



Dear Learning to Talk Families and Friends,

We can't believe how fast time has flown! This is our final newsletter from the UW Learning to Talk Lab. Our visits with you and your child are complete and we can't thank you enough for helping us with our work. We also want to share with you our bittersweet news. The Learning to Talk Lab will be moving to College Park, MD at the end of this summer as I have taken a faculty position with the Hearing and Speech Sciences department at the University of Maryland.

Many of the Learning to Talk team will be making the move, others will be graduating and going on to new ventures. We will certainly miss Madison and will always be loyal to the Badgers, but look forward to Learning to Talk Terrapin, the turtle mascot of UMD, and making a new home in the Washington, DC area.

So, as we pack the boxes for the moving vans which will be coming this summer, we wanted to be sure to take time to thank the participants in our "Learning to Talk Family"!

As researchers who study how children learn to talk, we study the many different things children must do to be successful communicators. We will continue this work in Maryland. We are interested in finding out how different skills work together as children learn the words they need to be successful in school. That's why the study you and your child participated in at our **Learning to Talk Lab** was called **Skills 4 Words**. We will continue to look at all the wonderful information you gave us from your happy visits over the past 3 years, and our website will be a way for you to keep up with our research findings as we publish them.

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**Learning to Talk
Lab- UW-Madison**

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Special points of interest:

- *THANK YOU and farewell!*
- *Research findings that your child helped us uncover!*
- *Saying goodbye to our graduates*

Inside this issue:

<i>A Note from the PI</i>	1-2
<i>Breaking News!</i>	2-13
<i>Congrats Grads!</i>	14-17
<i>Happy Summer!</i>	18



We know that children must learn how to make SOUNDS, (for example, how to say a “P” or an “S” sound), learn VOCABULARY, (understanding and using words; for example, the difference between something called a CAT and a BAT), GRAMMAR (how to put words together to make sentences; for example, “I am running fast today, but yesterday I RAN faster!”), and the CONVERSATION GOALS of TALKING (what is the REASON someone is talking to me; how to follow the RULES of CONVERSATION; sometimes people say things that are called “questions” and then I have to “answer,” sometimes people say things that are “praise” for something good I did and then I should say “thank you,” sometimes people tell me what to do and they want me to do it!).

Your child participated in study tasks that were mainly designed to find out how VOCABULARY development was affected by SOUND development, but we also found out some interesting things about other areas of language learning as well. We are excited to share some of our findings with you in this, our final newsletter, from the UW Learning to Talk Lab.

Again, we say thank you so much for your help, farewell, but not good-bye! Please continue to stay in touch with us and keep up with what we publish about the study through our website, as we continue to learn more about the amazing process of Learning to Talk!

**Yours,
Jan Edwards, Principal Investigator**

***We couldn't have done it without you!
Thanks for helping us learn more about the
amazing process of***



Breaking News!

Research that your child helped us uncover



More Words or Different Words?

Does quantity or quality of the words an adult says to a child matter more for vocabulary development?

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One of the things children must do to learn how to talk is learn words. This is often called VOCABULARY DEVELOPMENT. Children must learn WORDS in order to **understand** what is said to them and **say** what they want to communicate. We know from previous research that children learn new words and how to use them from the important people who talk to them in their home. That's why the LENA "Language Pedometer" device many of your children wore at your home to count how many words they said and how many words were said to them, was such a help to us!

We asked the question, "which matters more for a child's VOCABULARY development: how **much** you talk to your child (**quantity**) OR **what** you say to your child (**quality**) if you want to make sure your child has the **vocabulary** to be a good communicator?



Our results said that **what you say (quality)** to your child is crucial for learning new words, and is more important than just "speaking more" to your child (**quantity**).

When we say **quality** we are talking about the **types** of things you can say to a child.

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We found that children learn more words if they heard more of two special **types** of communication from adults:

1. Talking to a child about what's not in the here and now, not in the room. This type of talk does not depend upon "seeing it" to talk about it and is called "decontextualized" speech because you don't have to have the "context" of what you are talking about right in front of you. For example: talking about people who aren't there at the moment ("That car looks like Grandma's car! We'll have to tell her when we see her tomorrow") things that will happen in the future, ("After we go to the doctor we



caregivers used more "alternative choice" statements to tell a child not to do something instead of "prohibitive" statements.

"Our results said that what you say (quality) to your child is crucial for learning new words..."

will go and get ice cream."), or what happened in the past, ("Remember when we saw the firetruck yesterday?") Apparently children need to hear this type of talking from adults even **before** they themselves can do it. It gets them ready to say these sorts of things later and is linked to a larger vocabulary.

2. All children need important adults in their world to "tell them what to do." Parents and caregivers are in charge of a child's behavior and have to say things to guide and "regulate" children, telling children what they can and cannot do. We wondered if HOW adults tell children what to do makes a difference in vocabulary development.

We found that children with larger vocabularies were children whose parents and

For example, if a child is yelling in public, instead of the adult saying "Don't yell!" (telling the child "What not to do"), the children with larger vocabularies heard an adult say something like, "Use your inside voice, or we have to leave." or "Oh that is too loud! It hurts my ears! Please be quieter!" or "I wish you wouldn't yell like that! Use an inside voice!" (telling the child "What to do"). It does take more words from the adult, but it is not just because the adults are "saying more," it is because the adult is saying the same thing "differently."

So from your help with our research, we are happy to be able to share with the field of Communication Sciences, parents, and caregivers, that early on, you can help a child have the vocabulary

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necessary for success in school. Yes, talking to children as much as you can **is** important for vocabulary learning, but **what you say, the types of things you say to them, is more important** than the number of words you use.

As parents we often wonder, “Are you kids even listening to what I say?” From this study, we can answer, “Yes.....Yes, they are!” and you helped prove it!



Helping children with cochlear implants make enough of a difference between the “S” and “SH” sounds

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Let’s say an adult is listening to a child with cochlear implants say the “s” and “sh” sounds, not in a word but the sounds alone. The child goes “SSSS” and then “SSSHHH” and the listener says, “Oh, this child knows how to make the “s” and “sh” sound.” Then let’s say the same listener hears the same child with cochlear

implants say words that start with “s” and “sh”, for example, SHE and SEA and this time the listener says, “Sorry but I can’t tell whether this child is saying SEA or SHE, they both sound the same.” We wanted to know why this happens, so we could help Speech-Language Pathologists help children with cochlear implants be better communicators who can be understood by others.

From our study we found that children with cochlear implants make the sounds, “s” and “sh” differently than children with normal hearing. When we turn the recordings of children with normal hearing and children

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with cochlear implants saying “s” and “sh” into a “sound picture-graph” using special computer programs, we see that children with cochlear implants consistently use **lower pitches** than their normal hearing peers to make the “s” **sound**. This is more what you see on the “sound picture graph” of an “sh” sound.

Because we are able to turn what a child says into this very detailed “sound picture-graph” we are able to see that children with cochlear implants don’t make the same **difference** between “s” and “sh” as other children with normal hearing. So, the “s” and “sh” that children with cochlear implants say are not as different as the “s” and “sh” said by their friends with normal hearing. This might be ok when saying the sound alone, but it is not ok when the “s” and “sh” are at the beginning of words! Listeners get mixed up and don’t understand what the child with cochlear implants is saying. This is frustrating for both a child and listener!

From the findings of our study, it is clear that children with cochlear implants need to continue with speech-language therapy even after they can say a sound correctly. They need to work with the speech-language pathologist on how to make sounds **SOUND** as different as possible so that in words things don’t get mixed up. If they don’t pay attention to making an “s” and “sh” sound very differently, others are going to have a hard time understanding all the good things they have to say!



“Sally Sells Seashells at the Seashore”



Silly words and reading readiness!

Michelle Erskine, MS
Graduate Research Assistant/PhD Candidate
UW-Madison Department of
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This study showed that copying someone else saying “silly words,” (made-up, nonsense words such as NOBAMON and TWEKET), when children are 2 ½ to 3 years old, tells us something about

what their reading readiness will be at 4 ½ to 5 years old!

We found that children who were better at “copying silly words” (correctly repeating the nonsense words), when they came in for the first year of our study at 2 ½ to 3 years old, were the children who

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showed strong reading readiness skills when they came in for the last visit of the study at 4 ½ to 5 years old.

It turns out “Silly Word” games are not so “silly!” It showed us that playing with sounds, making up silly words and songs, things young children like to do, are a fun but also an important way that children practice paying attention to sounds: a skill they will need if they are to be ready for reading!

Sounds R Us and the “R” Sound is Hard!

Mia Kim, MS
Graduate Research Assistant
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It is important in the field of communication science research, to learn about “predictors,” things we might see at a certain age that will tell us what might be coming for that child as they grow. We are always looking for ways to head off difficulties a child could have as early as possible as they learn to talk. To help us predict whether or not a child will have trouble with talking later we design studies to watch how lots of children learn to talk so that we know how things usually go in that process. That way we will know what children SHOULD be able to do at each age if they are on a good path for learning sounds, words, and how to use them. One of the most difficult sounds for chil-

dren to say is the “r” sound. We wanted to see if there was any way to predict which children might have trouble with the “r” sound and how early we might be able to predict that difficulty.

Because many of you were loyal visitors for our study over 3 years, we were able to see that children who are good at making sounds at 2 ½ to 3 years old and children who UNDERSTAND lots of words at that age, are better at saying the “r” sound when they are 4 years old. To Learn to Talk children start early and build on skills to keep the learning going!

Measuring how well children make sounds

Picking the right tool in research studies does matter!

Allison Johnson, MS
Graduate Research Assistant/PhD Candidate
UW-Madison Department of
Communication Sciences and Disorders



This study was designed to look at ways researchers could be better at doing research. What tools should they use when they want to know something? Just as a carpenter must pick the right tool for the job (tape measure, yardstick, ruler, level etc.) to measure the materials they are using for a project, Communication Science researchers and clinicians have a number of different “tools”

available to measure whether or not a child can say a sound correctly. They have to answer the question, just like the carpenter, “Which tool is best for this particular job?” So, we wanted to help with that decision when it comes to measuring whether or not a child says a sound correctly.

To measure whether or not a child is saying a sound correctly, and to find out more about what the child is doing to say a sound “correctly” vs. what they are doing when they say the same sound “incorrectly” researchers use a set of steps:

1. Record a child saying a sound
2. Have listeners listen to the recording
3. Ask the listeners what sound they think the child said.
4. Use special equipment that makes the “sound” recording into a “sound picture-graph” of what the child said. These picture graphs show if the child makes the sound with high or low pitches, how long the beginning, middle and end of the sound happen etc. In other words, it gives some very detailed information that we can’t “hear” but we can “see” when it is on a graph.
5. From the “sound picture,” researchers and clinicians have an idea about **what** children do with their tongue, lips, and air flow and **where** they are doing it in their mouth to make the sound. It takes a picture of sound.



After they follow these steps, researchers and clinicians have a choice to make. They have to decide which tool, (which set of guidelines) to use to say whether or not the child has said the sound correctly or incorrectly.

With this study we looked at two different tools that could be used. One tool has been used in this type of research for many years and is the “traditional” way to measure things in these “sound picture graphs.”

But we wondered how a “newer” tool, one that has just begun to be used for these types of studies, would do. Would the “newer” or “traditional” tool be more accurate or would they be the same? Which tool should researchers, and then clinicians use?

Our results showed that the “traditional” method was the best way to measure whether or not a child was making a sound correctly or incorrectly. Although the “newer” tool was just as accurate as the “traditional” tool for measuring correct sounds **in certain words**, it wasn’t as good as the “traditional” tool in **all words**.

The performance of the “newer” tool seemed to depend on the combination of sounds in a word, so it wasn’t as good as the “traditional” tool, which did a good job no matter what! So, now researchers and clinicians know which tool to pick out of the tool box for this job!

Is there a “Crystal Ball” for Vocabulary? *Does anything predict how many words a child will know?*

Tristan Mahr, MS
Graduate Research Assistant/PhD Candidate
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Many of you helped our work by coming for three visits, each separated by a year. That way we could not only find out what your child knew about talking and listening at a certain age, but how your child’s talking and listening changed and grew over time. As all parents know during the toddler/pre-school years, children go through an explosion of language learning!



It is important in the field of communication science research, to learn about “predictors,” things we might see at a certain age that will tell us what might be coming for that child as they grow. We are always looking for ways to head off difficulties a child could have as early as possible as they learn to talk.

To help us **predict** whether or not a child will have trouble with talking later we design studies to watch how lots of children learn to talk so that we know how things **usually** go in that process. That way we will know what children **SHOULD** be able to do at each age if they are on a good path for learning sounds, words, and how to use them.

In this part of the study we found that the strongest **predictor** of what a child’s vocabulary size will be when they are 4 years old is how many words they know

when they are 2 ½-3 years old! This tells us that knowing a lot of words early in a child’s “talking” life is important for keeping the word learning train going!

We also saw another predictor of what a child’s vocabulary size will be at 4 years old but it wasn’t as strong of a predictor: 2 ½-3year old children who were the quickest to look at a word they knew in our “I SPY Watching Movies” game knew more words at their 4 year old visits.

Are quick lookers at a young age, better, quicker word learners as they get older? Stay tuned for the I SPY sequel, “I SPY/ EPISODE 2- MORE WORDS I KNOW”



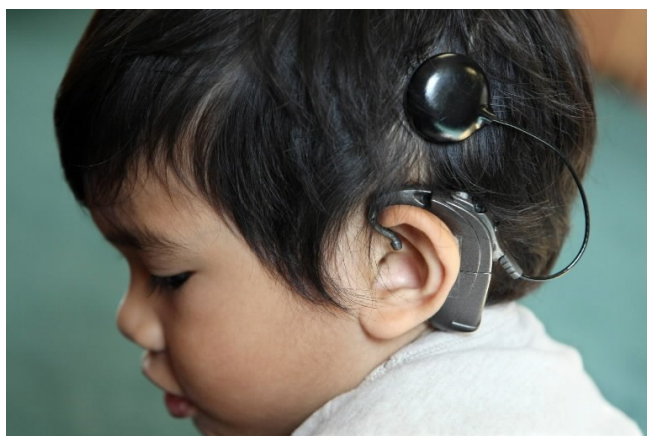
Sound Advice for Helping Children with Cochlear Implants

The sounds that surround another sound matter!

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For a child with a cochlear implant, the Speech-Language Pathologist is the professional on the intervention team who assesses how well the child can make speech sounds. Any one helping a child with communication knows this means helping a child be understood, not just by family who are familiar with “how s/he talks”, but by friends, teachers, check-out people at the grocery store, and others in the child’s ever-expanding world!



There is nothing more frustrating than having something to say and not being able to make yourself understood. The Speech-Language Pathologist is the one

who looks for ways to help a child speak as “clearly” and independently as possible.

So, our research studies wanted to find out how Speech-Language Pathologists can help children with cochlear implants be the best, clearest sound producers possible by seeing if there are differences in the rate, order, or way children with cochlear implants learn the sounds they need to be understood by others.

Speech-Language Pathologists who work with children know from previous research that ALL children must be able to make sounds in lots of different “contexts” before others can understand them. In other words, we can’t say a child “knows” a sound unless s/he can say it clearly and correctly in lots of different words with lots of different sounds around the sound.

The order to being able to say a sound clearly is:

1. by itself. (For example: SSSSSS)
2. then in a word. (For example: SEE)
3. then in lots of words that have different sounds around it. (For example; SEE, SAY, SAW, SUE)

and finally in long sentences in conversation. (“I SAW my friend, SUE, and she had a lot to SAY!”)

In the above example, a child may be able to say the S sound by itself in a way that listeners are **sure** it is an S, but when the S is in a word, with other

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sounds around it, s/he does not say the S clearly.

It can get even harder for a child to make the S clearly in conversation. Just like a basketball player may be really good at hitting the basket when practicing free-throws alone on the court, they may not be as good at hitting the basket during an actual game: there is a lot going on during the game that makes hitting the basket harder! Same for saying a sound clearly in a conversation.



“harder time with sounds depending on the other sounds in a word” stage just

“...make sure the child can say the sound clearly in many different words with many different sounds coming after the difficult sound.”

Previous research has shown that all children have a harder time saying sounds such as “k” and “s” clearly depending on the vowel that comes after it as they are first learning a sound, but then as they get older, this difficulty goes away and they can say the sound clearly in lots of different words.

Our research showed that children with cochlear implants also have this



like children with normal hearing, but their ability to make a sound clearly is affected **EVEN MORE** by the sounds around the sound they are working on, more than children with normal hearing who are the same age.

Our results say that to make sure a child with a cochlear implant is able to make a sound clearly, check and work on the sound alone, but make sure the child can say the sound clearly in many different words with many different sounds coming after the difficult sound.

To make sure a child with a cochlear implant can be a good player in the “Big Basketball Game” of conversation out in the world, don’t stop at free throw practice with a sound alone.

Be sure to practice with other sounds around!

Congrats L2T Graduates!

Graduate Students



Allison Johnson is graduating with an MS in Speech-Language Pathology. She plans to continue her PhD research with Jan Edwards at the University of Maryland-College Park. Her Master's thesis is entitled "Roburstness: Quantifying robustness of the [t]-[k] contrast in children and adults." L2T would like to extend its congratulations to Allison for receiving the Emma Allen Fellowship Award!



Becky Hatch is completing her MS in Communication Sciences and Disorders. After graduation, she will be working and conducting home therapy for a pediatric private practice called Silicon Valley Speech in Santa Clara, CA. Her Master's thesis was entitled "Effect of vowel context on the accuracy of sibilant fricative production in children with cochlear implants as compared to normal hearing peers."



Elizabeth Eitel graduates with an MS in Communication Sciences and Disorders. Following graduation, she will be working as an early childhood and elementary school speech-language pathologist for a school district outside St. Paul, Minnesota. Elizabeth's Master's thesis is about "The effect of quality and quantity of linguistic input and maternal education level on vocabulary development."



Elizabeth (Tatty) Bartholomew is completing an MS in Communication Sciences and Disorders this spring. She is looking forward to see what life after graduation has in store for her!



Michelle Erskine graduates with an M.S. in Speech-Language Pathology. She will continue her academic studies in a doctoral program in Hearing and Speech Sciences at the University of Maryland-College Park. Her Master's thesis is entitled "Phonological Awareness Development in Pre-school Children Explained."



Mia Kim graduates from UW-Madison with an MA in Communication Sciences and Disorders. She plans to finish her clinical fellowship program in a school-based position, with a focus on clinical practice for culturally and linguistically diverse populations. She completed a Master's thesis on "Acquisition of /r/-/w/ contrast by preschool children."

Undergraduate Students



Danielle Revai graduates with a BA in Communication Sciences and Disorders and a Certificate in Education and Educational Services. Post-graduation, she plans to attend UW-Madison for graduate school to obtain her Master's Degree in Speech-Language Pathology. She completed a Senior Thesis entitled "Production of Stop Consonants by Children with Cochlear Implants and Children with Normal Hearing."



Elizabeth Chapman received a BS in Education, Communication Sciences and Disorders major, with a certificate in Dance/Movement Therapy. After graduation, she will be leaving for World Race, an eleven month mission trip to eleven different countries. Her team will partner with local, long-term organizations to serve the communities physically and spiritually. When she returns in 2017, she plans to start graduate school in pursuit of a MA in Speech Language Pathology.



Elizabeth Hill is graduating with a BA in Communication Sciences and Disorders with a Certificate in Education and Educational Services. She will be moving to Minnesota where she will be earning her Masters in Speech and Language Pathology over the next two years.



Kristen Grilli graduates this spring with a BS in Communication Sciences and Disorders and Certificates in Leadership and Education and Educational Services. After graduation, she will pursue a Master's degree in Speech-Language Pathology at UW-Madison.



Matt Olkowski is completing a BA in Math and Spanish. After graduating, he will start the secondary education program here at UW. He hopes to someday teach math to English Language Learners.



Olan Munson graduates with a BA in Communication Sciences and Disorders and Comparative Literature. She is looking forward to what life after graduation has in store for her!



Learning to Talk Lab

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Happy Summer!



*To stay tuned in on our research, visit
www.learningtotalk.org*

