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Event: Think Social Speaker Kimberly Peters

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>> DONNA: Good afternoon, everyone. This is Donna Sorkin from Cochlear America's HOPE Program and we're delighted to have a large group with us today. We are going to be starting -- go ahead and start. We're working on getting the captioning going, but we'll go ahead and start our event.

Our topic today is Think Social, Developing Theory of Mind in Children with Cochlear Implants with Kimberly Peters from Western Washington University.

This is part of a set of programs that we're offering from Cochlear that get beyond the Cochlear implant and the Baha® device, actually get beyond the spoken language and development in children and think about the whole child and social development as one of those elements that we've all been talking increasingly about in the field.

So we have with us today our speaker, Kimberly Peters. Dr. Peters is a Professor of Audiology at Western University -- Western Washington

University. Also the Director of the Aural Rehabilitation Clinic and has been for a number of years at the clinic. She is a certified auditory verbal therapist and mentor. She also has a private practice in audiology and speech pathology, and she's a wonderful, wonderful advocate for families in her state of Washington and via vehicles like this for families around the country. So with that I'm delighted to welcome back a regular speaker at HOPE Online, Dr. Kimberly Peters.

>> Kimberly: Thanks, Donna. I hope everyone can hear me fine. I could hear Donna well. Isn't technology just amazing?

So Theory of Mind, I'm going to spend a little bit of time talking about what is Theory of Mind. I know probably most of you are familiar with this term. It's been in the research lately and speech-language pathology, audiology, autism spectrum. It's been a big topic recently in working with children with Cochlear implants. So I apologize if this is repetitious for many of you, but we get to more of the nitty-gritty of intervention in a bit.

So Theory of Mind is a -- in the field of social cognition, how we think about people, how do individuals understand, predict and explain the behavior of others? I heard Mary Pat Moeller give a talk once where she described Theory of Mind as our intuition, the ability to recognize mental states -- people's mental states, actions based on mental state, mistaken memory, foiled intention, false belief. All of these areas are really important in developing social skills and also in developing advanced literacy skills for kids.

This is an area that became very interesting to me as a new faculty

member at Western Washington University, having spent 15 years as a clinician in private practice working with kids with Cochlear implants. I was having lunch with a cognitive psychologist at Western, also new faculty member, and he was talking about working with -- studying social development and social cognition in children with -- children who were deaf on the West Coast. And he explained to me Theory of Mind and I -- he said that children who are deaf and typically kids who are -- who are deaf with parents who have normal hearing are very, very late in developing Theory of Mind. They tend to be -- they -- historically in the literature have been several years late, sometimes six or seven years behind their typical hearing peers or deaf children of deaf parents in their social cognitive development. Excuse me, my phone is ringing. I'm going to just take it off the hook here. I really apologize for that. I forgot that could happen. So I -- I said well have you ever -- have you ever done research with kids who are deaf and who use Cochlear implants and who talk who have good advanced language skills. And I said -- he said I didn't think that there were any. And so that just completely shocked me that anyone could think that and so I said let's do some research. That is how -- that is how I got into this -- into this field or into this area of research. Adults predict and explain the behavior of others by attributing actions, attributing their actions to mental states such as desires and beliefs. For example, a little boy is looking in the cookie jar because he wants a cookie and he thinks that is where the cookies will be. So the action is explained by what he wants and what he believes to be true. A mature Theory of Mind requires that a person understands that others want things, believe things, have emotions that are different from one's own emotions and thoughts and beliefs so you can't have -- you can't be egocentric and have a mature

Theory of Mind. Theory of Mind operates along a continuum which we will talk about a little further on. Wellman in the 90s really described stages of Theory of Mind and it described toddlers and two-year olds as having more desire based psychology. They understood that people want different things like someone might choose broccoli over mashed potatoes for dinner because that person likes broccoli and doesn't like mashed potatoes or wants to eat broccoli and doesn't want to eat mashed potatoes. Staged letters can understand that but they don't necessarily understand that people have different beliefs about the world and how the world works.

A very common way of assessing Theory of Mind in all children is the false belief task. And a false belief -- and in -- in the literature in social cognition has been the Hallmark of advanced Theory of Mind is that when a child understands that people make choices based on misinformation, so for example the cookies start out in the cookie jar but when Jon leaves the kitchen his Mother puts the cookie jar -- takes the cookies out of the jar and puts them in the cupboard. When Jon comes back into the room where will he then look for the cookies? He's going to look in the cookie jar because that is where he thinks they are. He is acting on his belief even though it is a false belief. And at the end -- at the age of two children with normal hearing aren't able to predict this action accurately. You ask a two-year-old where will he look and the two-year old who saw the cookies get moved will say Jon is going to look in the cupboard. Because that two-year-old doesn't understand that now their perspective is different than John's perspective. At the age of four, between four and five, children with normal hearing understand that John is going to look in the cookie jar because that is where he thinks the cookies are even if they

are not. They will say, he will look in the cookie jar. That's where he thinks they are. But he's wrong. They're not in the cookie jar any more. So John is acting on his false belief and kids between the age of four and five typically hearing, typically developing kids will be able to explain erroneous actions using the language of false belief. As part of our research we went to the homes of children which often meant that we were also seeing their siblings and when we were testing implanted children and also normally hearing children we were at -- often on the weekends and in the evenings at their houses and I interacted with one little boy who was seven and he had a two-and-a-half year old sister. While we were doing these false belief tasks, she -- we actually got a recording of her repeatedly failing the false belief task because she just couldn't resolve this difference. And it was this difference in perception of reality. So it was a very entertaining and really a very robust affect that two and three-year-olds simply couldn't pass this task. So the task itself requires some fairly complicated cognitive and linguistic processes. The -- one of the tasks that we did was called the Band-Aid task and we had a box that looked like a Band-Aid box. It had Band-Aids all over it. We showed it to the child closed and said, what do you think is in this box? And the child said, Band-Aids. And then we let the child open the box and there was a plastic pig in the box. And then we asked the child well when Mom comes in the room, what will she think is in the box? And the correct response was she'll think it's Band-Aids but really it is a pig or she'll think it's Band-Aids was an acceptable response. So when children are able to do that, she thinks one thing but really it is another thing. This means that they are engaged in what cognitive psychologists refer to as dual processing. There are two representations being held in the child's mind

simultaneously.

What we have seen in the literature on Theory of Mind and social cognitive development in children who are deaf and -- who are deaf, we haven't -- there isn't really any research out there yet on children who are classified as hard of hearing who are using hearing aids. But children with severe to profound hearing loss have been shown to pass these tasks at a much later age. So at least -- some of the studies have shown kids at the age of 12, kids who are deaf are still not passing this false belief task that children with normal hearing pass at -- between the age of four and 5 years.

And just a caveat to that previous slide, children who are deaf and whose parents are deaf and who are native signers, children who are native sign language users pass these tasks at the same age as children with normal hearing. So we don't see these Theory of Mind delays in children who are deaf, who have deaf parents.

Research that was done a few years ago by Mary Pat Moeller and Brenda Schick showed that sign language correlated with the ability to understand false belief. It was really based on not the amount of signing but the type of words that parents knew in the type of -- the sign that parents knew. So parents who were able to convey emotional and mental states through sign language had kids who were more likely to pass the false belief tasks. Mary Pat Moeller refers to the notion of the landscape of the mind verses the landscape of action in that the ability to talk about mental states and talk about emotions really is mind talk rather than just descriptive talk

related to action or characteristics. Size, shape, color, et cetera. This is an important aspect in language that we need to be thinking about for families of children who are deaf and hard of hearing that parents need to convey information about emotion and mental state. Whether they are using sign language or whether they are using spoken language, this quality versus quantity is important.

There's a study -- another study by Canditta Peterson in Australia who completed a study in 2004 which involved implant users and children -- I believe children on the autistic spectrum, normally hearing children and children with severe hearing losses using hearing aids. What she found in that study was that the implanted kids performed similarly to children who weren't wearing implants in terms of their Theory of Mind performance and their false belief performance. The kids -- the implanted kids in that study had language ability, their language skills were very similar to the kids who were using hearing aids so this suggested a relationship between language ability and Theory of Mind development. The other research that's currently happening is looking at Theory of Mind and other types of cognitive processes, specifically inhibitory control. The ability to pay attention to one thing while ignoring another thing. This has also been implicated in Theory of Mind delays in children. And also working memory. So that entails retaining information, thinking about the classic task that is used to assess is reversed digit span where a child hears a series of numbers and then has to repeat them back in reverse order to the tester and what this -- what this entails is the child thinking and working with the numbers in his or her mind in order to then say them back in the reverse order.

There have been several recent studies that have shown working memory that children who are deaf with Cochlear implants have working memory differences compared to children with normal hearing. And so some of these other -- these are some other areas now that are being investigated as related to Theory of Mind because Theory of Mind is a dual processing task so that is really interesting and thought provoking.

Last year my friend in the Psychology Department who had never met any implanted kids who talked, he and I and a former student, former graduate student of mine in speech pathology completed a couple of studies on social cognitive development, Theory of Mind and language skills in implanted children. These were the Rempel & Peters study was printed in journal of deaf education and Peters, Rempel & Richards was published in the schools in the fall. This study, we recruited 30 children with Cochlear implants and they were between the ages of 3 and about 12. And with a mean age of seven -- a little over seven and a half years and mean duration of implant use of a little older than four and a half years and we also tested 30 children with normal here. And for the implanted kids because the normal hearing cohort was so much younger than the implanted group we for some of the analysis we divided the implant group into a younger and an older group. And we -- as I said earlier, we -- I actually drove to the homes or flew across country and then drove to the homes of all of the children who participated in this study. Any of you who have done research with implanted kids or been involved in research with implanted kids knows it is just difficult to find large groups of kids and not being at an implant center we pretty much to do go to the kids. They

were -- between two and four hours to test each of the implanted children and we completed a Theory of Mind scale which was developed by Wellman and Liu in 2004. We modified the scale slightly. It included five tasks ranges from easy to difficult, diverse desires, diverse beliefs, unknown contents, false belief and real versus apparent emotion. This scale has typically been used on children with normal hearing and children with autism spectrum disorders.

Just to give a quick description of some of the tests, they're really, really fun to give to administer. They were -- it was just fascinating to see the kids complete these tasks and see what kinds of things they had difficulty with. But as an example the diverse desires which is the easiest part of the scale, the child is shown a picture of carrots and cookies and then is asked which one he or she wants for dessert and whichever one the child chooses, the next thing that happens is a little figure comes in and the examiner, I said, well, that's great that you love cookies. Cookies are delicious but Mary really likes carrots for dessert. What do you think Mary will pick? The correct response is Mary will pick carrots. As a follow-up I ask why did Mary pick the carrots and the implanted kids were pretty much at ceiling on this task they all said she will pick carrots because that is what she likes best. The diverse beliefs task shows a picture of a garage and some bushes and a figure comes in a little doll walks in and I say, this is Bill and Bill has lost his dog. He doesn't know where his dog is. He thinks -- where do you think the dog is? Then the child says I think the dog is in the garage. Then I say well that's a really good idea but Bill really thinks his dog is in the bushes. So where will he look for his dog? Then the child is supposed to respond, he'll look in the bushes because

that is where he thinks the dog is. The contents false belief is as I described with the Band-Aid box and then the real versus apparent emotion is a task where the child is shown a picture of a group of kids teasing someone. And then the child is supposed to describe just pointing at pictures of happy, sad and neutral. The child describes how -- how that person feels on the inside after being teased. And then how his face might look on the outside. So how you feel on the inside versus the face that you're showing to the world. So as not to let on that you're feeling sad on the inside. So in the picture the child being teased you see the back of the child. Not the child's face. These are high archically ordered theoretically. Interestingly and I'm not sure I put this in the -- I didn't put -- include this in the results but interestingly, the implanted kids did better as a group on the real versus apparent emotions task than on the contents false belief task. And our theory as to why that might have happened partly was due to the age of the implanted kids in that the implanted kids as a group were older than the children with normal hearing who completed this scale. And so they had more experience socially in general. Possibly more experience with being teased. And also there was a lot of verbal scaffolding on the emotional versus parenting and there was a lot setting up the story and a lot of explaining what was happening in the story. The contents false belief did not provide as much verbal support and we theorized that both the age of the children being tested, the implanted children, and also just their familiarity with stories in general and their ability to make use of some more scaffolding helped them do a little better on that real versus apparent emotion task. The other measure that we completed with the implanted kids as well as the normally hearing kids was a spontaneous storytelling task where we used a word list picture

book and the kids talked about what was happening in the story. We were in this case, this book frog where are you is very commonly used for kids -- is very commonly used in false belief explanation tasks because there are a lot of opportunities to use false belief language. He thinks the frog is in the hole but it is not. We were really looking for landscape of the mind, use of landscape of the mind versus landscape of action. And we also asked kids to explain a video joke being played. An example of this is a child has a plate of cookies in front of her. Leaves the room to get a glass of milk and while she's gone her sister replaces the cookie with a yo-yo. When the first child comes back in the room with her milk she then dips the yo-yo in the milk. The video stops. The task for the child was to explain why that happened. There was a coding -- range of score that a child could achieve on that particular task depending on how many prompts they needed to come up with the correct answer which was she thinks the yo-yo is a cookie and that is why she dipped it in the milk.

Then we did some expressive and receptive language testing using a number of standardized measures. For some of the kids they had expressive and receptive language testing done already recently and so we used those scores for children who had not had testing completed recently. We add oral written language and expressive and receptive language tests. This presented some things and next time we'll stip with one measure of receptive language.

So it was -- the outcomes were wonderful and interesting. The kids with implants in this group on average I think are standard score expressive and receptive language standard scores were 98 and 102. So on average

the kids were demonstrated age-appropriate language skills. They -- we did some listening with them. We did -- we administered the PBK and they had very, very good speech reception. We didn't include that in our analysis because it was done using monitored live voice and it was not that reliable between kids. They heard well. They had excellent expressive and receptive language skills. And one of the measures that we gave that we did not end up including in our analysis because the kids were at ceiling was the -- what is called the memory for compliments task. And that required the kids to just repeat back sentences that included false belief statements such as she thinks he's sitting on the chair but really he's lying on the bed. She thinks there's a rock in the jar but really it's a pig. And the kids had such high performance on the memory for compliments task that we could not include it in our statistical analyses. There was just no availability and they really had very good auditory language ability. They were -- we did not pre-select them for their language ability. They were just a strong group. Kids.

The scale results showed that young children with implants did not perform significantly differently from children with normal hearing on the scale and on the false belief task. Children with implants performed similarly to typical hearing. Children and native sign language users and better significantly better than quote-unquote late signers from previous research. The term late signers is used in cognitive psychology to describe kids who are learning sign language from parents who are -- who are -- who have normal hearing and who are not fluent signers. The term late signers is used because -- to describe kids who are learning sign language mostly from school. So they are not even being exposed to fluent sign language

until they reach school age. So that's where that term comes from really from the cognitive psychology literature. And then on the video description task, all the kids in the study use false belief explanations at least once during the video descriptions so they were all able to use a false belief explanation. She thinks the yo-yo is a cookie and that is why she dipped it in the milk. The youngest child in this study was 3 years old. She was really on the cusp of not being even a good study, a good subject for the study but she did -- she did really well, especially on the explanation of action video tasks.

Development and expressive and receptive language ability. That was both obtained through scoring the spontaneous language sample and also through the OWLS. Our thinking was that in our hypothesis it was that cochlear implantation would improve language skills which would allow better access to mental state language, talk about the mind, all of the things that normally hearing kids are doing really prior to the age of 3, early implantation and good language skills as a result of implantation would allow deaf children more access to that kind of language and that kind of social interaction.

The other thing was that during -- that the kids who used the most mental state terms during their storytelling task cognitive terms, emotional terms, terms related to thinking, terms related to emotion, that mental state term use was correlated with false belief understanding. And time since implantation was a better predictor of performance than chronological age or time and amplification so even though chronological age was a predictor, it was associated with better performance, the amount of months

since -- the amount of months of implant use was a better predictor.

So there were -- there are real challenges to Theory of Mind -- the tasks themselves. There are language channels inherent in testing Theory of Mind. Comprehension skills of the child were -- are taxed so, for example, if -- if the -- if the examiner or the adult, the clinician were ever in therapy situations this was the case, when you ask a child the question they are maybe -- they may be processing a different question than the one you asked so where will she look? You might ask where will she look based on what she believes? And the child might answer where should she look? Based on what the child believes. What's in the Band-Aid box is a lot easier to process than what does she think is in the Band-Aid box? Just in terms of auditory memory there may be limitations in a child's ability to answer those types of high-level questions. We did not have any kids who could not process pretty advanced language based on the memory for compliments task which has been used in the past to evaluate Theory of Mind skills in kids. Based on that task all of the kids that we saw in this study were doing really, really well in terms of their ability to remember long sentences and then process them enough to say them back to us or use that -- the language required for false belief explanations. In terms of expressive language, it's a lot harder to say she thinks the frog is in the tree. It's a lot easier to say the frog is in the tree. But only one of those statements is true. And that's one of the challenges of -- one of the challenges of developing Theory of Mind skills and also measuring Theory of Mind skills in these kids. So there are -- we have had a lot of questions about language -- we have had a lot of questions about the language tasks and were they too hard and could the kids even -- were we sure they could

hear us? Were we sure they were understanding the questions we were asking? Based on the test scores these kids seem to have in general very good language and that -- at least in my subjective -- my subjective expression was that this was not the biggest challenge for them. I have a question and I'm so sorry this has been here and I didn't notice it. What about children with learning disabilities and challenges? You know, I have been thinking about what about children with learning disabilities and challenges do they also have similar Theory of Mind issues as deaf children? And I have been thinking about this a lot lately. Because it would seem that if a child has language delay then if -- if language ability is tied closely to Theory of Mind then any child with language delay should have a Theory of Mind delay. And I have to say I don't -- I have not seen any of -- I have not seen this reported in the literature. It would make sense to me -- the kids that we see with the greatest Theory of Mind challenges are children who are deaf and children who are on the autistic spectrum, and Aspergers as well. So I would think that language deficits would result in Theory of Mind deficits for any child. But one of the big questions in cognitive psychology is, what is really causing Theory of Mind -- what really is the cause of Theory of Mind deficits? Is it -- is it some sort of executive function? Is it some sort of cognitive process? Is it social exposure? So is it just your exposure to a variety of social situations or is it language or is it in some way all three? And I think that we don't really have the definitive answer to this. The reason that children who are deaf have been studied so extensively that is they represent what psychologists refer to as a natural deprivation group meaning they do not have cognitive deficits per se. They are -- they do not have learning disabilities. They are just dealing with a sense -- with sensory deprivation

of some degree and duration. And I think now there are more people looking at what are the neurocognitive differences in children who have had auditory deprivation and subsequent language deprivation. I have another question here are these issues true for auditory processing population? I would say that we have a -- we see here a handful of children who have auditory processing disorders at this clinic. They are all a little bit on the older side. And some of them I have not done any Theory of Mind testing with these kids. If they -- if they perform similarly to kids with profound deafness then they don't remain Theory of Mind -- they are -- they are -- they have false belief delays and so eventually kids do pass the false belief tasks and it may be that the kids with auditory processing disorders when they're younger when we first identify them at 7 or 8 that they have some Theory of Mind deficits but by the time they're 10, 11 or 12 that they are functioning within normal limits for non-false belief tasks. I have not tested any children with auditory processing disorders but I think it is a very interesting population. You would have to test them when they're younger because that would be the time at which they would be probably the most susceptible. By the time they are closer to the teen years, they're going to probably have worked out some of the false belief deficits that they might have been exhibiting when they were younger.

The population that we're interested in looking at now are kids who are classified as hard of hearing. Because I suspect that any degree of auditory deprivation would result in these types of deficits but we just won't know until we -- until we see how those kids perform. There are literally no studies that I know of that have invalid false belief understanding in kids

with mild through severe hearing losses.

Other issues that have -- that have come up in the literature with language and Theory of Mind is sentence structure development. Jill and Peter Devillars have asserted and shown in their research that as soon as children who are deaf master the sentence complement structure so being able to generate the propositional implement she thinks that the pie is in the cupboard. He said that the boy was in the chair. I know that you broke it. When they are able to process that type of sentence, they begin to pass the false belief tasks and we didn't find that. We found in our study that general language skills better predicted false belief performance and Theory of Mind performance. And undeniably kids who can not generate complex sentence structures are going to have a lot of difficulty providing false belief explanations and so I think it is important to be considering advanced sentence forms with kids and complex sentence structures, WH question forms, et cetera, that this sentence structure development in the absence of these types of syntax structures Theory of Mind discussions of Theory of Mind and false belief will not be possible for kids.

So if anyone has any questions about the research feel free to pop those up and I'm going to talk a little bit about some strategies and activities. I need to give some credit to Maura St. Jocks who is at the other preschool program, the educational director there and she and I developed these strategies and activities for a talk we did a couple of years back and so I wanted to make sure that she gets credit for that.

As -- let me go back to a question here. Reviewing the test questions can we review the test questions I'm not clear on all the answers and I have been paying attention. Yes, we can. If you want to post a question that you have please do. Because it is possible that I -- that I glossed over something too quickly. That would be like me to do that. I'm happy to go over those if you want to pop one over there. The research by Peters and Rimmel has been published. One of the articles is in the journal of deaf studies and deaf education. That is a question is this research published and the other article is in language speech hearing services and schools.

I don't understand. I have a question. I don't understand how higher level language skills cannot include the ability to construct complex sentences, including she thinks, et cetera. I'm not -- I'm not totally sure about that -- I'm not sure what is meant by that question. If the poster could clarify a little for me, higher level unless I misspoke. Higher level language skills do include complex sentence structure so maybe a little clarification on that, that might help me. And then another question the exact title from listening speech or listening speech-language services in the schools. And I believe it is language -- language and mental state. Maybe it is mental state vocabulary and Theory of Mind. Mental state vocabulary and Theory of Mind. I think if you just Googled that it would come up. And then oh I am going to get to the strategy for facilitating ToM development and in infants. That was another question. What was the strategy for developing mind and infants and we're going to do that now. I'm going to get back to the slides and then I'll go more questions.

Okay, so in terms of strategies, it is important that communication be as

high-level early on as possible. Obviously we're not using elaborated very high-level very complex language with infants but parents need to be able to communicate in abstract ways pretty early on. And this mostly relates to sign language acquisition for kids who are using or for kids who are learning manual communication. It is really important for their parents to be able to sign mental state terms even from a young age. As kids get older it is important to elaborate and have elaborated conversations, asking and answering why questions, talking about feelings, talking about the reasons that people do things. The thinking behind why people do things. Talking about mental states. And then incorporating many aspects of communications so written language, pragmatic language, listening, speaking, receptive, expressive. Using pictures to show what people are thinking. Using Experience Books. Just as a much -- as many avenues as possible, guessing, riddles, absurdities, as many ways as possible to provide redundancy and layering of mental states for kids.

Okay I have another question. This is the clarification that I was asking for. You were trying to distinguish between your findings related to general language skills as a Theory of Mind predictor as opposed to only the ability to be able to use specific sentence structures. Okay. Yes I understand what you're saying in our research we found that the use of specific sentence structures, those being compliment structures, use of that particular type of syntax did not predict Theory of Mind performance. Instead general expressive and receptive language and type of vocabulary use predicted Theory of Mind performance. So in the research there's some question as to whether for deaf children it's a general language issue versus a specific type of language that is required to -- to develop Theory

of Mind. The -- in the past it has been argued that if a child has mastered complex sentence structure then they can pass the Theory of Mind task. Meaning that language ability proceeds the cognitive skill. And we didn't actually find that to be true. We found that kids who generally have had very good language were the kids who were more likely to pass the false belief task.

However, having said that, it is important to work on syntax because that is the avenue that children need to describe false belief. And in order to understand false belief they have to understand complex sentence structures as well and they need to be able to understand something like she thinks that the frog is in the hole but really it is not. So they need to be able to both understand and be able to use the structures required for false belief. Otherwise they're just not going to be able to use it in their day-to-day life. It is not that they won't understand perhaps what other people are thinking. Just that they're not going to be able to convey what other people are thinking. I think that answers the question.

So other types of things that -- to promote social cognition and Theory of Mind discussing emotions explicitly, talking about -- talking about the past as early as possible. Because for little kids talking about things that have happened in the past is one of the earliest forms of dual processing. So that's a first thing that we recommend with younger kids. Sabotage, role playing, guessing, pretend play, humor, predicting, giving and receiving hints all of these various forms of communication promote Theory of Mind. I'm going to try to speed through a little bit here. Here is a list of vocabulary, mental state terms and emotive terms that we got from a

variety of research papers, terms to be using and elaborating on with kids. I give this to parents because I think it helps them to remember to go beyond just mad and happy or happy and sad and mad as well as using a lot of these other mental state terms.

For infants, as early as possible talking about thinking, labeling emotions, connecting emotions to the situation, moving beyond just naming objects. Not that we don't want to name objects but moving beyond that to talking about thinking and feelings.

Playing guessing games even with toddlers the earliest forms of guessing games, I have had animals inside a bag and pulled out one part of the animal like the tail and then asked the child to guess. I see wheels or I feel wheels. What do you think it could be? I feel something round. Can you think of something that might be round? Using sort of dual sensory input and thinking about what -- guessing instead of just pulling something out of a bag and labeling it.

Modeling prediction. What's going to happen? Using Experience Books to talk about the past. Encouraging turn taking using all those strategies to encourage extended turns in kids.

For preschoolers, giving hints that include less concrete information. I'm thinking of a vehicle that lots of kids can ride in rather than I'm thinking of something yellow with wheels. Making predictions while reading. What do you think will happen. On the next page why do you think that happened? Asking balancing referential questions, what's that? What do

you use to cut with? Versus I guess that's sort of a little bit of an inferential question. Including activity that allow for reasoning like science experiments and projects and then targeting that syntax that we talked about. She thought that it was this but really it was something else.

As kids get older imaginative tasks. Teaching them the art of persuasion. Writing captions or titles for pictures in books. What would be a good title for the story? Why do you think? Why do you think that happened? What would you have done instead? Writing alternative endings. Coming up with different solutions to problems. Again more of the syntax joke time. Multiple meanings and what does it really mean versus what do the words say? And then for those of you who have not seen, this I'm happy to e-mail you a list of these levels if you want to e-mail me. The preschool language assessment instrument has some really nice ideas for creating, for asking advanced questions, moving from more concrete all the way up to more -- up to very abstract. What will you see -- you're looking at the back of a child's head. What would you see if the child turns around? What could she do next time so she doesn't make the same mistake? It is a whole level of questions that teachers use to encourage high-level reasoning, encouraging verbal reasoning. The other good resource for this is the AUSPLAN, the auditory speech plan curriculum and there is higher level thinking with language activities. At the high-level listening, at the -- on the listening hierarchy, level of the listening hierarchy is really thinking with language. My e-mail address is Kimberly.Peters-- I think it might be on the first slide, kimberly.peters@--yes,www.edu. My e-mail address is posted on the title slide and that is it. Sorry to rush through the end there but please feel

free to ask me any questions about anything. I'm here. And you can also e-mail me if you want to e-mail me. I'm happy to send you resources or whatever.

>> DONNA: Send them to Kim at this point. We can go a little bit over. Just to remind everyone, we do have a website for HOPE that has a lot of resources on it. And we will be actually revising the site with some great new resources. So take a look at it some time in the next couple of weeks you see some new things to check out.

And then just to remind you of our upcoming HOPE Online courses. Next course is the 22nd of April. On music with a Cochlear implant. And then at the end of the month we have Nancy Caleffe-Schenck talking about rehabilitation for teens and tweens and those are our next two online courses.

And then contacts following this HOPE Online. There is Kim's e-mail address for you right in the handout. She's also given it to you on the first slide. If you have any comments or questions about HOPE, please go ahead and contact me. And then send your certificate of participation which is in the file share area back to us at hope feedback at Cochlear.com and we'll send you a certificate of participation for that. So let's see, any other questions for Kim, I think there are some there. Kim, go ahead and take those.

>> Kimberly: Okay, the name of the resource, AUSPLAN, A-U-S-P-L-A-N. And I don't know the resource to purchase that but it is by MaryKay Therres. And it has got a nice hierarchy there. I have a copy of those slides as well if -- that are -- of that hierarchy if you want to

e-mail me.

>> DONNA: Just to chime in there, we have done a couple of courses with MaryKay Therres in the past on HOPE and she has talked about AUSPLAN so you can just look and see other things that she has offered. I think they're distributing that now through open children's in California. You can e-mail me if you need to and I'll give you a source as to where to find it.

>> Kimberly: Any other questions?

>> DONNA: I think then we'll close out. Kim, thanks for a really great and informative HOPE Online for us today. You had a lot of information. We appreciate you sharing it. Thanks to all of you for being with us. And see you next time at HOPE Online.

>> Kimberly: Thank you.

>> Cart Provider: Your event has ended. Please log out.

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