, when they turn around. They will literally leave a situation; they will come to a situation. They will drop their whole body, they'll go to sleep, and they'll make faces at you. They will doodle. They do all kinds of things that are clearly movement oriented that tell you, 'I am not interested.' But when you don't have control of your

movement, it is very hard not only to tell you I am not interested, it is equally hard to tell you that I am interested because how do we tell somebody we are interested? We approach. If I see something interesting, children go there. It is like a magnet. If they see something interesting, they're there. You don't call them over here, this will be fun. No, they see something that kind of looks fun and just like a magnet, they can all go there. So what happens is that – how do we help children have demonstrate intention. We have to see their interest, and part of the way to see their interest is we have to have an activity of interest, and the easiest activity of interest to be engaged in is an activity that has a beginning, middle and end that you are engaged in. Learning isn't teaching. I remember I had a teacher in college who said if we actually understood, we understand what teaching is but what we don't understand is learning. Learning is the mystery. Teaching we get. We have all the different strategies for teaching, but teaching does not guarantee learning. Learning is a mystery.

Most importantly, what we know learning does happen, though, is learning generally happens through the love of a teacher. And it isn't the love of the teacher of the love of the child, it's the love of teacher of the subject being taught. Learning seems to more mysteriously take place when you are with some who is very engaged in their activity, passionate about the information, loving that subject, willing to share then their love of that interest. That's the one you are willing to be more engaged in. I also want you to understand that when you are introducing an access technique and you do want it to be utilized, you can't practice it. Instead, what you need to do, is you need to repeat the activity not the act. So, in other words, when you have an activity that has a beginning, middle and end, take a break and repeat the activity. As you repeat the activity, the child's ability to stay engaged will increase. But, when you arbitrarily control and say, 'let's do that again' and you are in the middle of an activity and you want to extend the middle of the activity, that's where the child gets tired. I already mentioned this morning, but it won't hurt to make it known again, when we are looking at motor learning, the most important thing we need to do is the activity needs to speak for itself because when you are engaged we have no verbal prompts. So, if we aren't verbal prompting, you can speak to what occurred. We want no verbal prompting. You want the child to be able to visualize what is about to occur, they need to have a mental rehearsal. We need a mental rehearsal in order to anticipate a motor act, which is what brings us the process of being able to complete an act. At the same time, after something has occurred, we need specific feedback. Telling somebody they are good or not good or try again is not helpful enough. We need some very specific feedback. So, we need an activity that is interesting enough that the specific feedback is interesting. The other paradigm we need to embrace is that the switch is not the activity.

I am really tired of switches that have smiley faces and have colors on them and lights and make 10 noises because then that is the toy and the switch is now the activity. If the switch itself is so interesting, how do we get to the activity? We need to understand the switch is not the activity. I have made myself clear, I think, about how I would really like the electronic switches, and you will see that as we start to look at the kids verus mechanical switches. I don't want to tell you that I have never used a mechanical switch. And I am not saying that I don't like mechanical switches; they also have their place. But when we are talking about kids, particularly kids with tone or kids who have weakness and we are looking at switch sites developing and we are looking at access to communication devices to computer

use and to power mobility. There is a lot of basic stuff that is going to carry them through multiple environments that are going to get complex.

I want their energy spent on that not on making the switch work. I love the switch, all the time I love how readily available, I love that we use mechanical switches for games, for things that are your turn, I like for many activities to be hard. I want our children to work hard, but I don't want it to be hard work to be able to get out a sentence that they want to say hello or that I want them to think. I want the hard work there to be in an orientation where hard work will be. I think the use of the mechanical switches, I like to compare it to playing soccer. I really encourage my kids to play soccer. I didn't actually care if they were any good at it; I wanted them to get tired. I wanted them to make it dirty, I wanted them to get physically active, and I wanted them to come home tired. That was the most important thing to me because that meant early to bed, no grouching, and I have some time to myself. It was totally selfish! But we wanted them to be physically active. I want our children to have the same involvement. That is a time when I would like them to have to reach really hard to get a switch that was engaged in a game. It's your turn. Or a game on the computer where you actually had to manage the arrow keys to move Mario around. Come forward. Really struggle to get at that switch. That activity should be engaging enough that you stay with it. I want to be pouring down sweat because that is playing soccer. But, when I want you to tell me about your day, I don't want it to be that hard. The other thing that I want you to really understand is, I don't know how we got into the counting thing of 8 out of 10, 7 out of 10; I don't know where we got the 10 except this 10 like that we are all better at math and 10 was easy, so 10…we have five fingers and five fingers so we could count 10 on our stands. But the fact of the matter is that none of us can predict in groups of 10 how we would complete a motor test. Let me give you some examples there.

Does a concert pianist have to practice? On the day of their performance, do they know right then that they are not going to make a mistake. I hope they're recording me because this is the night I'm not making a mistake. Can they know that? When do they know that? Afterward! Whew, I think I didn't make a mistake. But are they sure? Often not. We actually cannot anticipate our outcomes even when we are highly skilled, which is one of the reasons why professional athletes are so superstitious. They have really intricate routines, and the more challenging the test the more of those…why is that superstition there? They depend upon their body. Well, I wore these; they are my lucky underwear. I won the U.S. Open wearing this pair of underwear, so I am going to wear them the next time. I like the joke that Michael Jordan used to say all the time that he wore his North Carolina pants under his underwear, so I think that's why Hanes got him. I think his wife talked Hanes into going after him because she was tired of that underwear. Can you imagine? How many pair of underwear could he have from North Carolina for how many years he played basketball. As human beings, we need to understand we make mistakes.

If fact, we expect to make mistakes. We do not expect to be perfect. We expect to make mistakes. Mistakes are not an issue, and we are not looking for something to do two or three or four times in a row. In fact, that old saying of beginners luck – you know what that is? You play something and you can do it right away, we don't think its beginners luck, we say we're smart. And the very next second you get stupid. We have all kinds of very funny things that we make jokes about our motor

behaviors because, in fact, as human beings we do make mistakes. We need to recognize that what carries us through, how learning takes place, is attention from intention. My ability to stay with the task will guarantee learning. Time with a task of interest. Another one we to do is that we need to work for short periods; we can either have frequent breaks, and we need to repeat that activity so that, again, we are supporting that knowledge of beginning, middle and end of an activity. Let me give a simple example. It's not going to be one you see in the video, but it is one that we actually all know, and it happens a lot when we have kids with complex bodies. In our pre-school classrooms and in our early childhood classrooms and in our first grade but generally not by third grade but still can be kindergarten, first and second grades, we have a morning time. Sometimes it actually is a circle time but other times it is a morning time. That morning time is pretty routine oriented. It is all about what is the date, it may include the Pledge of Allegiance, what is for lunch, and it may choose who is the helper to the teacher today.

You know, you have that little routine, and you know why that is? It's the way to begin your day. That's why it is important. So the children come in and they know when the teacher pulls that out or she looks over here or she pulls out the flannel board, or you have to get that, you are ready. It is just like in kindergarten also. Those first two weeks are unbelievably horrible in kindergarten, especially because you have to get that carpet square for story time. On the way, kids are hitting each other over the head with the carpet square. They are throwing the carpet square. They are twirling around, they're getting the wrong one, that's mine, until the second week. Right around the second week each child goes to get their own carpet square. They may have their name on it or they may just have to get a carpet square. That really depends upon the teacher. But, what is interesting is, that by the time they have gotten to the carpet squares they are calmer. The kindergarten teacher is smart because she has them get the carpet square so that they are then ready for the story by the time they bring the carpet square over and sit down on it. But they aren't ready when they sit down, they are getting ready when they get the carpet square. The going to get the carpet square and bringing it prepares them for what they are to be like when they are seated. If you just say, okay, let's all sit down now, it is going to fall on deaf ears. But it's time for a story, get your carpet squares…See, I have a process.

I go and get it and now then when I come down and when I am sitting down I am ready for the story. How do we do that when we have kids in chairs that we have to push them in. Unfortunately, they often get lined up and are left waiting while other things are happening and they are getting here because it wasn't they had no control over and then kind of circle time starts and they are not there in terms of the seating. No teacher has their kids come in and say we're not starting the day until you have been in your chair for five minutes. It wouldn't happen, would it? There has to be immediacy, very quick immediacy, if this is how we are getting ready in the morning. You're coming in, hanging your coat up, putting you lunchbox away, and getting ready. What's the get ready? But, you don't say get ready. You are going to start with the calendar. Who's my helper today? That's all you have to say, now I know what to expect. We are going to have to build in some things like that. And, believe it or not, that's how you are actually going to get access; when, in fact, the child knows what to expect. A simple example of that might be that if you have a child in a Tilt-in-Space chair, and even if they have to be already ready in the circle, when it is their turn instead of just bringing the communication device or the switch, which

often we do, what's the weather like? We are sharing this device, so you each have an opportunity to hit the switch to say it's cloudy, or whatever it is we have to say. What is interesting is that how about before you approach the child you untilt their chair just five degrees and then give them an opportunity of the device. Then that time is over and you put the chair back its five degrees and go on to the next child.

You see how I set that up? I'm getting you ready. Here's your opportunity, now we're done. If, in fact, the child – you need to do it like whether the child participates or not because guess what? By the third or fourth time, they are ready. Just like we know we need to give a child an opportunity to process the time and the information, we need to also not just do things to them without them being able to anticipate what is about to occur. We have to give little cues that we have to build in like that. Then as they have some opportunities for managing that access for that particular situation, they are going to start to develop experiences. Let's look at some students. What I want to say about these kids, when we start to talk about these kids, I have gone to different places again throughout Pennsylvania, and sometimes we were able to work in the classrooms and sometimes we had to re-create a situation in a classroom. What I am always asking for – people are always asking me to look at a kid and help them figure out something. These are the kids that they were trying to figure; they thought they didn't have access. When I am saying to develop a consistent access, I am basically going demonstrate that the child actually has access, but all three of these kids – I was actually asked if they were having some kind of problem with access and they wanted to see what was going on. So while I'm doing Connor, what I do want to tell you is we were not working in this primary classroom. All the staff that is involved in this activity is not normally all there on the same day. You know how these things happen. We are trying to re-create the similar situation because I am there. However, the actual activity itself is one that was being used. That's what I ask all the time. Please show me what it is that you actually are doing and have done so I can get a sense of that before I come in to do something. We are going to observe Connor. Here is dear Connor with his teacher and I just wanted you to get a sense of in the morning they have a close relationship, how he is held, but also at the same time, how he does not have great control of his body, which you see kind of right there.

Now they are going to be putting him in the chair that he is most frequently in when he is engaged in a school activity. We have the physical therapist with him, and his teacher helping in terms of setting him up. You can see right away that one of their concerns is head control. The other thing is, he has visual processing problems. That you can't always tell, but I want you to understand that that is there. What they have said is that they have tried a lot of different things, and we can't seem to figure out where we should really be going in terms of a task. Now, I happened to be there in November, so the classroom is also – you know, we are getting Christmassy time. It is past Thanksgiving, and it is Christmassy time, but I do want you to see how good we all are at making sure the kid is right in the chair. That includes strapping everything down. The reason I want to say that is when we make sure that every part of the body is touching a part of the chair, when Connor attempted to move, he did intend to move his head. What happened to it, though? It fell over. Do you know why it fell over? Not because Connor is weak but because if your shoulders are strapped back against the back of the chair and you drop your head, you also cannot pick it up; it is too heavy.

The way we pick up our head is we make a weight shift in our pelvis that gives us the power in our trunk to lift up our head. We don't just lift up our head with our neck extensors. You have to be very mature to do that. So, it is not your neck that lifts your head up, it's your butt. When your head is down, when our heads fall all the way down – first of all, during the day, our heads do not fall down. When our chins fall on our chests, our eyes close because chin on your chest means rest. As soon as it goes down there, we do this. Some of you are already like that. I can see you are so excited. The reason you are like that – there is no one in this room – I haven't met a human being that doesn't prop their head. And do you know what that means when you are doing this? You head is too heavy to hold up. You don't have head control. That is why you are propping, and you have your arm propped on the desk, and you're propping it here, and most of the time your trunk is collapsed. You can prop it this way or you can prop it this way, if you have teenagers you can prop it this way. But all of them are props, so no human being has head control all the time except when we have a relationship with gravity. So when, in fact, I start to lean over forward, except when I am in church and falling asleep during the sermon, a startle can get you up, but even then, it is usually, 'Oh, that is-- ' If it is not a startle like that, if our head is down we are actually going to make a shift and bring ourselves up. One of the things that has happened is, generally, kids don't have weak necks, weak heads. What they have is an over-strapped body because we don't see them having control. As we strap them in and the head drops down, what they can't do is they intended to move their head but now it starts to fall, and they can't get it up. The problem is not that they – it is that they can't recover. Let's look at the setup activity. They were going to show me a Christmas activity, which is not their only activity. But, again, what I wanted to say – these are things we all do. Please, those of you who are all here watching me from the West Coast, understand I am criticizing now all of us, including me. We all do this. We are busy. We have a lot of kids. We got Connor ready first, not the activity. Connor is sitting, hanging, hanging, head hanging. Nothing to look at and still not engaged because we are getting the activity ready. We got him ready first, but what I am trying to say to you is this is where we are losing an opportunity for him to understand beginning, middle and end. Because we got him so ready, now we are getting ready.

We do that thinking we are doing the right thing. I am trying to say, this is not wrong, but it is wrong to believe that Connor is engaged in any of this. And, it is happening low. So we are getting all the stuff together, and isn't that typical. We are in another room, so we are not even in the classroom. Now I am going to say that in the classroom a lot of things are there, but we also know our classrooms are busy so we have a lot of activities put away that we pull out at a particular time, particularly when we are going to do some switch activities. I am not making any judgment about the table itself and that it is on rollers, all of that I think is fine or the chair itself. What I want to say is, apparently what we are going to do is – there is a Christmas tree that is going to light up. We have lights, we have a Christmas song over there, and we have one switch that is going to control the Christmas song and another switch that is going to control the tree. But what happened is that we got it all ready but him first. Now, we are going to prompt him to try to get involved in the activity. We are not going to actually turn the lights on and off, we are going to actually prompt him to hit the switch to make it happen. He doesn't know what is going to happen because we weren't involved in an activity that we brought him to, we instead are bringing him to an activity we are hoping he will go. See the difference? We all do this, I do this. We all do this.

So please understand, when I take these videos, we're all having to learn. We have got to get better at understanding what are some of the things we are automatically doing to help our kids have better opportunity to truly demonstrate intention. Again, we are going to try to help. This teacher has already figured out that if I would help him a little bit at his elbow, but what I want to say to you is: If the head is not engaged, the hands can't find power. That's why you have to lift it up. It looks like his hand is too weak. It is because in this position, he is relaxed; he is overly relaxed. The light went out and it happened that miraculously. I actually went (startle effect) at the time because, again, we actually didn't do an activity, have a part of an activity, and ask him to join an activity. We are still prompting him, hoping maybe now, and that is really the thing, maybe now. Let's turn the lights out, maybe then. Let's turn up the volume, maybe then. Let's put it a little closer to his face, maybe then. Maybe the switch. This is what is happening. We are really hoping Connor – when Connor actually hits the switch – his head is down so he can't see what happened. This is the thing I am trying to tell you. Although there are people who don't understand about how the human body works, trust me, this is what I do for living and how much I have studied, and I have learned from the kids. I didn't go learn a book and then apply it to the kids; I studied the kids and gone to the books to understand why the kids do this. If you want your hand to work with power, that mean intentionally, your head has to be up. Otherwise, it can drop some place, but it is not going to have any power. The light is coming on.

Now, I do want to say that this was a really exciting tree in that the lights turned colors. Just because it is on the camera, and they turned colors from pink, blue, purple, white, and I was trying to determine if that was actually in a process. But again, because we are using a tray and hands, what does it look like the activity is? If you actually walked in? It's the switches. So, I have him in the chair and the switches are the activity. What is happening is actually happening away from me, not something I can touch. Most of the time I am not even seeing it. Please understand, this is something we all do, and we are hoping the child might like it. We are going to change this. I am actually going to use that same mechanical switch, but I am going to take him out of his chair. Before I do that though, I want to just comment a little bit about what is going on. These particular chairs, although we have had them around and were led to believe they would really work well for our kids with the most complex bodies, the seating they are in replicates the seating that is on the bus. Lots of physical contact with the surface, but most importantly, what I want to tell you is – remember I was telling you that you have to get weightbearing? Weightbearing means I'm holding myself against a surface and gravity is bringing me power. I will point with the mouse so you guys can see. See where his feet are? Here are his knees, and his feet are in front of his knees. So when your feet are pulled out in front of your knees, your pelvis is posteriorly rotated, your trunk is collapsed, and you have no head control. Just the position of his feet alone would make this a difficult task. That is not mentioning that we are going to talk about other things that are going on. What I want to do, is when we are engaged in a new activity, is I am going to – first I am just talking to him telling him that I am a new person and I am going to take him out of his chair because the best chair to start out with is me. Not me myself, but you yourself. When you can be a chair, why? Because you can get as close to things as you need to. Before I am going to really become a chair, though, at first I just want to get him out of here to get an idea of how his body works just like I did with Kaitlin. You can see the same thing. This time I purposely had his knees lower than his pelvis because this is how we begin to get weightbearing; almost like we are going to stand up but not stand

up. He does collapse a lot, and that is something we can talk about. What I want you to see is how he pushed up, and he had a moment of control and then his head fell back like it was too heavy. But as his head fell back, so did his body collapse.

Connor appears to have some processing problems, meaning his body is not sure how it connects to all the other parts. That can be experiential meaning a child who has had little experience or it can be that actually his body has some central nervous system problems understanding that. I can't tell that from right now, but even with this very collapsed body, what I want to show you is how might be an opportunity that we could actually put him in the activity. To be able to look at the access, oops, he is not too happy because he doesn't really know me and what are we doing? His teacher is starting to sing. He loves his teacher, and I am really glad that is there. In this situation, there's got to be something to do. It is going to look like I am putting his head in the Christmas tree. I am! Not really his face all the way in, but see how we are going to be right in the tree. So, I am taking him right to the activity, and I have the teacher making it go and I have the teacher saying I am turning out the lights. Wow! The tree is turning colors. I want the teacher to tell me what is happening. The tree is turning colors. It is turning blue and then green and then pink. We are turning the lights out, and now I am going to take that same big red switch that he had, and I am going to put it up by his head. You can see that even, his eyes are closed some of the time, and I told you that he had visual processing problems. When you have visual processing problems then your vision is not the first thing to attend. So, don't ask for it to be. When you have visual processing problems it means that part of the whole idea of processing means, I don't have it to locate, to initiate. So, sound, touch, and kinesthesia along with movement organize the eyes to come into play. You need to help move the child, they have to move. They have to feel what's happening to them, hear it, and then the eyes can begin to play. Although it is a little hard for you to see in the dark, I am actually going to pick up the switch, and I am going to put it on the side his head was leaning to naturally. We are literally like right in the tree.

Now, as his head is on the switch, I am telling him what's happening. The tree is changing color; the lights are on. I love Christmas trees. The lights are changing to green, yellow, purple, oops! It went out. You turned it on. I love a Christmas tree. The lights are on, they are changing. Do you think they change in the same pattern? I'm going to watch. White, pink, green, white, pink, green. They went out! Oh, they went back on! White, pink, green, white, pink, green. Now they are staying on. They went off! When you move your head, the lights come on and off. They're on! The lights are on! They're changing colors again! I wonder how long they'll stay on. I'm still looking! If that's a Christmas tree, don't we need some decorations? Oh, they went off! Oh, they're on. You turned them on again! They went off. They're on again! He has, right now, hit the switch more times than you saw him being prompted to once. Are you starting to see that? And notice I am not saying you hit the switch. What I am talking about is, the lights are on! They went out! They're on! Now I'm pretty soon ready to take a break because it's kind of hard for me to hold him right here and I am not sure he is getting it, except now look his eyes are open. See him there. So how long did it take us to the eyes to get open? All right. What's interesting is now his hand is coming up. His hand will actually come up to touch the tree. So still really simple activity and now his eye are open. Did you see that? Hitting the switch, look what he's doing! He is now, I'm now not saying anything. I now when I look over there I say, "Okay I think it's time to take a break. Just as I do he

started hitting the switch again. I guess we're not ready for a break, because he is doing it. So what's going to happen there is I am also presuming what he is doing is intentional. Okay?

So instead of hoping it's intentional, waiting for him to prove it's intentional, I am going to presume it's intentional. And I presume it's intention by talking about what's going on. Then I am going to tell them we are going to take a break. Now I am going to try a new activity with an electronic switch that I'm going to place---I've actually tried the other side but I couldn't get my hand on the switch right where it was. Now this is just a little dinosaur and although I told you I don't tend to use just one little switch toy, remember he has got visual processing problems ------ It's making a noise. ------- So this toy (dinosaur noise) Now look. All right. So now we've moved, I've tried to move back to the Rifton chair but with the activity we tried in my lap and now he is reaching out to actually get it. So he's not looking but he is clearly engaged and then he looks. See? Hand first, involve first, and then his eyes glance, then they start to look. It has to be something with him that I actually have in his face. Now although this isn't a communicative activity and what isn't great in terms of ----- this isn't like "oh I had to think this up and hard" in terms of doing it. It just happened to be something I had and I like having toys that children can actually put their hands on. I am having a great deal of difficulty assisting him in that Rifton chair still with keeping his head up and what I really did is something very simple. I've just taken a towel roll and I've placed it around his neck. It's not tight, it's not an immobilizing collar. It's on purpose a towel. This one happens to be a napless towel so it's made of 100% chamois. It's just a, it's a towel that I have used for backpacking you know that is more absorbent. Not the micro fiber towels because they have a funny feel to them. Okay? Those ones that we now have around ---- you don't want anything like that. So you want a real old towel okay? One of those ones you are embarrassed to show your friends but you still like or you want a very cheap towel that you've washed a lot. So you want ---- don't want the big foofie towels. All we've done here is by laying around and just laying, I've just made it into a roll as thick as the kid is and just put it in the back. I haven't tied it I haven't knotted it. It's just right there. What that's done is simply allowed him to go down by recover. So all I've done is limit the range and then I'm holding the switch. We're not ready for a switch mount . Why? Because I don't know what activity interest him. Okay? So I'm not yet ready to move away. What I first wanted to do with Connor is just demonstrate in this really short period of time that switch access is not the problem. Could you all see that? He can make a switch work. He got it. He made it work again. He got it. He got on the switch, he got off the switch. He made it happen in really a not very interesting activity although maybe it was really interesting to him. The reason I say it was not interesting for me is because it was hard for me to come up with things to talk about and I like to have an interesting environment. So what I was going to say is it would be fun to ----- I would first work with him not in that chair. I would first work with him in my lap engaged in an activity. Then we would move that activity back to the chair and see when I knew he was really interested in it and then I could look at that.

Then the next thing I would look at is I would look at mounting that switch. But I am not looking at mounting the switch until I know I've got the activity. Okay? And the electronic switch I'm using is because I want him to be able to maintain head control and have access to it very quickly without having to lean on it. Okay does that make sense? All right so here's a great opportunity for us to take a break. We will take a 15 minute break and then come back and meet two other kids. Welcome back I hope you

all had a nice break. Now I want to have you meet Morgan. Morgan is a young child who we're seeing actually in his home. He has a medical diagnosis of spinal muscular atrophy which means he really had incredible weakness. You'll notice too that he is medically fragile that's why he is at home and I have been asked to come in and figure out what can happen. Now the reason I do want to show you is of course as I've tried to share with you these paradigm shifts we have to make I then of course have to show you, because our field is always complex and adventurous, that when we meet Morgan we have to deal with access first. But he more matches in some ways adults in that he only has one body part that moves. However he's just 3 here. So that means he doesn't have a repertoire of a lot of activity. So I've got to come up with something again to look at how might we intervene. I knew I was going to need and electronic switch. I knew we only had one movement, whether that movement can change ----- you'll see that it's one finger, and he is able to lift it up. Now whether he is going to be able to move it side to side a little bit, lift it a little higher, stretch it out, that's very hard to know at this point in the game. Okay? I'm not looking for that.

I am just looking for how quickly can he access a switch. Now although with him people have used in the past what we called micro light switches, which are mechanical switches that requires the least force. The trouble is they still require force. And the force alone means that you have to hold them down. So it isn't just a matter of simple location. So I want to show you just how I initially started out. You can see that little Deano or Dino it depends on the day, I change his name, that little dinosaur. One of the reasons I like him is he does make a really obnoxious noise but he also walks and bows his head so he can be coming to hug you, he can be going to get something to eat, he can be sad and burying his head, okay, he can be any of those things that I want him too. The other thing I like about him is because he really looks almost like a dinosaur, a real dinosaur. I keep forgetting though, my niece keeps telling me, there are no such thing as brontosauruses anymore, so what do they have another longer name and I should educate myself? I have books, I usually try and bring a book that talks about the dinosaurs. But he does look very similar besides just being a fun animal he looks like what it is.

Now I want you to meet Morgan again. He is young. I haven't met his parents. We are going in with some people that know him a little bit better and Sue Gill is with me too and what I am showing you here is a fiber optic switch. And see his little finger how it lifts up after being on a pillow? He is laying on his bed. All right. Now what's interesting is the fiber optic switch he just has to cover up the light but he doesn't know he has to cover up the light, he just has to touch it. So when he touches it , it covers up the light it's so tiny. What's interesting is as soon as Dino started making his usual noise (makes a noise to imitate the toy noise) what he does, Morgan made just a bad face. So I immediately read that as he doesn't like him. So I quickly changed it that the switch would stop Dino instead of start him. Okay? Just like that. So that was just that he made a face. So as he starts to go when Morgan touches the switch Dino shuts up. When he comes off he starts going again he puts it back on there he doesn't move and shuts up. Okay? So that's something you can do just really quickly in terms of your ---- toys don't always have to move. And again I already looked at mom and said, "I think he's hungry, we need a bowl, we might need some food, we might need a spoon to feed him, we might --- or he might ---- or he maybe wants to go and have some exercise. He might want to climb a pillow. I am already throwing out some things for her to go and get me some props in terms of what's going on. Okay? But

right now I just want you to see. I have just met Morgan and said hello and I am showing you right away he can make this switch work. His little finger did but I am actually bringing it up to him to show to him. Okay, how that's going to work. He didn't smile but he didn't make the ugly face so that's what I meant as I knew he did not like it so it would be easier. So I am just having stuff, again not to close to him, all I want Morgan to do is not hate me. Okay that's really the goal for today. He doesn't have to love me, he doesn't have to love Dino, just don't hate me so I can see where we can go from here. Now what's interesting is. Is that fiber optic switch, again another electronic switch, your just breaking the beam, okay? I'm doing it, I'm stopping it now. Morgan is okay with it. You know we're still not best friends but man he can't wait to stop him. (speaker laughing) See, and see how he left his finger on there. Well again that's really appropriate in terms of going. Okay.

So we're going to come back and the thing I realized is that that fiber optic switch can be embedded in anything so it doesn't have to be just held like that, it can be embedded in something. That's what I was really planning to do is to figure out where it could be so he could just have a little tiny target but it could stay still wherever we would put it. It turns out that the next time when I go for some reason my interface box didn't work.

Now I know that never happens to the rest of you in assistive technology that your plans always work. And here I am going to turn on the sound just for a minute. Let me give you a little introduction. When we were coming back I got a proximity switch to work. So same thing in terms of that finger but I wanted him to be engaged in activity. He didn't really like the toy so I wanted and activity but we are not sure what activities they are. I have a few little standard standby programs and we found out from the first time we saw him that his mom told us that he is madly in love with Elmo, anything Elmo. So Susan made up a story on power point that's and Elmo story. I brought a story book in which Elmo is the star. But before that I also have a very simple story book in my computer that as you turn the pages there is animal and he makes a real sound you know. So it shows you the kitty and he goes meow, and there is a photo of the puppy and he goes ruff, ruff, and the cow mooed like that. So each switch hit just turns those things. So I also like to start here because again we know young children love animals, they're making an animal sound, and we can just go through them. I tend to ---- it looks like I am a little entertaining, I don't want you to think that I don't expect you ever to entertain kids and again when I don't work with them much I have to, now I have to move from please don't hate me to I want you to fall in love with me for the moment. Okay?

So we're going to have a very short affair, Morgan and I, right here. And in order to see it what I am looking for from him is I hadn't seen in all the time we were working any great big smile. What I am looking for then is no pinched face. Okay? So that's just a little ---. I want his mom and dad to feel more comfortable. Both mom and dad are right there and they're and they are feeling pretty comfortable with what we are doing but this is a lot of people in this little tiny space. You know how this is when you are in those places so you are going to hear me introducing this activity. (VIDEO)

(Animal sounds) Look how quickly he is flipping through. I almost can't go as fast as he does. (laughing) (VIDEO)

I don't know why our volume went down, that could be my problem on the copying. So now I am going to change on purpose. I want the puppy! See how the quality of us looking through this book had changed from quickly going through and me doing it but also I've calmed down and so is he and he is really looking at some of the stories. And you know what? You know what's interesting is that I told him, this is when I knew we were in love but not until I saw the video, I told him I really love the puppy. I love dogs, I love the puppy and what happened is that he went and put on Lassie and waited and waited and waited and it took Nora Connel who was the AT filming, who said Karen he found your dog. So the only thing he mistook was the dog for the puppy. I was looking for the little white puppy because I have a little white dog and he was waiting that so he gave that to me. I mean you know that's the kind of stuff that sometimes you need to have a video to be able to see. All right. (VIDEO)

So I know you all loved hearing that 5000 times. Now we are going to see him reading the power point Elmo story. (VIDEO)

We all do this, don't we? (VIDEO)

You can really see how he waits at the pages and again likes to read a story over again and Susan is pointing to the words this time and he vocalizes. Nope hurry it through, don't can't you remember 3-year-olds, lets get to the end, flipping the pages. (VIDEO)

See they want to do it again. But look how he is going to flip the pages. He loves the piano. So I'm going to have a piano program next. (VIDEO)

Again I know this looks repetitive but again this is absolutely normal behavior that you are dealing with a 3-year-old in terms of doing it so that again, we don't want to go on, we don't want to have the 52 activities. Let's stay with this activity. He's clearly letting us know, he is looking at it each time a little bit differently hurrying through some pages, stopping at some others, in terms of doing that and the whole time we are not saying anything about the switch, we are talking about Elmo and what's happening. we are reacting to what he is doing. So we are presuming he wants to speed through the pages and then wants to slow down. Just like we would if we were having any kid doing stuff. All right? What's interesting is look how long ------again we're strangers ------ so now he's given me up and fallen in love with Susan. Susan and I will have to fight that out later. He is looking through the book again. The reason I want you to see that in real time is that I want you to see this whole thing though, although it seems a lot when you are just sitting there watching, has really only been four minutes. Each time we're learning a little bit about him as we watch him watch the book, not as we watch the switch, but as we watch the book. You can see how then with very little effort we don't have any doubt that he knows what the switch does do we? I mean there is just no doubt. He's got it. But we have set it up in a way that there is no possible way you couldn't have it. Now what 's really interesting is when we finish this book the other thing is that we are going to try some other stuff is pretty soon he starts tap, tap, tap, tap, tapping, which we start realizing, I want you to look for that, that he is doing that communicatively. We think he is trying to hurry us up or say yah, yah, yah, that's the one I want. Because that's the only thing he can do. Okay so oh before we do the piano we are going to do a real book. There is no switch. Susan is just going to read this story to him. (VIDEO)

Look he did his finger twice. He did a one and then he did a one, two. (VIDEO)

Now although we don't have a switch we are still engaged in activity and this is the part that I think is so important. Don't think because you're and AT person you're not going to read a book. That you are not going to read a story. He's paying attention. That's the most important thing that we really want. He's liking the story and then his mom goes and she had this little gizmo and what's interesting is that it's a little knob on the end of his finger and he can click the top of a juice lid for counting. Click, click, click. And what's interesting is that I think this is how this is happened, his mom did tell me that she has gone on a web site with other families that have kids with spinal muscular atrophy and any little thing that they have tried she has tried to make but she hasn't always known how to use it. So when she brought that in it was an easy thing to be able to use still on the little mighty finger in terms of making a click. Now we're not going to ask him to click, he is only 3, we just met him so we are not going to say click for three, click for four. Again we're letting things be open ended. It's an opportunity whether he does it or not. What we do as we see him we start to see him use his finger more or not and when he is not using it, it maybe that he is just completely paying attention so we are not going to try and second guess or not but we were thrilled that he had this much attention and was really staying awake, was clearly looking, was vocalizing in terms of what going to happen. And you will see----- and then when his mother did bring that little thing now we do have a method where we could teach some counting. Do you see what I mean? So we're not necessarily looking that he is automatically do that but it's something we could do. So we're reading the story for the first time obviously when you read that story another time you can engage him in a couple different ways, asking for counting, asking for what he is going to do. The other thing we discovered is he vocalizes and he vocalizes at different times. We started talking with the family about can we start to react to some of those sounds as a yes or a no and help us identify them. Oh when you made that sound I thought --- that sounds like you want me to do it again, or that sounds like you don't want me to do it again. So we can ----- we aren't going to ask him he's 3, we are going to react to it and keep reacting that way. When you do that I think you mean no. We talk to the parents about that. Same thing. He can always interrupt us or change.

The next thing I am going to do is, although we only had that single switch and we had a couple of those, we had those two little single switch activities and we are now reading a story. We are going to try something else. There is Susan and she started counting with her finger like he was counting with his finger. Do you see that? Good job Susan. Sometimes we just don't know the mistakes we make are dumb. All right. If I fast forward you I will miss the next part. In terms of --- look how long he is staying at the story. The same thing as he did the week before. Let's see what he is saying. (VIDEO)

Thank you Vista. Let's hurry up. Here is a piano program. What I am going to do is just plug in a track ball and I am going to mouse the keys. So I am going to do the keys and he will select the keys. When he selects the keys they go up onto the grid and then we can play the song. I am now not asking him to do multiple switches but I am doing multiple switches because we are doing this game together. Is that making sense? So he will see me managing the track ball and I can say to him "do you want this key, that key?" I will move it. He chooses and he selects it. All right. (VIDEO)

Now I think he is tapping to the song. He is using that little finger in a lot of different ways I think and we are not always going to be clear right now, but it is just thrilling to see him being that engaged. (VIDEO)

So again, in his view, with that big track ball, pretty easy to see, I am controlling it but see how I am already showing there are different ways to make things work. I don't have to tell him that, he is three years old. It is just an opportunity to see it and then hear his song. It turns out as we leave here then his mom tells us she plays the piano. She was also telling us that when she was pregnant with him that was one of the favorite activities she did was be at the piano with him and so she was really excited to be able to make some songs, with him particularly, in terms of that. Again, and it is so funny-- most of the time-- I always love this. Don't ever say you hate something because the next day it is going to be the only thing that works for somebody. I usually don't like laptops with young kids. I wish we had a tablet but in this case isn't it amazing because we are able to readily place it and because we have the angled screen it is a built in valve so it is like it is so easy to be able to use this thing in a computer. Right here all we are doing is showing mom also other things you can do with the webcam. We realized that you know Morgan does not have a mirror in his room so I am really using the webcam to show him what he looks like. Have mama get in the picture. He first looks away, looks how he looks back. Look at those little eyes. So this is what I am going to show him. (VIDEO)

Again, what is interesting with Morgan, I think it was pretty obvious what was going on. Now, last but not least. Let's meet Gretchen. What I want to tell you is so interesting is again when I went to go see Gretchen, actually her team had wanted me to come to see her because they were really looking for a better switch mount. They found a good position for her. They found the adequate software. She was using a communication device but the place that they had to mount the switch that she seemed to be able to get to most was tenuous. So they were really hoping I would have an idea in terms of helping. I just want you to again see that from the beginning I am going to meet Gretchen and I am going to be using a device first to meet her. This is me just using my computer. What is really incredible is the kind of control Gretchen shows and how interested she is in seeing the screen. That's her leaning out of her wheelchair. You will see in a minute it is as if she—as it pulls back to see what kind of control she has got. The thing that I really love about this is that just like we read the display so many kids who use AAC devices do too. So when you are typing, they are eager to see the display moving as much as they are to sit back and listen. The reason that I included this was not for you to see how great I'm doing with not typing typing but having to use word prediction, you can see I am slow. Is just to see—look at that. I am getting a good sense of how much control she has. A lot of control.

We are going to move from this from just saying hello to seeing her use her communication device. I just wanted this for you guys to see that she is not falling over, she is obviously purposefully leaning over there and she can get herself back up. I am also thinking—whoowee—this I more control than a lot of kids I ever get a chance to meet. This is Gretchen and the mechanical switch, kind a sounds like Pinocchio doesn't it? She is seated in a different chair. This is her teacher and her personal assistant and they are doing a regular activity. You will see a little bit of—she has an onscreen keyboard—I mean on her device. Right now she is doing some kind of math problem I think. When she is spelling they do have efficiency of use keyboard. We are going to come down and see where the switch is mounted. You

can see that same thing for round switch on that tubular pole, you can see it is going to be a little hard for the Velcro to be held in place. But, as she is making this work I don't think there is any doubt that she has got control of it. Okay, they picked a good site. Again, would not have probably been a typical place I would have begun but I never cease to be amazed that people sort it out and she is doing really well. I can clearly see how the mounting is going to be an issue. When we come around to look at from the front. We will come around so you can see her legs on the front, the kind of effort that is requiring with a mechanical switch. I have to tell you, right at this point, when I am still seeing her do this and seeing her do her work, I am thinking to myself "I am going to have to come up with a mount for that." And then I think to myself "Heck, I am here. I brought zero pressure switches, you k now, we'll see." I have to tell you that even when I was doing that we'll see and go through the protocol.

This is one of the reasons why I think it is really important for you to go through your protocols. Because, wait till you see what we find out. Actually, you can see with some force how that switch could easily pop off, so she is having to have somebody hold it again. Just because it has got a switch on that round tube. She is well seated. She has got great control of her body. She can clearly see the display. All those things are really good in terms of her being able to manage the switch. It has taken somebody to be there and it is certainly not what we would call fast. That is the other thing that they were concerned about. She really wants to participate in classroom in real time. Every time she attempts to it is so slow that by the time that she gets anywhere close to answering the question, we have long since passed kind of what has occurred. People are saying what really could be more efficient besides this mount. I am just having you see from every angle the kind of control. Again, she is another child that has a kind—I believe as CP with dystonia and again appears to—I am not a physician, I am a therapist talking about some clinical applications. That is where I think she can isolate some control to be able to repeat a motor action but you can see her hands, she is really holding her hands together.

That is also typical—although some kids with apoptosis do the same thing in terms of holding them in place. Now we are going to-- ooops. I am going to take a mechanical switch and I am going to hold it closer to her body and we are doing the same activity she was used to doing. What I want you to see is that in fact she can't push it. This is a lighter touch switch in force of pressure than the one that was there. But you see, she can't make it go because she has to have the amount of travel to bang to get the mechanical switch. I just wanted to show that if even if I moved it closer, if we would have thought of moving it closer, she can't get enough force to push it. There is definitely some banging or hitting the switch, like we often say, that is what she is doing. I am getting an electronic switch. That is a rechargeable battery pack as always. Then there is a interface to that battery pack and then I have two cables. One cable is still a mono plug and it is going to plug into her device just an mechanical switch would. The other cable is going to go to the electronic switch. I am purposefully showing you that, of course, I have an interface that actually has the ability to manage two switches so that is why you are seeing one cable still held together. This is the same proximity switch that we used with Morgan, you are seeing though it is yellow and a little bit bigger but they function the same way. The difference with this yellow one is I would be able to—it is adjustable. Meaning I can have it be activated without touching it for more of a distance which means it can be embedded in a tray if you wanted it to. You would not have cables to worry about for some of your kids that have apoptosis. I am showing her how

it works. See all that little light coming on, that is how close I had to be to activate it. I am going to bring it around now, I am going to bring it really close to her. Although we saw her really having some great control of her body, I want you to see how the body settles down with no force. At first she still hits it, very similar to what you saw. Again, I don't want her looking at the switch; I am wanting her looking at her communication device. Just in this short period of time she is going to use less force. We can really see it when you then see her body. Look. Isn't that pretty incredible. So that is what I am trying to say is… that is in her CP that amount of force was what it was requiring to manage her to use the switch. Look how much quieter she can be in terms of control and how much less effort is required. This would have been great enough but when I saw her I asked her if she would like to try two switches. To do two switches we actually were gonna change—this is showing you the efficiency of access. See the letters that you use the most are in the top corner. Gretchen really wanted to try two head switches. What I want to show you is that she did not require any training. She is now controlling moving through the one selecting on the other. She has no attendant; the teacher is not with her. She is answering the questions in real time. She has her—over here, right here is the display she is going to be writing in. She is answering the questions during class. See again, no force, how quickly she can move through the series of groups, have a more complex display, going through her multiple groups, choosing her single one and she already has two words typed. Do you see that? Okay.

She is being able to do this in the midst of class. They read and they are doing some comprehension questions that they have to answer. I wanted you to see how she is moving through the pages. She clearly knew her device. We can see—see a lot of people think well how can two switch scanning be fast? I will tell you the single switch scanners who really get a rhythm, they move so quickly you can't keep up. Because they will fly through the choices. They get into a rhythm. So the timing is—there is just timing. I know at this timing I am going to get through the third location that I need. I have had the pleasure of knowing some children who became adults who now can do that. I just wanted you to see this again, what a great job, she already knew things—look what she is being able to—and now she can raise her hand to answer the question. Pretty different in really not much teaching. But one of the reasons that the access could change this quickly is because she was fluent with the device. I wanted to show you, again, I was thinking man that knee was really looking pretty good but how quickly she was able to change. Look at the teacher when they are talking and is part of what the story was that they were listening to. Okay, As we go back and review. Again, we want to increase the numbers of the activity, meaning the kind of activity we are doing, the numbers of activities that is what we are doing with Morgan. We want to support a larger repertoire of experience. We want to short periods of frequent breaks showing beginning, middle, and end. That was what I was trying to demonstrate with Conner. Then with Gretchen the activity must be known and contain success, challenge, risk, and reward; meaning it cannot always be set up to be everything right. Which you can see Gretchen really do in terms of moving to the two switch scanning. I did get one question saying would you start to explore an Eye Tracker with Morgan. Your activities indicated he would have the cognition. This actually to me makes a few presumptions. One of them would be that would be to use an eye tracker you need cognition. I am not sure about that, I still think, but I have to tell you that my concerns – I will try everything and anything and when I say everything and anything we cannot do everything at once. We don't want to do all things at once but we always want to keep looking at what available access

techniques we have. I just want to say though, is when we have an opportunity like with Morgan to set up with that little fingers and switch access, it was really quick for us to set up a lot of activities. I do want to tell you that it does not matter what eye gaze system your using, they are not quick to set up in terms of you being able to calibrate them in terms of your eyes. And although they have gotten much better than they used to be, they still work best if you are seated upright. You can see Morgan is on his side a lot, I am not saying it is not going to be there, but he is not up still a whole lot. They are light dependent. They still are situationally dependent, meaning they are affected by the light, much less than they used to be but they're really quite huge. I want to say instead of looking at Eye Tracker, I want to say what with the eye tracker do I want to manage. That is what I still want to say. This is one thing as an OT that I am very concerned about. To use yours eyes, they can tire quickly. Especially when you are learning to focus when you are young. They get tired quickly. When people are learning eye gaze systems and learning and using the effort to learn, just like I told you when we try to move a head pointer and we try and move our head, you are going to have a bit of over targeting as you attempt to get there.

I always want to say I don't look at that as a first solution, especially if I can find some quick ways that we can set up to develop experience. Then as we are developing are experience and we want to start looking at can we get at letters to form words, is there a way we can more directly deal with an eye gaze system. I also am going to look at that eye gage system even without the technology and then with the technology. I guess my answer would be yes, no and maybe. How about that? All right. I think Susan has a few things she needs to say before we end today. SUSAN GILL: Just to continue with our talking about this whole challenging access as a journey, I just wanted to give an update. I know that I heard recently from Morgan, some members of Morgan's team, one of whom is in our audience today. Morgan is currently doing a trial with a communication device with a Dynavox V and they are talking about maybe trying the optical access. He is currently using – trying to some things with two switches. This is still a journey with Morgan, although a big day was when the first time he just stood there…. His dad was standing there and he told his dad he loved him. That was just one of those days that it is all about. That is very cool. This challenging access is a journey. We saw some great and have heard some great progress with a number of these students. As Karen pointed out, that will continue as we continue to try to get better access and better positioning and use of the tips and techniques that Karen has pointed out today.