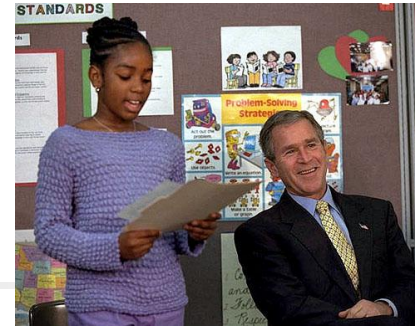




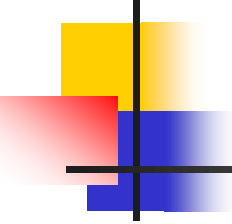
What is it Like to Have an Auditory Processing Disorder?

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This Simulation



- Often it is helpful for people to understand what it is like for someone with a disorder by simulating that disorder
- This simulation is a visual analogy of what it is like to have various types of auditory processing deficits (APD)



To Begin

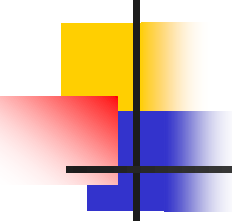


- There are many behaviors we can see that indicate that someone has an APD
- The following list provides some of the behaviors often seen in children and adults who have various types of APD

Problems People May Have with Auditory Processing

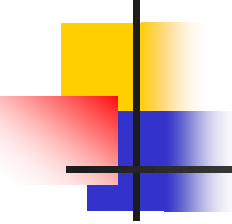
- Listening (noticed for a period of time)
- Mishearing/discrimination problems
- Problems following directions
- Problems attending to oral messages
- Distracted by background noises
- Poor organization of verbal material
- Oral and written expression problems
- Remembering what they hear
- Learning to read





What are Auditory Processing Disorders (APD)?

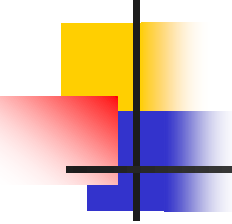
- Lucker's definition of auditory processing:
 - **Those things the central nervous system does when it receives auditory information and gets it to the brain where it eventually will form meaningful concepts**
- Thus, Auditory Processing Disorders are:
 - **The various things that can breakdown in the central nervous system's task to process the information it receives through the auditory system**



What is it Like to Have APD?

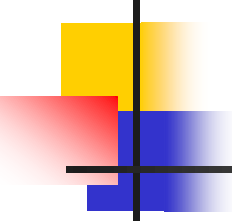
- It is often difficult to understand what it may be like for people with auditory processing disorders (APD) to deal with information they receive through their auditory systems
- One way to have a better understanding is to simulate what it is like to have a problem processing verbal information
- For this simulation, a variety of visual analogies are presented showing difficulties processing verbal material





Categories of APD

- In contrast to the standard view that there is only one type of APD, Lucker views auditory processing as a variety of processes
- As such, there are different types or categories of APD
- Each category is presented with a description followed by the simulation



Auditory Sensitivity

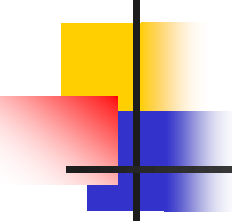


- There are three different aspects of auditory sensitivity
- First, hyposensitivity or a lack of awareness and detection of the auditory message
- The following simulation indicates what it may be like for someone with **auditory hyposensitivity**

Answer the Following Question?

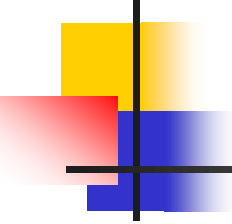
- Press the key to advance the slide





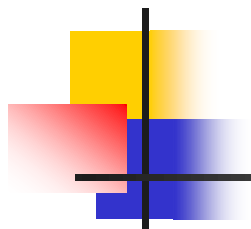
What is Your Answer?

- Oh, right, you can't answer because you did not get the question!
- Thus, a child with **auditory hyposensitivity** will not respond because the child did not "get" what was said
- This category is most often found in children with autism or severe attention deficits (when hearing is normal)

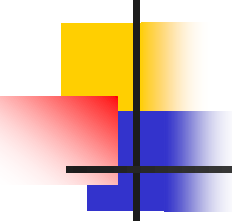


Auditory Hypersensitivity

- Imagine
- Hearing
- Something
- Like
- The
- Following
- Slide
- In
- Which
- You
- Will
- Only
- See
- One
- Word



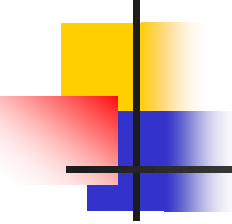
THIS



Auditory Hypersensitivity



- For people with hypersensitive hearing, sound suddenly comes at them too loud, too annoying
- For many, it is very scary
- This is a category of APD seen in many children in the autism spectrum but also
- Many people with sensory processing problems have hypersensitive hearing



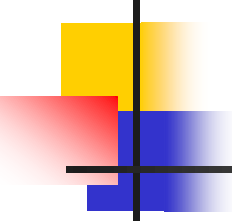
Auditory Overload



- **Auditory overloading** occurs when too much information is presented at one time
- The system can become overloaded and
- People can become overwhelmed and have negative emotional reactions to listening situations
- The processing system shuts down



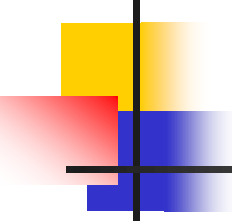
I want you to read and remember all that you have read without going back and trying to read the words more than once which is not something that you want to do nor something that the system can handle successfully so it tries and tries but can't handle it and becomes overloaded and may become overwhelmed and, thus, have negative emotional reactions to all of the information presented which does not stop coming but continues to flow on and on and on so that it does not stop but leads to too much information coming at you so you can't really think about what it is you hear and you just get lost and overwhelmed and overloaded too much



Auditory Extraction

- Extraction relates to one's abilities to pull out the meaningful information from the auditory message
- We extract information at three levels:
 - Temporal extraction = the speed at which one processes speech as well as the time differences that change meaning through prosody and stress
 - Phonemic extraction = speech sounds
 - Lexical extraction = words & linguistic cues





Temporal Extraction Problems

- Temporal extract has to do with information coming at you too quickly and
- Your system does not recognize the pauses and spaces between words
- So, verbal information “smushes” together
- It is quite difficult to understand what has been said (in this case, what is written)
- Try understanding the following

Temporal Extraction Problems

- Maryadalittlelamoosefleece
waswitasnow
- Andevrywherethatmarywe
nthelamwazshuretogo



What'd Ja Say?

- Mary had a little lamb whose fleece was white as snow
- And every where that Mary went, the lamb was sure to go



Auditory Phonemic or Phonological Extraction

- After getting the individual words and the pauses (spaces) between words
- We need to identify the correct words
- We need to identify (extract) to appropriate phonological information to distinguish which phonemes are in the word
- Consider the following story



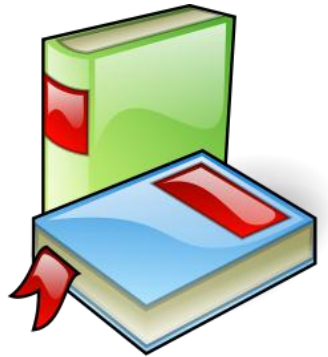
Simulation of Auditory Phonological (Phonemic) Extraction

- You're a student in class, and you hear the teacher say
- "I really need two bucks"
- You raise your hand and tell the teacher, "My mommy gave me some money for lunch. I may have two dollars you can have."
- Everyone in the class laughs at you!



Simulation of Auditory Phonological (Phonemic) Extraction

- Teacher says, "That's so sweet, but I said 'I really need two books.'"
- How would you feel having misheard the word "books" sounding like "bucks?"
- This is what it might be like for someone with auditory phonological extraction problems

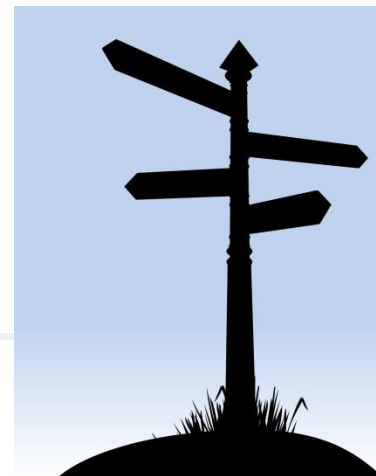


Auditory Lexical Extraction

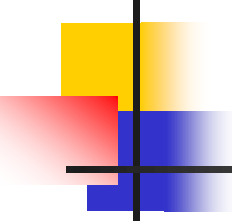
- Lexical means “words” so the problem here is with the linguistic message
- When we listen, we always hear too much information
- What we do is pull out the key, important words or we **extract the key lexical items**



Simulation of Lexical Extraction



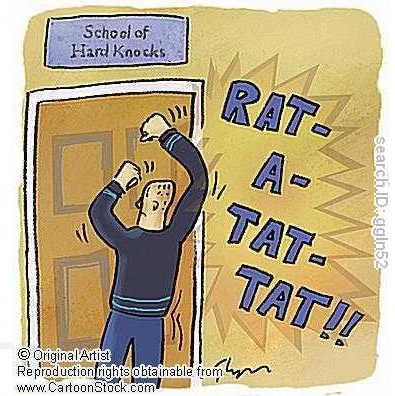
- Follow these directions:
- I want you to stand up out of the chair in which you are sitting and walk over to the door that is in front of you and I want you to take your hand and make a fist and knock with that fisted hand on the door three times that is not two times or one time but three times



Simulation of Auditory Lexical Extraction

- Now, imagine you have to remember to do all of the things from the previous slide
- All the teacher really said was what is highlighted in bold in the next slide
- Only those bold words are what you need to process, remember and follow through doing

Simulation of Lexical Extraction

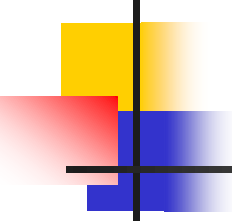


- Read and remember only bolded words
- I want you to **stand up** out of the chair in which you are sitting and **walk** over **to the door** that is in front of you and I want you to take your hand and make a fist and **knock** on with that fisted hand on the door **three times** that is not two times or one time but only three times

Auditory Distractibility



- Many people with APD find the presence of background noise to be very disturbing
- They are not able to filter out the irrelevant, background noise or competition and get the primary, relevant message
- They often look like they have attention problems, but they are attending very well

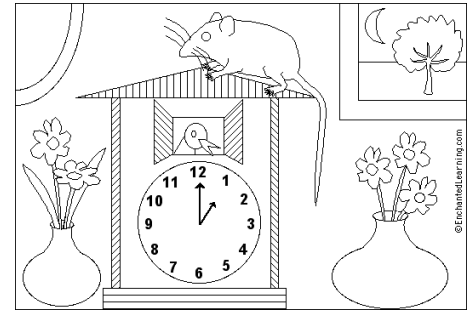


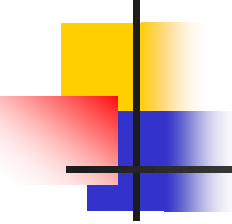
Read the Following

- Hicqkorwy, edicrkorty, ydocuk,
- Tihe omoupse arans upd thfe cglochk.
- Thhe jclockk lstrzuckx once,
- Tvhe bmounse mran< do>wn
- HQickWoryE, dRickToryY, dUockI.

Same Message Filtered Appropriately

- Hickory, dickory, dock
- The mouse ran up the clock
- The clock struck one,
- The mouse ran down
- Hickory, dickory, dock.



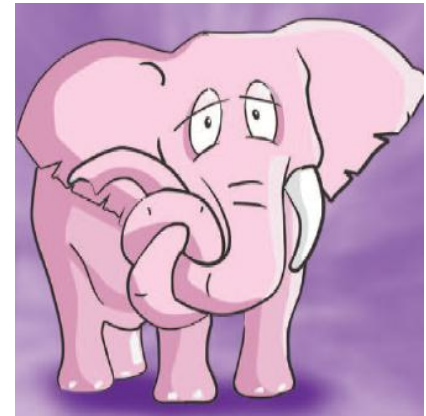


Auditory Memory Problems

- Some children with APD cannot remember what they have heard
- They have problems getting information into the memory store, especially short-term auditory working memory
- Once an attention problem or executive functioning problem is ruled out, the memory input problem is identified

Simulation of Auditory Memory Problems

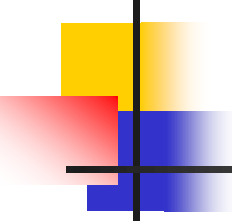
- The most common memory tasks used in evaluations are strings of numbers or words
- Consider the following
 - Why is it easier to remember 6 numbers than 5 numbers?
 - 3 6 8 9 7
 - 5 1 9 6 4 2



Auditory Integration Deficits

- Once we extract the pieces of auditory information and place those key pieces in working memory
- We need to put the pieces together to form the whole and manipulate the whole
- We do this at the phonological (phonemic) and lexical levels





Auditory Phonological Integration

- When we hear new or unfamiliar words, we play with the sounds (phonemes) to figure out what word we **really** heard
- Consider the following: How many words (real and nonsense) can you make from this string of phonemes (sounds)
- /t/ /k/ /ae/ (short "a" as in **back**)

Auditory Phonological Integration

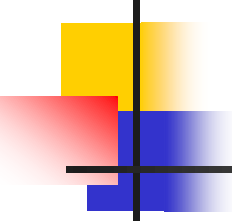
- Answers:
- CAT (real word)
- TACK (real word)
- ACT (real word)
- TKA (nonsense word)
- KTA (nonsense word)



Auditory Lexical Integration

- As stated earlier, lexical means word
- Once you extracted all of the key words, you have to put all of these words together to integrate into a whole
- But, you also use other clues.....
- You integrate everything to form the meaningful “whole” mental image





Auditory Lexical Extraction

- We integrate all of the following
 - The key words
 - The context in which the words are used
 - The situation in which the communication takes place
 - Previous knowledge and experiences
 - When appropriate, visual cues, social cues, etc.



Simulation of Lexical Integration

- Consider the following key words:
- Boy
- Went
- School
- 11
- What does this mean?



Simulation of Lexical Integration

- Consider that 11 refers to days not time
- Consider that Boy refers not merely to the male child but to the expression, "Oh Boy!"
- Thus, the meaning of the entire message changes as seen in the following slide



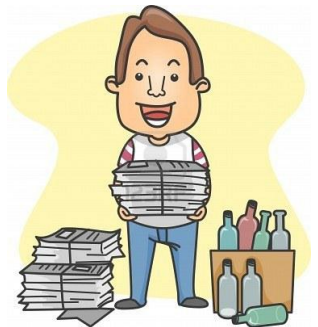
Simulation of Lexical Integration



- 11 = time
 - The boy went to school at 11 o'clock
- 11 = days
 - The boy went to school for 11 days
- Boy = person
 - The male child went to school at 11 o'clock
- Boy = expression
 - Boy, I have to go to school at 11 o'clock

Organization and Sequencing

- The last level or category of auditory processing is recognizing and understanding the organization and sequencing in the meaning of the verbal information we hear
- Imagine the following situation and what you need to do relative to organization and sequencing



Simulation of Organization and Sequencing

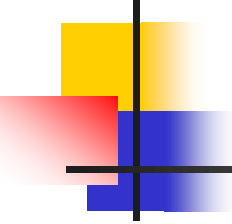


- Parent says to child
- "I cannot stand the mess in your room. How many times have I told you to make your bed and put your dirty clothes in the laundry? And it is very dangerous walking around in your room with all of your toys scattered all over the floor."

Simulation of Organization and Sequencing

- “Now, go up stairs, clean up, and when you are finished, you can come down for dinner.”
- The child then goes upstairs, goes into the bathroom and washes his hands and face, and comes downstairs to join the family for dinner.
- Mom gets really annoyed and he is punished for not listening.





What's It Like to Have APD?

- It is hoped that this simulation helps you get a better understanding of what it is like to have the different types or categories of APD
- If you suspect that you or your child has APD, see a professional audiologist who specializes in APD to get an appropriate assessment

What To Learn More?

- Visit the NCAPD website

- www.ncapd.org



- Contact Dr. Jay R. Lucker

- 301-254-8583

- apddrj@verizon.net



This simulation is produced by Dr. Jay R. Lucker
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