

Hearing Loss Can Slow Learning...Read, Says Prof. Gail Whitelaw

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SPEAKERS

David Staley, Eva Dale, Janet Box-Steffensmeier, Gail Whitelaw

- E** Eva Dale 00:00
From the heart of the Ohio State University on the Oval, this is Voices of Excellence from the College of Arts and Sciences, with your host, David Staley. Voices focuses on the innovative work being done by faculty and staff in the College of Arts and Sciences at The Ohio State University. From departments as wide ranging as art, astronomy, chemistry and biochemistry, physics, emergent materials, mathematics, and languages, among many others, the college always has something great happening. Join us to find out what's new now.
- D** David Staley 00:32
Dr. Whitelaw is Clinical Associate Professor of Audiology in the Department of Speech and Hearing Science at The Ohio State University College of the Arts and Sciences, and serves as Director of the Speech Language Hearing Clinic. Her clinical interests are in pediatric and educational audiology, auditory processing disorders in children and adults, and tinnitus assessment and management. She is a past President of both the American Academy of Audiology and the Ohio Academy of Audiology and the Chair of the American Board of Audiology. She is the author of a number of articles and book chapters and co-author of the textbook "Hearing and Deafness". Welcome to Voices, Dr. Whitelaw.
- G** Gail Whitelaw 01:14
Thank you so much.
- D** David Staley 01:16
I'd like you first to tell us or define for us what audiology is; I mean, obviously has something to do with hearing, but what's the scope of practice of audiology?

G Gail Whitelaw 01:25
Audiology is the science that's behind both hearing and balance.

D David Staley 01:29
Balance, okay.

G Gail Whitelaw 01:30
The entire auditory system, that's our wheelhouse. We can look at children, identifying children at birth with hearing loss, all the way up to what people can typically expect from audiologists, which are older adults. But also there's a whole issue of prevention, hearing conservation, people who are in the military or enjoy concerts or have job exposure to noise; those are things that audiologists are very involved with.

D David Staley 01:57
Hearing conservation: what does that mean?

G Gail Whitelaw 02:00
How do we preserve people's hearing? You know, people of our age, we assumed that you would lose your hearing because you'd go to concerts and you'd blow it out and, you know, all the issues of if, it's not loud enough, you know, you're too old if you want to turn it down. We've really gotten a lot smarter about that as society has progressed, and now thinking about, how do you preserve your good hearing? Because once you lose it, it's gone. I mean, not so much for people who have hearing loss, but also it can result in ringing in the ears, and that for many people is even more maddening than having a hearing loss. About 30 million Americans have hearing loss, about 50 million Americans have sounds in their ears like ringing, and we know a lot of it is because of exposure to noise.

D David Staley 02:46
50 million, wow. And that's the definition of tinnitus, that sort of ringing in your ear?

G Gail Whitelaw 02:50
Yeah. Ringing, buzzing, any kind of sounds that people have in their ears is the definition of tinnitus. Some people say "tin-eye-tus".

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David Staley 02:57

What are the methods that audiologists employ, how do they study hearing and hearing loss and these other things?

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Gail Whitelaw 03:04

You know, the clinical methods are all based on the science of psychoacoustics, which we do in our department, we do a lot of research in that. So, it's a really scientifically based field, we use hearing testing, for example, I mentioned infants before, almost every infant in America is screened at birth for hearing loss. We used to not identify children in this country till about two and a half years of age, now we identify children around the age of six months or earlier. The youngest child that I've ever fit with hearing aids has been three weeks of age, and we have a great test called otoacoustic emissions that lets us look at hearing in young children, and then we follow up with them. We do the tests that everybody thinks of, the beeps that you heard in school, so that's called pure tone audiometry, when you hear a beep, you push a button, or you raise your hand, or little kids might do a task like drop a block in a bucket. We do speech audiometry, one of the most important things because people's biggest concern is they hear great in quiet, but they don't hear so well in noise. So, we do speech noise testing. And then, we have a whole science behind how we fit amplification, how hearing aids are dispensed to people. It's not just selling a product, it's an entire process that goes into it, and that's what makes people successful.

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David Staley 04:24

You mentioned the infant with hearing loss. What explains that in young children, is it congenital or are there other sorts of factors?

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Gail Whitelaw 04:32

You're absolutely right, it can be congenital or it can be other sorts of factors. We see children that are born with genetic hearing losses, but those are not very common, the most... or syndromic hearing losses, a child that's born with something like Apert Syndrome or Down syndrome, they may have a hearing loss. But the vast majority of children, you can't look at them and see that they have a hearing loss, and it's called nonsyndromic hearing loss that they have, but that tends to be genetic. But babies who are born with any kind of a birth issue, maybe they need medication at birth because they had an infection, or they were born prematurely, and they were without oxygen, those are things that definitely explain hearing loss in young children.

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David Staley 05:13

Tell us about the Speech Language Hearing Clinic here at Ohio State.

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Gail Whitelaw 05:17

Gail Whitelaw 05:17

We are very, very fortunate here at Ohio State. We have one of the oldest Speech Language Hearing clinics in the country, and we are able to provide soup to nuts. So, we see kids, I mentioned a three-week-old that we fit with hearing aids, all the way up to somebody who's 103, and we provide services for almost every population. People who have fluency disorders, that means they're stutterers, people who have had a stroke and they need some support to get back to their communication, people who've had noise-induced hearing loss or traumatic brain injury and concussion -

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David Staley 05:50

That's going to concerts and those sorts of things.

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Gail Whitelaw 05:52

Yep. That... we see them also. So, we see a vast variety of people. And we also have the ability to provide services to students at the university, so they can come here and they can get that, but we also provide a training, educational opportunity for our graduate students. So, our clinic is both exemplary education and exceptional patient care, those are our two mottos.

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David Staley 06:18

You provide literacy services to Hilltop Preschool.

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Gail Whitelaw 06:22

We do.

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David Staley 06:23

Draw the link for us between literacy skills and audiology.

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Gail Whitelaw 06:23

We do. My colleague, Yolanda Rory, who is a fantastic speech language pathologist, who joined us from Cincinnati Children's Hospital a couple of years ago, goes out to Hilltop, the Hilltop Preschool. Mayor Ginther has been looking at the Hilltop Preschool a bit, because if we're ever going to look at a model of pre-kindergarten or mandatory full day kindergarten in Columbus, the Hilltop Preschool is a great place to start, it's an amazing educational opportunity. But they feel like a lot of the kids come and need some boost in literacy. Maybe they don't have great speech language skills, or maybe they didn't have a family that read to them all the time. So Yolanda and our students go there, and then we spend a lot of time there during the week, working with teachers, working directly with children, and working with families that are there

to get them to think about literacy and think about how important, you know, reading to your child is in terms of their speech and language development. So, that's a really wonderful, unique opportunity for us.

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David Staley 06:23

Tell us about this.

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Gail Whitelaw 07:30

Sure. A lot of people talk about the term "hear to read", H, E, A, R to read. I think many people think that reading is a visual skill, but reading is actually very much of an auditory skill, and if you don't hear the sounds, you don't get to understand what they do in reading. You know, if we look back on people who had severe to profound hearing losses maybe 30 years ago, they never became great readers. And there's a lot of reasons behind that, part of it was the educational process in those days, but part of it was they were unable to hear the speech sounds, and if you can't hear them, you can't really ever learn to read them and use them effectively. And so, there are other ways to teach people with severe to profound hearing losses to read, but the easiest way to teach the normal hearing or child with a mild hearing loss or child with a language issue to read is to really hear that information.

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David Staley 08:23

Well I'll confess that when I read, I always hear the words in my head, in my mind's eye, or my mind's ear,.

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Gail Whitelaw 08:29

In your mind's... I love that, in your mind's ear.

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David Staley 08:32

So tell us about the services that you provide at the Shekinah School in Plain City.

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Gail Whitelaw 08:38

Another one of my colleagues, Nadine Whiteman, is the speech pathologist who goes there. Shekinah is a really unique place because it's probably a throwback to what happened many years ago, before schools had speech language services, intervention services, because it's a private school. And they approached us to say, we have many kids who might need speech and language therapy, how can you help us? And for us, it's a win-win because we love those kinds of community partnerships. It's a very unique partnership, I think they get what they need, the students get what they need there, and they've made a lot of progress. And the families are so

hungry for that information, they really take what we give to their kids and run with it. So the kids get kind of a, I guess, a double whammy of great services from Nadine and our graduate students, and then family support and using those speech services at home.

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David Staley 09:33

Are there other schools that you work with?

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Gail Whitelaw 09:35

We work with a number of other schools, not as intimately as we work with Shekinah and with the Hilltop. We do provide school contract services for educational audiology in central Ohio. Many schools will contact us, Bridgeway Academy, for example, will contact us and say, hey, can you come and help with hearing screenings because sometimes it's a little bit tough to screen a kid who might have some behavioral issues or might be very young, and we've got some great opportunities to do that. We do work with, this is our second year with the Early Head Start program through Ohio State, and Early Head Start is this fantastic partnership that takes into account the College of Education, and then many other departments and clinics here at Ohio State to provide services to children who are enrolled in the Early Head Start program. They're between six weeks of age and three years of age, and since the two years that we've been involved with them, we found a number of kids with hearing loss. I'll tell you my favorite story about this. We went out... first year we were working with him, last year, we went out to see this little boy, and he came in and he had a big ol' runny nose, and he was all stuffy. And the teacher said, he doesn't talk, he really doesn't talk, and he was about two. And we screened his hearing and he had a hearing loss, and he also had middle ear pathology, he had - it appeared to be an ear infection. So the mom had called while I was there and wanted to talk to me and said she was very frustrated because she felt like people weren't helping her and how could we help her. So, we got him into our clinic, and indeed, he had a pretty significant hearing loss, got him in to see an ENT, and I just got to present at a meeting that they had to look at some refunding of the grants, and he was there. She was also speaking, and he was there, and he's chatting up a storm now. And one of the teachers said to me, I don't know whether we should thank you or curse you because we can't shut him up. And of course, that's music to an audiologist or a speech language pathologist's heart, you know, that's exactly what we want to know. And so, we feel like we've been able to do some great work for a population that wouldn't have those services otherwise.

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David Staley 11:45

You are the Audiology Faculty Member on the Leadership Education in Neurodevelopmental Disabilities Program, LEND, the LEND program: what is the LEND program?

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Gail Whitelaw 11:55

The LEND program at Ohio State is housed at the Nisonger Center. Yes. Nisonger is a center that was developed to really address the needs of people with developmental disabilities, both children and adults. It was developed under the Kennedy administration, so in the 1960s, when

disability rights were becoming a focus for America, these centers were developed. They are designed to take professionals, usually we work with students in eleven different disciplines, and take professionals who are going to have an interest in a knowledge and working with people with developmental disabilities. So, everything from young children who might be diagnosed with something like cerebral palsy or autism, to adults who might be transitioning into a workplace. Those are the things that Nisonger specializes in. It's a Maternal and Child Health Grant, and it's not just to make super-clinicians, it's also to help people become advocates. One of the coolest things that I think happens at Nisonger is some of our disciplines are young adults who are doing self-advocacy, and so they're talking about their lives and educating us about what their lives are like. And also siblings or parents, because, for me, I understand how to work with some folks, but I haven't walked their walk, and to hear that directly from them is just a fantastic opportunity. The Nisonger Center is amazing, and if anyone has a child with a developmental disability or an adult and want to consult, I would highly recommend that they contact them because there's so much there and it's such an underutilized resource in Columbus. Tell us about Nisonger.

J Janet Box-Steffensmeier 13:38

I'm Janet Box-Steffensmeier, Interim Executive Dean and Vice Provost for the Ohio State University College of Arts and Sciences. Did you know that 23 of our programs are nationally ranked as top 25 programs, with more than ten of them in the top ten? That's why we say the College of Arts and Sciences is the intellectual and academic core of the Ohio State University. Learn more about the college at artsandsciences.osu.edu.

D David Staley 14:03

So you've created a program for adults with hearing loss and their communication partners to learn more about being a better communicator. Tell us about this program.

G Gail Whitelaw 14:13

The program is named SIARC, and it stands for Summer Intensive Aural Rehabilitation Conference. My colleague, Jodi Baxter, and my colleague, Cristina Roup, are the ones that really run it, but our whole department is involved in it, and it's both incredibly fun and incredibly moving. Our graduate students work for about six months preparing some lectures for people with hearing loss, so that they understand things that maybe they were never told, or maybe that have never sunk in. And then, we bring in people with their communication partners, because a lot of times people with hearing loss have a much greater complaint about their significant others, their spouse, their kids, their parents, because they are often, you know, they take their communication with them for granted. We've seen some amazing things happen through this program, and at the end of it, it's always very enlightening, because we've had people tell us, it's the best thing that's ever happened in their marriage. We've had people say to us that they're able to understand now... like, you know, communication partners, wow, I always thought they were ignoring me. We had a guy come in one day - and boy, he might be listening to this, so I should probably try to make sure I cover it up - none of us really liked him, he was the husband, and he was always not very nice to his wife. He would say to her, well, if you just listen more, you know, and that those are real stereotypes about people with hearing

loss, especially if it's come on very gradually and you've been married to somebody for a long time. And the next day, he came in, and every morning - SIARC lasts for three days - every morning, we start with kind of a sharing, and he stands up and everybody's like, what, he wants to share something, we wonder what this is going to be. And he apologized to his wife and said that he had listened carefully to people talking about this, and he had kind of villainized her as a communication person and realize that it takes two to communicate, that he had a real need to be a little bit kinder, and a little bit more understanding, and that - he said to her, in front of this entire group of people that he had known for a day - I love you more than I've ever loved anyone else, and I want this to be... this is how we need to communicate. And I think we were all blown away, I know I was crying, but I think everybody that was there was so blown away that, you know, people can open up so quickly, especially around a shared experience, which hearing loss for many of the people at that event is a shared experience. They either have it, or they live with someone who has it.

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David Staley 16:47

Tell us about some of the classes that you teach,

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Gail Whitelaw 16:49

That I teach at Ohio State? I get the benefit of teaching a lot of fun classes, I teach a Pediatric II course which looks at educational audiology and counseling and counseling with families, and I love teaching that course. My favorite course to teach here is probably tinnitus and hyperacusis. Tinnitus refers to ringing in the ears, and hyperacusis is how you tolerate loud sounds, and that's a real problem for a lot of people. And so, our students get to have that coursework, which is really unique. Most universities that offer the Doctor of Audiology program, the AuD program, don't have that course. And so it's something that differentiates us, and our students love it. If audiologists aren't going to own tinnitus and hyperacusis, who is?

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David Staley 17:38

What explains that, why is that not offered elsewhere?

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Gail Whitelaw 17:42

I think that's a great question. For the longest time, audiologists - and people still hear this - audiologists and our colleagues that are ear, nose, and throat physicians or general physicians would tell people, oh, everybody has tinnitus, and there's nothing you can do about it. And probably about 20 years ago, there was a rebirth in some research that had been done, that was done in Australia, that showed that this device, called Neuromonics, along with cognitive behavioral therapy, improve the quality of life for people with tinnitus, like, you know, a hundred fold. Like, these were people who had given up, and some of them were suicidal, and they came back and said, you know, I don't have anxiety anymore, I'm really happy with my life, I can deal with the quality of my life. So, we've been kind of following that rebirth, and we've been offering those services in our clinic for the past 20 years. So for us, it's a natural outreach that we want our students to understand this and be able to spread that word and

other places. We've been very fortunate, Doctor of Audiology students go out on a residency during their fourth year, and we've had some of our residents set up tinnitus programs in their fourth years. And they came with those skills, and we see that as a real win, because maybe other universities will start to get interested in that, or maybe other universities will start to say, wow, our students, we can't ignore this problem because 50 million people come with this, and many of them are really, really desperate for help, so.

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David Staley 17:53

Tell us about the textbook that you co-authored, "Hearing and Deafness". What are its main features, main findings?

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Gail Whitelaw 19:19

Sure. I had the pleasure of working with Peter Paul, who is a faculty member here in Education, in the Deaf Education program.

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David Staley 19:28

Here at Ohio State?

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Gail Whitelaw 19:28

Here at Ohio State. Dr. Paul is one of the most amazing people that I know. He has a huge reputation in deaf education and has been a pioneer in so many of the areas, and what we wanted to do was develop an introductory textbook that looked at a broad range of ways to look at hearing. A lot of textbooks in audiology are very hearing only oriented, oral oriented, so that if you want to think about sign language or you want to think about being part of deaf culture, it's not particularly valued. On the other hand, there's deaf education books where they villainize people who want to speak and use those skills. So, we wanted to find a textbook that we could co-author that really addressed those issues, that addressed modern issues in hearing, and was fun to read. The best thing I learned from Dr. Paul, and I tell him this all the time, is that I thought I was a pretty good scientific writer, but I didn't think I was a pretty fun writer to read, and he taught me how to do that. We would sit and discuss, you know, how to make things more interesting for the layperson, or for the introductory student, or for a person, teacher of the deaf who might pick this book up and want to know about some things that are current. So, we think it's a really great textbook for people who want an introduction, either in deaf education or into audiology or speech pathologists who might want to work with people with hearing loss.

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David Staley 20:49

And to what degree do audiologists work with deafness? I know you work with hearing loss, to what degree do audiologists wrestle with deafness? So I'm curious to know what got you interested in audiology? Why did you end up as an audiologist?

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Gail Whitelaw 20:57

I think that audiologists have a lot of options in that area. You know, one of the things that has changed over the past 20 years is cochlear implant candidacy. Many people who get cochlear implants still identify with deaf culture, so they interact with audiologist on a cochlear implant team, but they're still using sign language as a primary form or one of their main languages. So, audiologists certainly work in that area. Most schools for the deaf have at least one audiologist that works with them. You know, technology has changed dramatically, but people's opinions about culture have remained. And so, there are many audiologists, you know...if you look at Gallaudet University, the national university for deaf students, there are many audiologists who graduate from their AuD program, but there are also audiologists who work at Gallaudet and they have a great clinic there and they do a fantastic job. So, I think it's the audiologist's choice. You know, there are some audiologists who don't know how to sign. I think it's interesting when I say I'm an audiologist, people used to say "What?"; and they meant that. Now they think they're funny, and I always tell them, I wish I had a nickel for every time I've heard that. But they always assume that you sign fluently, and that's not true for most audiologists; many do, but most do not. I met an audiologist when I was eleven years old, through my church's Vacation Bible School. We did a fundraiser for Millridge School for the hearing impaired in Cleveland, and I went there and this woman was putting out her office, like in August, you know, she was getting ready for the school year. And I went in to talk to her, and she was an audiologist, and I went home and told my mom and dad, that's what I'm going to do, and never changed. I know I have a really unique story, and I always feel like when people say to kids, oh, you're not going to do that, or you'll change your major a hundred times, I'm like, some people do, and some of us, you know, know what we want to do and audiology just spoke to me as a career.

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David Staley 23:00

Why that experience, of all the experiences you had as a child, why was that one so noteworthy?

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Gail Whitelaw 23:05

It's interesting because she was so passionate about what she got to do. And I knew very little about hearing loss, and what I knew about hearing loss up until that point in time was deafness. And she showed me some hearing aids and some devices called digitally modulated - in this day, when I was in school, there was no digital, obviously - but they were called frequency modulated, and they're systems that a teacher wears a microphone, and a kid always hears like the teacher six inches away from their ear. I didn't know that people did stuff like that. I was attracted to both working with older adults, and then as my career progressed, much more with pediatrics. But I liked the fact that there were these kids that, you know, were at this school, and ironically, when I was a student as an undergrad, I went there and observed and then did a little bit of my student teaching there. So, I had a lot of connections there throughout my early career.

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David Staley 23:50

D David Staley 23:59

Tell us what's next for your research.

G Gail Whitelaw 24:01

So, there's a lot that's interesting. One of the things that's interesting to us is something called HD, and we call it that in our department, which is hearing difficulty. And those are people who maybe have been to an audiologist and said, oh my gosh, I really feel like I have a hearing loss, and their audiogram, or the graph of their hearing when they listen to those tones, is normal. And they feel like they have a problem, but they've been convinced they don't. And we have been working on this and, what's a great test battery, because we obviously need to go farther, we need to develop new tests, but we also have to use some of the tests that we have. One of the standards of care in audiology is using something called a speech and noise test, and I mentioned before that most people who have hearing loss, they may say, hey, David, I can hear you really well one on one but as soon as there's any background noise, I go to a restaurant, I'm sitting in a meeting, I'm with my family, I can't hear. Most audiologists, even though it's in the scope of our practice to do this and it's a best practice to test in noise, most audiologists don't do that. So, we continue to do some research on that. We also are working on some things with traumatic brain injury and concussion. As a matter of fact, on Monday, I'll be in Oakland, California, talking to audiologists about traumatic brain injury and concussion, because that's a population that are so hungry for the services that audiologists provide, but most audiologists really overlook them.

D David Staley 25:27

Why is that?

G Gail Whitelaw 25:29

I think it's because, first of all, it's a tough patient population. Oftentimes, they have many other things going on, like executive functioning issues, visual processing, cognitive issues. So it's a real team approach, and not all audiologists are used to working in a team, they don't have a situation, like in a hospital, where they can work in a team like that. I also think they haven't been educated in it. I've really... the past few years, I've had the opportunity to go out and talk about this population that I love, and after every talk, I have three or four people who want to say, hey, can you come and show me how to do this? I presented at a conference about two and a half years ago, and there was a woman that was there from Indianapolis and she said, we have great ENTs, I want our practice to do this, will you come over and work with us? So I went over and help them set up their program and they're offering are really... I mean, Indianapolis, like Columbus, is a big city and there's a lot of need, and she feels like it's a great calling for her. So I think it's... people haven't always thought about it, and it's just marketing it a little bit more and talking a little bit more about what we do.

D David Staley 26:34

Gail Whitelaw. Thank you.

G Gail Whitelaw 26:36
Thank you.

E Eva Dale 26:37
Voices from the Arts and Sciences is produced and recorded at The Ohio State University College of Arts and Sciences Technology Services Studio. Sound engineering by Paul Kotheimer, produced by Doug Dangler. I'm Eva Dale.