Using Nonstandardized Assessment to Evaluate Cognitive-Communication Abilities in Students with Traumatic Brain Injury

Recorded Oct 31, 2019

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SpeechPathology.com Course #9077

- [Host] Once again, welcome to our webinar today. The Use of Nonstandardized Assessment to Evaluate Cognitive Communication Abilities in Students with TBI. Our presenter today is Dr. Jennifer Lundine. She is an assistant professor in the department of speech and hearing sciences at the Ohio State University and a researcher at Nationwide Children's Hospital where she formally worked as an SLP on the pediatric rehabilitation unit. Her research focuses on improving gaps in services to support children with acquired brain injury and identifying specific approaches to improve assessment and treatment practices for these children. So Jennifer, we're pleased to have you here with us today, welcome and I'll hand over the floor to you.

- [Jennifer] Great, thanks so much, I'm very happy to be here with you. Happy Halloween to all of you and the candy discussion was shaking my promise to myself not to eat any candy at work today so I will hopefully be able to stick to that for the rest of the day 'cause I know this evening is always tough but I am very happy to be here to talk to you about nonstandardized assessment to evaluate kids with brain injury in schools and also outpatient clinics. I will try to tackle questions if they are quick and easy as they come in during the talk but I may hold some until the end just to make sure I can get through the content and if we miss or run out of time, I'm happy to take questions via email as well so very briefly just running through our learning outcomes. After the course today you should be able to list possible reasons that students with TBI are under identified in our schools. You should be able to describe advantages and disadvantages of standardized testing for these youth and also be able to describe appropriate nonstandardized assessment strategies that SLPs could consider to assess cognition and communication in students with TBI. So to get us started, I just want to make sure we're all on the same page. Most of the talk today could very easily apply to acquired brain injuries which includes traumatic and nontraumatic injuries, though some of the statistics are incidents in prevalence that we'll talk about in the beginning of the presentation today deal specifically with TBI or traumatic brain injuries. This does also include concussion or what is now kind of being commonly referred to as mild brain injuries. When we think about non traumatic brain injuries we

are thinking about things like infections like meningitis or encephalitis, brain tumors or tumor sections, anoxia where the brain is deprived of oxygen and stroke on other metabolic or chemical injuries to the brain. So first just to get us centered on what the incidence and prevalence of brain injury is in our nation right now, the most recent statistics from the centers for disease control and prevention and looking at TBI specifically so this is traumatic brain injury and these are also people who are presenting to at least an emergency department. We see that the three groups that are most at risk for traumatic brain injury involve the pediatric population and if we are looking specifically at kids zero to 14, this is about 700,000 kids every year that are sustaining traumatic brain injuries and likely that's a low estimate of the number of actual injuries because again, we are only including kids that report to an emergency department.

So what happens to these students? Well we know that less than four percent of these kids are actually admitted to an inpatient rehabilitation unit and we'll talk about why that is important and there are some estimates that say about two and a half million students in our US educational system every year have sustained a traumatic brain injury at some point. So again this statistic is excluding all of those other injuries that are of non-traumatic mechanisms. And why these statistics are important is because research shows that for kids who aren't admitted to an inpatient rehabilitation unit, they are less likely to receive ancillary services like speech therapy after they leave the hospital than those who do receive inpatient rehab and this may be because kids who are admitted to an inpatient rehab unit have more severe injuries or that inpatient rehab allows more time to educate families about the importance of follow up but this is important to service providers because there is a huge majority of children who don't get admitted to an inpatient rehab unit and thus are at risk for cognitive communication challenges but also who are less likely to receive those services in the schools or in outpatient clinics and if we have about two and a half million students every year in our schools that have sustained a traumatic brain injury, these statistics in the last bullet should be shocking to all of us that we are likely under serving or under identifying

these kids at really significant rates so nearly all of them are not showing up in our special education counts as having a traumatic brain injury. So why is there such a huge discrepancy and also it is important to point out that by no means am I saying that every student who sustains a traumatic brain injury will require services but certainly it is likely more than one to two percent. So this huge discrepancy, as we'll talk about a little bit further today, is in part related to the fact that standardized testing often doesn't identify deficits in these kids and part of that is part of the reason for that is that these kids go back to school and they look okay. They're walking and they're talking and then we say that a lot of these later deficits kind of become invisible. Additionally, there is the challenge that deficits grow in children who sustain a brain injury in later years and Sandra Chapman coined the term, neurocognitive stall, to help describe this phenomenon and this idea is that kids who sustain a brain injury often regain the skills that they had prior to their injury so after their immediate recovery but they have trouble keeping up with later developmental milestones based on the injuries to the brain that impacted these later emerging cognitive skills and their memory centers.

So the primary problem that these children deal with after a brain injury and particularly as it relates to speech language pathology is cognitive communication challenges and these are challenges that appear as communication problems but really arise from issues in cognitive domains. These domains include things like attention, memory, self-awareness, organization and problem solving, just to name a few. So I'd like you to picture a child who is sitting in a classroom and is asked to write an essay where he or she is asked to compare the habitat of a forest to that of a desert and if we think of this child who has trouble with attention, this essay may be really challenging because they're completely unable to complete the task because they can't sustain their attention. They may be really distracted and they may lose focus within or between paragraphs and forget what they're talking about at all. If this student has poor memory, he may forget that one of the rules, or one of the assignment requirements was that he had to incorporate some key vocabulary that they've been discussing in

class and he doesn't remember that he has to do that and even if he does, he doesn't remember the key vocabulary that he's supposed to include and memory impairments also may make it so that he can't keep track of what he's already written and maybe he repeats himself. If this student struggles with organization, the essay could lack coherence and cohesion. So ideas don't link together from beginning to end. There's no flow, sentences may not follow each other in a coherent way. So again, this essay appears that this student has a lot of issues with written language when really the deficits may be because of these underlying cognitive problems. So cognitive communication challenges are a very, very big issue for these kids so if we think about students in the classroom, challenges to cognition may often be misattributed to ADHD or even behavioral problems so these kids are walking and talking they're not easily identified as having a communication impairment but they might appear awkward or they have trouble initiating conversations or maintaining conversations and these effects can impact a child's social participation very significantly. They may have trouble with dis-inhibition. They're implusive and they say things that they shouldn't say, they're emotionally labile, they get very upset very quickly, they may cry or act out in inappropriate ways and this makes them have trouble maintaining friendships or keeping friendships that they had previously.

Additionally, cognitive communication challenges can lead to significant impacts on later psychosocial and vocational outcomes, excuse me. Research studies have found that individuals who experience a TBI during childhood or adolescence have fewer close friendships than individuals who haven't sustained an injury. These individuals with TBI are less likely to enroll in secondary education, they're less likely to live independently and obtain a paying job and I think a very significant problem is that these individuals are also at increased risk for offending behavior and incarceration. So we know that brain injury jeopardizes the ability to master new skills, as we've already talked about. We know that there are specific areas of the brain like the frontal lobes that are slow to mature and so we may see difficulties in frontal lobe functioning much later when that part of the brain is sort of expected to come online. We see in these

kids that there are increasing emotional and behavior problems and unfortunately we still don't have a great system of care to help deal with the chronic challenges of pediatric brain injury and yet we send these kids to schools and this is, schools are where they are spending the majority of their time outside of the home. We also know that if we can interact and deal with these challenges earlier and proactively, we are better able to obtain good outcomes with these students. So again these typical difficulties that we see in students with acquired brain injury, they have trouble following complex verbal and written directions, trouble incorporating new vocabulary or incorporating new information into something that they previously learned. Because of these cognitive challenges they have trouble learning new information, they have trouble paying attention in higher level complex ways and they have trouble sort of managing their lives due to primarily frontal lobe dysfunction or executive function impairments and what we know with these kids, as that when they start to fail at school they tend to disengage. They show more behavioral problems and these become challenges in the classroom that lead to further challenges with success at school.

So I want to repeat again this estimate that we are missing such a huge group of kids in our educational systems, or not appropriately identifying them as brain injured. Because when we are not, when we're missing these kids for identification in the first place or we're misattributing the difficulties that they're having. This can help explain why they're not receiving services or if they are receiving services, they very well might be served under an inappropriate special education category that misses the cause of those problems and behavior problems are a kind of glaring example here because behavior problems that result after a TBI are usually dealt with in a different way than a kind of quote unquote normal behavioral challenge. So then we can see why these kids begin to struggle in the classroom, why have trouble maintaining friendships or trouble with peers. This can lead to behavior problems because they don't feel good about being in school and this leads to nothing good. So how do we begin to change this situation? I would propose that our challenge is to improve our ability to identify the cognitive communication difficulties that are experienced by students with TBI through

appropriate assessment. So if we can assess them to better identify these subtle deficits that they're experiencing. We can provide appropriate services for them to remediate and rehabilitate some of these challenges that we talked about. So first let's talk about standardized assessment. So standardized assessment does have some advantages and by no means am I saying that standardized assessment doesn't have a place in our evaluations for children with brain injuries but I wanna talk about some of the advantages and disadvantages of standardized testing before we talk about nonstandardized assessment today and I also will have to admit that I did have a hard time coming up with some of these advantages today but again, there are some advantages to using standardized testing in kids with traumatic brain injury.

So in general, as speech pathologists, we understand what standardized tests allow us to do because we are trained to use them in graduate school and we rely on them very heavily for our assessments. So standardized assessments allow us to compare a child's performance to the performance of similarly aged peers though usually those peers are a peer group with typical development and they may not, for kids with traumatic brain injuries specifically, this normed group may not be the best comparison group because often it doesn't include any children with traumatic brain injury. But we do see, or we are able to compare the performance of a child that is in front of us to similarly aged group using standardized assessment. We also have this reference that we're able to score their performance. So we're able to determine whether or not they qualify for services which, you know, that magic one and a half to two standard deviations that might allow a child to qualify for services in a particular school district for example and also when we use standardized testing, the methods are structured and prescriptive. This is helpful when you're a busy professional with a high caseload and I don't say that, I don't say that mockingly either because we all understand how difficult it is and we'll talk about the challenges with nonstandardized assessment in a little bit as well but it's realistic and perfectly fair, perfectly fair reason that we choose to use standardized tests because it is easy to default to a test that is familiar to us and that's available in our cabinet. So some disadvantages of standardized assessment.

Ecological validity is a major challenge when are talking about standardized assessment and specifically with kids with traumatic brain injury. So as a reminder ecological validity is the idea that the findings of an assessment are able to be generalized to a real life setting, so is what we are assessing on a standardized assessment similar to what a child would encounter in everyday life? Well standardized tests are designed to assess a child's ability to demonstrate a specific skill or ability but they're not designed to predict success or failure in a real world context. Especially when we're talking about cognitive communication abilities so for an SLP, we might think about giving an articulation test for a student who is struggling with speech and we would expect that the errors that we identify on that articulation test to be consistent with the child's errors in a non-testing situation. With cognitive communication abilities, we don't see that as much.

We also recognize that standardized assessments for students with TBI, so specifically again talking about cognitive communication, aren't really assessing the common areas of deficit that they experience and actually I'm sorry I'm gonna flip back to that, one more comment is that there are very few standardized or criterion referenced tests that are available to look specifically at cognitive communication skills in students with TBI and we'll talk about some that do exist in a few minutes. So let's talk a little bit further about this idea that standardized assessment isn't really targeting the skills and ability that these students need to use in their everyday activities. First, let's think about the testing environment. So if we think about the places where speech language pathologists and neuropsychologists conduct testing, it is typically a quiet one on one environment where the child usually has plenty of time to respond. There are no distractions or few distractions and the examiner is there to help redirect attention every time the child kind of gets off track. So this is not what the classroom is like. Anyone who has been in elementary or middle school classroom knows that this is not what a classroom is like. In a classroom, students are expected to take tests or work on projects with the doors open to the hallway where lockers are slamming and kids are talking. The windows might be open, fans are running, other people are working

around the students, kids are blowing their noses, all these things are happening and that student with a brain injury is expected to maintain their attention on a task just like every other typically developing child in the room and so all those things that might challenge a child who has trouble with attention, organization or memory are making it much harder for that student with brain injury. So in a quiet testing environment these kids can do just fine. So the performance on their test may not reflect what their performance look like, looks like if you gave them that same test in a normal classroom but unfortunately that is not where we're giving these tests to these students and along similar lines, standardized tests often collect only small samples of many behaviors and they have fewer cognitive demands so it may not stress the child in any given area to the point where we see those functional weaknesses especially when they're working in a supportive environment like a one on one testing situation. Further, standardized assessment doesn't test the cognitive areas or doesn't put the cognitive demands on a student that are typical to this challenging environment.

So a student who struggles to create and adhere to a timeline for a major class project might do very well with a simple scheduling tasks that is on a criterion referenced test, for example where the parameters are known and they're not subject to the day to day challenges that kids face in their everyday life. Also, these standardized tests look at what we should do rather than what we would do. For example, they are looking at specific patterns of reasoning whereas real life situations require a student to use their own judgment and their own scaffolding. Lynne Churchstraw is a professor who did a very interesting study looking at adolescents with traumatic brain injury and they were able to respond appropriately on a social pragmatic test so if they were asked, what would you say to someone who recently lost a loved one? They were able to do that appropriately but in real life, these same students struggled to respond in situations that were similar in appropriate ways, so again, the test is looking more at what they should do but not how the child functions in everyday life. So many of our standardized tests also are looking at the knowledge that the student had prior to their brain injury especially when we're talking about developmental tests of language. So our

developmental language tests focus predominantly on form and content. So if our student had a grasp of age appropriate syntax and vocabulary prior to experiencing a brain injury, unless that student experienced specific damage directly to language areas, these skills and abilities are likely to come back once the child has passed through that immediate recovery after their injury. So the issues that we see don't tend to be in form and content of language. When we think about cognitive communication disorders, the primary deficit is actually in language use and not in syntax, morphology, phonology and even vocabulary because these areas tend to be generally intact after the initial recovery from a brain injury and we have very limited availability, excuse me of standardized tests that are geared specifically to students or school aged children who have experienced a traumatic brain injury.

So, two examples that do exist are the pediatric tests of brain injury and the student version of the functional assessment of verbal reasoning and executive strategies. I've never known how to pronounce this acronym appropriately so I won't attempt it. But these assessments are designed for adolescents or young people with, who have experienced an acquired brain injury. The PTBI covers kids from six to 16 and the other, the other assessment covers kids from 12 to 19 so it's focused more on adolescents. So there are, again, few standardized assessments that are geared specifically towards kids with brain injury and then as we think about developmental language tests, again, they are typically not including kids with traumatic brain injury in their norming samples which makes it a challenge to compare the results of the kids that we see who have a brain injury to those norm samples. Okay so that is what we think about or what we should think about when we consider standardized assessment for kids with traumatic brain injury. So I'm going to focus the rest of our time today talking about nonstandardized assessment. And it's important to say up front that nonstandardized assessment does not mean that I am recommending people do informal or sort of a free for all type of assessment. When nonstandardized assessment is done well it does require systematic clinical procedures. It does require rigorous attention to detail. We need to be looking at these students in different contexts as

we'll talk about. So I just want to sort of put out there as an initial phase or initial comment that nonstandardized assessment doesn't mean that we are doing something that doesn't have a lot of clinical packing or clinical insight into other procedures that we're using to assess these students and their abilities and also it's important to note that the act, that ASHA practice portal does designate nonstandardized assessment as a crucial component of a comprehensive eval for students with, or for individuals with pediatric traumatic brain injury.

So what are some advantages of nonstandardized assessment for students with traumatic brain injury? Well as we talked about, as a disadvantage for standardized testing assessment, nonstandardized assessment allows us to observe performance or to evaluate performance in a realistic, everyday setting or activity, so some examples would include watching a student take notes during a classroom lecture. What is that student doing? What are they getting down in their notes? Are they able to pay attention? We could observe students socializing with peers in the lunchroom. How are they interacting with their peers? Are their comments appropriate? Are they initiating conversation or they sitting there quietly and taking things in? We can observe students as they're preparing to go home from school and at first you might say, what does that have to do with speech language pathology or cognitive communication? But I would argue that this is a very important time. Is that student grabbing the appropriate materials that they need to complete their homework assignments, for example. Are they grabbing their planner that we've carefully written down or they have carefully written down their homework assignments in or any necessary textbooks or folders that need to go home. We can observe a student and see how they respond to a prompt from a written essay, so that example that we used in the beginning of the talk, how does that student respond to that type of a prompt, what does their written essay look like? And we can also observe a student during group time in the classroom. So if the science teacher turns the class over to allow them to work on a group project, what is this student doing? Are they able to stay on task? Are they contributing to the group or are they sitting there lost because they're not exactly sure

where to go. An additional advantage of nonstandardized assessment is that it can inform the development of intervention plans and this is another disadvantage of standardized testing because often those tests don't give us a clear line for where we should begin immediately with intervention and so I want to consider an example as we talk about this a little bit further. If you have a student who has a below average score on a standardized test of memory, that gives you very little information or indication about how those memory difficulties may or may not affect that student's performance in the classroom. So just because we know they perform, you know, below average on a memory assessment, what does that actually look like for that student in the classroom? But using a nonstandardized assessment format, we can actually see where the student breaks down during everyday academic tasks. We can figure out what factors might be impairing their ability to participate in a specific curricular assignment. Is the student able to identify main ideas? Are they able to recall relevant details to include in an essay for example or to answer a question appropriately in class. Are they able to persist in a specific task when they are given free time to work? Are they able to organize that assignment, for example. And these perspectives directly line up with intervention planning so identifying that a student is breaking down in any one of those areas gives us an immediate place where we can start our intervention plan. And they also happen to be consistent with the world health organization's focus on activities and participation instead of impairment level abilities.

Another advantage of nonstandardized assessment is that in at least one study that compared neuropsychological testing, so not speech pathology specific but neuropsychology testing looking at some of these cognitive domains, so comparing neuropsych testing and nonstandardized assessment in adults with TBI, nonstandardized assessment was actually more predictive of how well these individuals did in later work than standardized testing was. Again this shouldn't be very surprising because we are able to identify activities that a individual is struggling with in everyday real life activities or real life situations compared to standardized testing which limits that ability. So surely there are disadvantages to nonstandardized

assessment and I don't, I don't say, I don't use these disadvantages or point out these disadvantages lightly because this is one of the most common, I think, challenges to individuals who are busy and have high clinical caseloads. So, absolutely, there is the potential for higher clinical burden on an SLP. Yes, the observation can be time consuming. It is more challenging to document everything that you're observing than a standardized test where you are, you know, filling out a test form as a student answers questions because our results need to be reliable and valid, we do have to do this observation in a systematic way. So again it's not something that we can do quickly and without thought. And our observations do have to target our specific areas of concern, so where we feel like the student is struggling, that is what we have to figure out, how to observe in an everyday situation.

So these are certainly challenges for SLPS. I would argue, however, that once you are comfortable with the different areas that can be assessed in nonstandardized assessment, this does not have to be a disadvantage that persists so this is something that gets better over time as you become more and more comfortable with nonstandardized assessment. And another disadvantage of nonstandardized assessment is there's not a manual or a test form on which we can rely, we do have to think outside of the box to figure out what environments we need to observe these students in and what activities we need to observe specifically. And actually I'm gonna go back to this and I don't have a bullet here but we should discuss too that another advantage is that we don't have that simple comparison, that norm referenced comparison that we can make when we are using nonstandardized assessment, so we do have to figure out then how do we qualify a student for services based on these types of assessment. So there are several different types of nonstandardized assessment and we are gonna focus most of our time today talking about curriculum based assessment and discourse analysis as two important types of nonstandardized assessment and in those discussion we'll also talk a little bit about task analysis and dynamic assessment which we can use as a part of these other two types of nonstandardized assessment. Oh there we go, I high lighted those two that we're

gonna focus on. Okay, so curriculum based assessment first. So first I think we need to consider that children in literate societies, so more developed societies, are spending more time in the classroom than perhaps any other environment so the classroom does happen to be one of the most ecologically valid places where we can observe a child, a child's cognitive communication abilities. This is a crucial environment for children as they need to be successful here in order to go on to the next phase of their life whether that is middle school or high school or secondary or post-secondary school or specific vocational training. And I also wanna be sure to note that we are talking a lot about school as a context today and again I think this is important because kids to spend so much time in that environment and it's the most likely place that they're gonna encounter speech pathology services but I also want to stress that these same points apply to speech language pathologists that work in outpatient clinical settings. Individuals who work in those settings can still work on these same types of ideas, they just have to be a little bit more creative about the types of situations that they set up to observe with their client in order to make the activities relevant for the child's life so we want to be focusing on curriculum based or school based activities even for students that are seen in an outpatient clinic.

So curriculum based assessment essentially is using the curriculum and its content and also the context that that content is provided in to measure what intervention needs a student might have and how that student is progressing on any type of intervention plan that is established. Again, reinforcing that curriculum based assessment is not just informally observing a child's behavior. It is carefully and systematically using data to evaluate a student's cognitive communication abilities in that important context. Excuse me . And it may require staging certain situations or contexts in the classroom so that you can see where this student may be having weakness or you may be taking an identified weakness, a student who is struggling in a classroom and exhibiting behavioral challenges and watching what kind of modifications could be made to that situation that may be beneficial in an intervention plan. During curriculum based assessment, we need to identify when and where

breakdown is happening during a particular activity, is the student able to maintain attention initially but after a certain amount of time or given environmental distractions, that's when we start to see breakdown or are they never able to even get started on a specific task? Curriculum based assessment allows us the opportunity to trial different strategies or skills so we can plan intervention appropriately and we'll talk about some examples in some case studies coming up and we can also look for success, we should be able to identify whether or not an intervention or a strategy or a skill is helpful in changing a student's behavior or their performance in the classroom or other relevant environment like the lunch room for example. So that is how we're monitoring success. So rather than getting to a specific score on an assessment, we want to see observable behavioral change in a student's classroom performance. So the questions that are important to ask as we initiate a curriculum based assessment, these questions come from Nicole Nelson, excuse me, who was specifically talking about language interventions but they are relevant as we think about cognitive communication impairments that students with traumatic brain injury experience as well.

So we need to identify what skills are needed to complete the activity or the task that we have identified as important to the student or where the student may be struggling. Then we need to think about what cognitive communication skills and strategies that student currently demonstrates so where does that student have weaknesses and what do we need them to be able to improve upon in order to complete this task successfully. Then we can figure out what modifications we might be able to make to the curriculum, to the classroom or to expectations that might make this task more accessible for the student or that can make the student more successful in completing this task. So what modifications might we consider if we are doing curriculum based assessment? So here, I'm gonna go back to two of those other types of nonstandardized assessment I mentioned very briefly on one of those first slides. So task analysis is probably familiar with all of us or to all of us but just as a review this is breaking down an activity into its component parts. So here in completing a task

analysis we're thinking about what are the different steps that are required for a student to finish or complete this activity successfully and then we have to think further about what skills or abilities are needed to complete each individual step. So we may figure out that a student is able to complete the first few steps independently but breaks down at a later, a later step in the process. Dynamic assessment is also something that we are probably, most of us are familiar with but again thinking about it in this specific content, context, we can use dynamic assessment during a curriculum based assessment to try to identify or introduce strategies or skills or modifications to a student's specific work in a specific task and observe how that changes the student's performance. Does this help them complete the task more successfully or not, if so, this may be a strategy that we add to our intervention plan or our intervention bucket to work on with this student either in class or teaching in very structured pull out sessions prior to adding back to push in types of intervention planning. So let's talk about an example of curriculum based assessment.

So our first student is Juan and Juan is a seventh grader who sustained a moderate traumatic brain injury one year ago and Juan has average language, he shows mild delays in memory and executive functions on neuropsych testing and some of the problems that people have observed at school so teachers are beginning to talk about some of these challenges, Juan tends to be off task, He shows disruptive behaviors when his teachers are lecturing, he is suddenly showing low grades on assignments and tests that are related specifically to lecture materials and so in curriculum based assessment might help to identify some of the challenges that Juan is having in these specific tasks and we know from perhaps a neuropsych testing that Juan had that show these mild delays in memory and executive functions. He has decreased attention, he has poor organization, poor working memory and also some dis-inhibition. So we can see why these TBI related symptoms might result in the problems that we're seeing in the classroom. So we begin a curriculum based assessment with Juan and we want to watch him as he is sitting in a classroom or lectures taking place because this seems to be a particularly challenging environment for him but first we

think about what is necessary for a person to be able to take notes so the student we know has to listen and comprehend the material, they have to be able to identify the main ideas and the primary details and write them down, they have to be able to inhibit less relevant details. So they need to not write down details that aren't very important to remember, aren't important. And they have to be able to shift their attention. They have to pay attention to the teacher who is talking but also write things down. So as part of your dynamic assessment, you provide a skeleton outline to Juan and this helps to reduce the demands on his attention on his working memory and also helps him to inhibit those irrelevant facts from kind of popping into his notes and you also ask the teacher to move his seat to the front of the classroom. So this allows him closer access to the teacher to try to improve his sustained attention on her when she's talking and it may cut down on some of those distractions that he was experiencing by being close to the door or close to the window previously. Well, lo and behold, we see that Juan demonstrates some great improvements.

So the skeleton outlines and a new seating chart improve his ability to record the appropriate details during lectures. As we just mentioned, he has better access to good notes and now he's able to study from those good knows which hopefully is going to improve his scores on assignments and tests. He has shown reductions in distracting or off topic behaviors because now he is appropriately busy during class and the teacher is right in front of him and is able to even tap on his desk when it appears that his attention is waning. Okay so that was in one example and I want to talk about a younger example as well. So a second case example would be Malik and Malik is a kindergartener who experienced a severe traumatic brain injury four years ago so he was about one years old prior to entering school and the school is actually unaware of his TBI history, unfortunately Malik is based on one of my former patients who experienced all of these problems that we'll talk about unfortunately. When Malik was discharged from inpatient rehabilitation, his language and cognitive skills were within age appropriate limits and Malik received no services. Since he was discharged from the hospital but now that he is in kindergarten he is exhibiting lots of difficulties.

He's not able to rotate through center time in the classroom, he shows lots of disruptive behaviors and he's really struggling with pre-literacy skills. And towards the middle to end of his kindergarten year, his parents are informed that basically Malik is failing kindergarten. So some of the possible TBI related symptoms that Malik might be experiencing, he has poor cognitive flexibility so even though we don't expect a lot of cognitive flexibility from a kindergartener, Malik isn't even able to exhibit the typical flexibility that we would expect for a typically developing kindergartener. He, apparently, is struggling with memories. So he's struggling with new learning and clearly he has a low frustration tolerance as well. So we implement some dynamic assessment with Malik. We start to track his behaviors, what their context is and what the consequences of those behaviors are and we are able to work with the school psychologist to do this. We noticed that lack of structure and increased noise during station times appears to be overstimulating and distracting for him. Also that he has, when he has unplanned schedule changes, he shows a big increase in his negative behaviors and we also show that he has a really hard time paying attention to this teacher especially during group activities like carpet time or stations.

So what we attempt as part of our curriculum based assessment is we try to use headphones to screen out some additional noise and improve his attention during stations. So this is very helpful for Malik because he doesn't have to work so hard to pay attention. The teacher implements an FM system which improves Malik's attention directly to the teacher when she's talking during structured learning activities and then we implement a picture schedule for the entire classroom. This is helpful so the entire class knows what's coming and for any student that struggles with flexibility, this is gonna be helpful and even though we can't predict everything that's coming, there are many things that we can predict, you know, if special activities are changing for a day, we can predict this in using a picture schedule and I see that we are quickly running through our time so I'm gonna move on to our discussion about discourse analysis as the second main theme of nonstandardized assessment. So discourse analysis can be an essential part of evaluating students with TBI because the discourse that students

are required to use in school is much more sophisticated and going to, it's also going to be dependent upon the specific areas that are impacted after a traumatic brain injury. Discourse is not something that is assessed on most developmental tests of language, though it is noted that the test of narrative language is one exception and discourse allows us to, discourse analysis, allows us to look at how a student is interpreting or expressing complex ideas in speech or in writing. So if we are looking at discourse of students specifically as they are progressing through school, we need to consider all modalities and we also need to consider all genres. So conversation narrative, informational are expository and persuasive as well.

So some different things that we can look at when we are doing a discourse analysis with a student. We can look at how much they vary the vocabulary or are they using vocabulary that is specific to a lesson in science class, or history class. We can look at syntactic complexity, we can look at how the student is combining clauses within sentences and how they're using different types of sentences in their verbal and written language. We can look at content and structure, so is the content sufficient, is it relevant and is it organized well enough to meet the purpose of the verbal or the written passage and is it appropriate for the intended audience. We can also use discourse analysis to look at comprehension of language and I think this is very important as well. So not just as a means of looking at expression but also as comprehension and I'm particularly inclined to think about summarizing in these types of contexts because summarizing allows us to see how a student is able to really grasp the main idea of a passage, put that together with past information, include key details and also implement appropriate organizational structure. All of these areas that are likely or possibly impacted after a brain injury or they're at least specifically vulnerable to the effects of brain injury. We can make sure that a student is comprehending sentence level vocabulary, if they're able to use that appropriately in a summary or in an expressive context as well, whether they're able to gather or grasp the theme or argument of a passage and whether they're able to identify relevant details. So how do we illicit a discourse sample from students or what exactly are we going to analyze? So

again I have a personal preference to summaries compared to retelling paradigms or spontaneously generated discourse samples because I think summaries are more ecologically valid to the work that we expect students to do in the classroom. In the classroom we don't ask students to retell exactly what they read in a textbook or exactly what they heard the teacher say. We ask students to integrate these points with points that they may have heard yesterday and to grasp the main idea on their own so I think this is an important consideration that we need to think about as we are eliciting discourse samples from our students. Additionally when we ask a student to retell us something, we are providing the vocabulary and the structure in the details that are necessary, whereas in a summary, we're asking the student to do that for themselves so we can really see where are they might break down and also important to think about that these tasks are gonna look different depending on the grade level of the student and so we need to be comparing to grade level expectations.

So if your school or your school district uses common core, what is expected for that grade level. That is what we would be using to help us determine if a child is on track or not. So very quickly, I wanna use Maria as a discourse analysis example. So Maria experienced a moderate to severe TBI three months ago. Maria has average language and average to low average memory and executive functioning on neuropsych testing. But in school she is starting to show poor grades, incomplete assignments, she is spending a ton of time doing homework which is very frustrating to her family and so some of the problem's that she may be experiencing may be some of these frontal lobe executive functioning deficits, so problems with planning and organization and working memory. It's also important to note in this case specifically Maria is in her first year of high school and these teachers are new to Maria so they don't perhaps recognize that these issues are a change in her behavior. So using curriculum based assessment over multiple days and in multiple classrooms, you are able to do some discourse analysis work with her and you examine a report that she submitted in history class. It is disorganized, there's no central theme and also it doesn't even follow the length requirements for the project. So as an intervention plan we would be able to

assist with helping Maria plan and organize these longer term assignments, how does she determine the steps that are needed to finish this type of a project, helping her understand how to record appropriate due dates and establishing a method to indicate when things are completed and turned in. And for the discourse itself, you can help Maria use graphic organizers and outlining to really streamline the structuring of her discourse and as an intervention plan she may just need some very brief check-ins to monitor how she's doing with this progress on her own. So graphic organizers are a great way to help students structure verbal or written discourse. These are very simple examples but for students in higher grade levels, they can use these types of organizers as well. So again you have been very successful using these nonstandardized assessment tools and Maria experiences lots of, she experiences success in these tasks after this curriculum based assessment. So what we know about curriculum, or nonstandardized assessment, or if we can improve the success of students with TBI in school, we can reduce all of these additional challenges that we talked about earlier. Students are less likely to have behavioral challenges, they're more likely to have better pure relationships and this is going to improve their long term outcomes for both school and later employment. So I know we literally are on our last minute, so I hope that you have taken some important points about nonstandardized assessment today and I would be happy to entertain some quick questions or again, please email me after today's talk if you have questions that I might help to follow up on.

- [Host] Thank you so much Jennifer. I'm going to give it a minute or two to see if anybody has any questions they wanna put into the Q and A pod. In the meantime, you know, this would probably be an entire talk in and of itself but I'm wondering what your experience has been with other parties whether it be school administrators, classroom teachers, third party payers, whatever the case, in accepting these nonstandardized assessments and you know, how can we, it seems like it's gonna entail a lot of advocacy and education on our part.

- Yeah absolutely.

- Certainly.

- Absolutely. You're absolutely right. So I can speak to Ohio specifically and I can say that in our requirements for qualifying kids for special education, nonstandardized assessment is included in the methods that professionals can use to qualify kids for services. I think it is used less often and we need to sort of get this message out so we, you know, researchers, but also educators and people who work in the schools need to be pushing this method to administrators first that this is you know, this is going to give us better information. Probably, I mean, my fear, I mean I joke that, you know, this will increase people's caseloads substantially because, right, I'm certain that there's lots of kids in schools that aren't identified right now that we could serve if we could evaluate everyone based on, you know, using nonstandardized assessment and obviously that is another challenge but, you know, in order to serve these kids appropriately, this is what we need to be doing and so I think we just need to start pushing the envelope a little bit so that we're starting to do this and then of course, as our caseloads grow, you know, we hire more speech pathologists because we can, you know, be paying for them in schools, I hope.

- [Host] And it seems like some of the information that you talked about in the ASHA practice portal might be used as evidence.

- Yes absolutely.

- To bolster our case when speaking to some of those other parties.

- [Jennifer] Right, and certainly, I mean from a research perspective this is some important work that we need to be doing to demonstrate that, you know, this is how we're going to better serve these kids. One question I saw very quickly but now my,

I'm getting the spinning wheel of death on my screen so one question that Melanie asked was how do we identify these kids because in schools we may not even know that they had a traumatic brain injury and so that is a very valid point. So the first thing we can do is ask. I think that we need to be, you know, adding to our kindergarten screenings, questions about whether or not students experienced any kind of brain injury in the past because even concussions, we don't have a great understanding of how they might impact kids when they were experienced before they entered school. But these are questions that we can ask if we see a student that is exhibiting some of these difficulties, sure it could be ADHD but if we ask these children or their families, did you ever, you know, did you ever go to the hospital because you hit your head? That would be one way that we can start to identify these kids better. And then Angela asked about how we might informally assess a high schooler post concussion or post mild TBI in an outpatient setting and go Bucks, Angela, thank you for that.

So I think trying to mimic classroom work is what we should be doing in outpatient clinics so not relying on work book activities but really trying to figure out what this student is struggling with in school, if you're able to contact the school because the student might not qualify for services in their school and so it might be the outpatient SLP that is able to provide these services even though I would argue that they would be justifiable from an academic perspective. It may be that the school is not able to qualify this student and so finding out what this student is struggling with in school and I see that Angela has more of a question that I'm trying to skim. The ability to summarize their injury, what she's learned about traumatic brain injury and the primary complaints and she, so Angela has a student that she's evaluating that is a high schooler who sustained a concussion. So, yes, I think asking questions about where this student is struggling. Is the place to start concussion, is a little bit of a different case especially if this high schooler is either demonstrating persistent issues or has just recently sustained the concussion and so I'm happy to talk about that offline or to direct you to two papers that just came out in AJFLP where we talk about the CDC's guidelines for mild brain injury and how they relate to speech pathologists so there is

one article that focuses on young students and one that focuses on middle and high schoolers so those would be helpful I think as well but Angela please feel free to email me if you have any specific questions.

- [Host] Thank you very much, yes, I just wanted to make note for everybody that Jennifer was kind enough to provide her contact information on the handouts so if you think of a question after this, you can get in touch with her.

- [Jennifer] Absolutely.

- [Host] So I just wanted to say thanks to our audience for being here, we appreciate you checking in and we hope that you have a nice Halloween and that we see you at another event before too long. Jennifer, thanks so much for being here today, I think this was really important information for this population that's obviously being underserved right now so it's great information to keep in mind and give us a head start on how we can help out in this situation.

- [Jennifer] Thanks, I was very happy to be here and to talk about this and I know I flew through the end so I'm sorry about that.

- That's all right.

- But thanks to all of you.

- [Host] It's a lot of good information, we appreciate it.

- [Jennifer] I hope so, thank you.

- [Host] All right everybody, thank you so much, I'm gonna wrap up the meeting here, have a great day.