

DOPE LABS

Transcript of Lab 030: Signed, Sealed, Delivered

Titi: Have you been seeing all this stuff going on with the USPS?

Zakiya: Yes, honey, I am disgusted.

Titi: Yet the USPS is so critical to everything. I don't understand, like, how we can even be considering moving this money around and not giving it to them. How are we going to even function? I can't imagine life without the USPS.

Zakiya: Yes. And, you know, I love to send a letter. Everybody in my family worked at the post office growing up. So I am wed to the post office. I used to collect stamps as a kid. OK.

Titi: Forreal?

Zakiya: Yes, I used to collect stamps, stamps and the X-Men cards. Those are the things I collected.

Titi: I collected a Pogs.

Zakiya: Oh, I remember those.

Titi: Yes I loved those.

Zakiya: But I didn't know what you were supposed to do with them.

Titi: I didn't know. I just had a little Tupperware container full of them. I just looked at them and that was it.

Zakiya: I think the pog came before the Beanie Baby, right?

Titi: I think so. And I didn't have a single Beanie Baby. Do yall still have your Beanie Babies?

Zakiya: They're dusty. If you still have my know that. Unless you can. Are they machine washable?

Titi: Don't they got beans on the inside?

Zakiya: All beans come out.

Titi: You've got enough beans to make a beanbag chair repurpose those things. Reduce, reuse, recycle.

Titi: I'm Titi.

Zakiya: And I'm Zakiya.

Titi: And from Spotify, This is Dope Labs.

Zakiya: Everybody's talking about buying stamps and showing their books of stamps. My favorite stamp right now is the Marvin Gaye stamp. It's hard to find. It's hard to find. I'm just gonna say.

Titi: This is Something I did not know about my friend. And it makes complete sense, actually.

You haven't been paying attention to the stamps I send you.

No. OK. So Zakiya, when anything big happens or anything that she feels like is significant in your life. She will send you a really, really nice card with a note in it. I still have some of them where she saying congratulations. I'm so proud of you. Handwritten everything. So, so nice. But I have never paid attention to the stamp.

Zakiya: What the stamp is always on brand. It's on theme. OK. You need to go back, if you have those envelopes.

Titi: I do not.

Zakiya: Atleast for the postcards. You should be able to see.

Titi: OK. Well I don't have the envelopes but I trust that they were our brand because the card itself was always on brand and I always had a black woman on the front. They are always very, very good. So let's talk about why folks have been stepping up to support the USPS.

Zakiya: The post office or the United States Postal Service is operated by the federal government. And for many years it's been operating at a deficit. So that's like a business is running and you're not turning a profit. But the thing to remember is that most federal agencies operated the deficit in the post office is the only one that doesn't get money from the government to operate. So it was really hit hard, just like we talked about individuals taking a loss in a really bad financial hit from coronavirus. The post office had the same thing.

Titi: And then on top of all of that, we get a new postmaster general who says that he's going to be using these cost cutting mechanisms and that would limit the the reach of the USPS.

Zakiya: So basically, our postal service is in trouble.

Titi: One of the ways you can support the USPS is by sending more letters. And for me, that's kind of like a double edged sword. I want to support the USPS, but I really hate my handwriting, so I don't want to do that. And my printer is out of ink. So typing something up is kind of like out of the question. I need to purchase more ink and I don't want people to know what my handwriting looks like. I go to great lengths to shield everyone from my handwriting.

Zakiya: Everybody join me in this moment of lifting Titi and that handwriting up.

Titi: Once you see it, you're going to put it right back down.

Zakiya: I welcome those bubble letters.

Titi: You see, I don't want to be described as someone that writes in bubble letters like I'm not 8, I'm not 8 years old. I'm a grown woman.

Zakiya: Maybe it's the way I'm saying it... those voluptuous strokes. What about that?

Titi: Your handwriting thicc.

Zakiya: Thick with two C's.

Titi: OK. So our question is about our writing, because since we're going to be supporting the USPS more, it got us thinking about writing, different people's writing styles, how we learned to write. And so we just had more questions than answers. And so we thought we would dig into it.

Zakiya: Take it to the experts. Today's lab is about written languages, specifically alphabetic languages.

Titi: With alphabetic languages like English, Greek or Russian each written symbol corresponds to an individual sound. The difference between alphabetic and non alphabetic systems is that non alphabetic languages have written symbols that correspond to larger groups of sound like syllables or whole words like Chinese. Let's get into the recitation. What do we know?

Zakiya: We know writing's important.

Titi: Yes. And we know that everybody writes differently. I think that's it. I think that's all that we know about handwriting.

Zakiya: Sadly.

Titi: So what do we want to know?

Zakiya: I think I need to know more about how we actually learn to write what's happening in our brains.

Titi: Yeah. And I want to know the history of writing because I mean, it's definitely changed over time, I think. And so I just want to know, like how it all started and how we got to this place that we are now.

Zakiya: And I think the million dollar question, you know, we see it in different places. Does handwriting have much meaning. Does it say something about who you are?

Titi: Right. Because I would like to believe that the way that I write and the judgment I receive is unfounded, like no base. And those two things don't. There's no connection.

Zakiya: Whoever is judging Titi you need to stop it right now.

Titi: It's probably mostly me judging myself. Like I'll write a sentence and I'll be like 'oh girl..type it honey'.

Zakiya: We are going to free you from that. Let's jump into the dissection. So listen, this is a very broad subject. There's a lot that we want to unpack here.

Titi: Yes. And I mean, we can't fit everything that has to do with the written language into this episode. But there's a lot of things that we're going to hit and we have the perfect person to take us through it all.

Dr. Robert Wiley: My name is Bob Wiley and I'm an assistant professor in the Department of Psychology at the University of North Carolina, Greensboro.

Zakiya: Dr. Wiley's area of focus is our written language and specifically how learning affects perception and how cognitive psychology can be used to improve learning outcomes. And when you study letters for a living, Dr. Wiley says, you start to see them everywhere.

Dr. Robert Wiley: Oh, it's bad. I see them in places that they're not. You know, like I'm looking at your door behind you right now and I see L's and T's in there. Right? I see letters all the time.

Titi: And he's not making this up. We started by asking Dr. Wiley where letters actually come from. And he says they're all around us.

Dr. Robert Wiley: There's a fascinating theory about it. So why do our letters look the way they do? And so people have looked at all the different written languages across the world and across history. And so what they found is that there are certain shapes like an L, a T, an X, Those are different. That seem to come up across the world's languages. And what they found is that the prevalence, how common those are, seems to match with how commonly we see those types of intersections in nature.

Zakiya: If you think about the way a tree trunk meets the ground, that's a vertical line hitting a horizontal line that forms a T like intersection. So what Dr. Wiley is saying is that the intersections that actually occur in nature more often seem to be the ones that we see more often in our written language as well.

Titi: I'm looking out my window right now. And based on that, I do see a lot of Xs, a lot of T's and a lot of L's. Like, I'm looking at this brick house next door and I see L's. I see T's. When I look in the window, I see ...well not in the window. At the window. I'm not looking in their window.

Zakiya: I don't know. You probably got a peeping Tom, a peeping Tom folks.

Titi: I see L's and Ts. That's so crazy.

Zakiya: There's a lot of a frame houses. How come we don't have P framed houses and U frame.

Titi: You want to live in a U house. no. My friend would complain. She would not like.

Zakiya: Like Issa Rae says in your complaining outfits.

Titi: In your Complaining clothes.

Zakiya: Aside from the intersections that we commonly see in nature, early adaptations of letters were also derived from pictures or symbols of the objects they represent.

Dr. Robert Wiley: So when you go back and you look at the earliest forms of languages, they were pictographic. So they started with what people would do is they would draw a shape, you know. So to write the words, son, you draw a shape of the sun.

Titi: So from there, people were like, OK, I have this symbol, which means sun. Then the first sound of the word sun is the S sound. So, *S sound*. So from there they were like, OK, I can use this symbol just to represent the S sound.

Zakiya: Dr. Wiley gave us another example of how the letter A came about.

Dr. Robert Wiley: A was aleph which was the word for Ox. And you can still kind of see it if you turn it upside down and it looks like an ox or like a cow with its horns. So that's where that came from.

Titi: And Dr. Wiley says that this is true for a lot of letters, that they all started from pictographic representation of an object. And then over time, it slowly became what we know as our alphabet today.

Dr. Robert Wiley: Writing a slow drawing pictures. I mean, can imagine if we had to, like, draw our emojis, it would take so long. And so as languages developed and in order to be faster, they change their shapes. They became simplified.

Zakiya: He also brought up another good point that affects the way we have our written alphabet now. And that's the tools that were available.

Dr. Robert Wiley: So if you look at a culture where they were using a stylus and clay that led to different types of shapes than if you were using a brush and ink. If you're putting a chisel in stone, that's because you can manipulate those things differently. It's easier or harder to make different shapes. And so that actually ended up influencing what our letters look like.

Titi: Imagine trying to write the letter s with a chisel and stone.

Zakiya: It's not happening.

Titi: That's gonna be way too hard. That's a lot of chipping that you got to do. But the letter X. That's very easy.

Zakiya: Is crazy to think that those things determine the letters that we ended up learning in kindergarten or whenever we learned them. Do you remember?

Titi: You know, sometimes I have little memories of when I could not read and I was trying to figure out how to read because I knew kind of like what certain letters sounded like. But then, you know, you get to certain words and that letter doesn't sound like that. A C sounds like an S and being very confused.

Dr. Robert Wiley: I mean, I don't have to tell you why English is the mess, right. Even C isn't always *hard c sound*. Right. Sometimes it's like circle. I don't say. Actually, when I was a kid, I used to say Kircle because to me I was like, C can't be both *soft c sound* and *hard c sound* so either it's kircle or sircle. You know, you can't mix them. It took me a while to figure that out. That's a that's a problem English has.

Zakiya: The only thing I remember from the actual learning part of reading and writing was trying to figure out what my parents were spelling to each other. I know they were spelling it so I wouldn't know.

Titi: Exactly.

Zakiya: But I was like, what is that?

Titi: No secrets kept from my friend, Zakiya. So she was like I've got to learn how to read Quick,.

Zakiya: Quickly.

Titi: I think all of our parents did that when they didn't want to want us to know what was going on.

Zakiya: You know, when we take all of that into account it's really crazy to think that your ease of or your mastery of the written language depends on things that happened so long ago, like when you were three, four and five. Dr. Wylie really helped us hone in the importance of those early years,.

Dr. Robert Wiley: Something we have to keep in mind about written language. Like one of the biggest things that makes it different from spoken language is you have to learn it. So, you know, you probably know that a child will learn any language. You know, verbal that grows up around effortlessly. No one has to teach them. You just learn your language. And that's not the case with written language. You have to be instructed to learn it.

Zakiya: That's such a good point. Right? It's not inherent. The ability to write and read. Somebody has to teach it. And so much of your ability to do this rests on the access to quality education at a young age.

Titi: And throughout history there have been people who have been denied that access, and it is only in very recent history that people have been allowed to learn how to read and write.

Dr. Robert Wiley: Up until not that long ago, very, very few people could read and write. You know, so you think, oh, but they had written language in ancient Egypt. Like, sure. For 20 people who were like, recording things in the court. Right. Like no one. Hardly anyone knew how to do that.

Titi: That access wasn't granted at the same time to all people.

Zakiya: And it's not at the same level, even though is granted now.

Titi: Definitely not at the same level.

Zakiya: In fact, a lot of schools now are deemphasizing the importance of learning handwriting, since so many of us are using phones and computers to write keyboards Basically.

Dr. Robert Wiley: Cursive has mostly gone from schools and even just the time given to handwriting. It's really decreased because it's not part of STEM. Right. It's not technically science, technology, education or math. But you know what some of us always point is you don't do any of those things without reading and writing. Like, please try to do a science project without reading something. Please try to do that. It's not gonna happen. And I think there are, we are getting some evidence that there are costs to this shift away from the actual handwriting aspect.

Zakiya: And it's not just about needing to write in order to study other subjects. Writing by hand also helps us actually learn better.

Dr. Robert Wiley: You can, for example, take people who either children who are still just learning language or adults learning a new alphabet. So as they're learning the letters, they actually learn to write them by hand. There's all kinds of benefits. So in terms of behavior, they

are going to memorize those letters more quickly. They're going to retain them for longer, compared to if you just study them visually or if you learn them by typing as well.

Titi: And this rings true for me specifically, because that is the way that I learn pretty much all things. And it started in high school for me when I realized, oh, my goodness, I think I've cracked the code on how to really memorize or learn some things because I was awful in biology, just awful. It was really, really hard for me to remember all of these things. So what I started doing was if my teacher said, "oh, we're gonna be having a quiz on Chapter three", I would read Chapter three. And then I would write the entire chapter. So I would look at each word and write them down in a separate notebook. And when I did that, I felt like everything was like being reinforced. It was like pouring concrete over all that information. And so writing in my own handwriting definitely has a strong link to learning for me.

Zakiya: For me, it's also reading handwriting that makes a difference for me. If I have notes and I go back and I, I can remember things like I can see, oh, I wrote this. There has also been some evidence about the tie in for other people reading handwriting. It's also a teaching strategy where folks are adding handwriting to typed text to help you retain information.

Dr. Robert Wiley: So what do we know about why that might be? Well, here's a few things we know about that when we look at things like letters. We don't just look at the pattern in terms of a static image. We also automatically think about how was that created. And this is especially true when we're reading handwriting as opposed to print. And so that's why when people are reading, we see. All kinds of activity in the motor part of the brain. There's a lot of activity in a part of brain that you use for writing even when you're not writing. You can just be laying there bored as hell, looking at words and that part of your brain that thinks about how would I write that? It's very, very active. And so that seems to be part of why it's so important to have that handwriting experience. Because we actually use that not just for writing. We also use that for reading.

Titi: So we've learned a lot about writing from a historical perspective, but also psychological and sociological. We're gonna take a quick break. And when we get back, we're going to talk all about the biological aspects of writing and reading. What's actually happening in our brains.? And we're Back. Let's actually talk about the brain and what's happening when we see letters.

Zakiya: So the first stage is the stimulus. This is just seeing letters on the page.

Dr. Robert Wiley: When we look at, say, just a single word. Right. Like 'cat' when you are a fluent reader. All right. So let's just talk about adults. That's a separate thing, you know, with children who in their first learning. But once you're adult and you know how to read all that process, it's automatized to the point that you cannot help but recognize that word. And that's because the average adult has read billions of letters by the time they're, say, 40 or 50. You've seen billions of letters. And so one of the things that's so crazy about that is there aren't that many things like that, many objects that we get that much exposure to.

Zakiya: This relates back to what Dr. Wiley was saying earlier about the origins of letters. We see them everywhere, not just in nature, but in our day to day lives. We're just exposed to letters all the time.

Dr. Robert Wiley: What we do really quickly when we're reading is we actually abstract away from what we're seeing. Whether I write cat by hand or I see it typed in capital letters or I see it in lowercase letters, we really quickly abstract away. That information at some level is sort of discarded by the brain.

Zakiya: Your brain takes what it needs and it discards everything else. It doesn't care about the font if it's handwritten or typed, the color. None of that matters. It just goes straight to processing.

Titi: So once you've taken in C.A.T., there's actually two routes that the brain can take to process that information.

Dr. Robert Wiley: So the first right we call the phonological route.

Zakiya: Phonological is sounding it out. You're using your memory, but you're trying to remember the sounds of each letter.

Dr. Robert Wiley: And then we go into our long term memory and that long term memory is for the sounds of words. So then we're searching or say, OK. Have I heard that sound? Cat. And there's that. Oh, yeah, I have that stored in my long term memory. And then I say, oh yeah, cat is an animal. It's feline. It's a pet. And that's how we identify the word phonological. But we have another route and it's a orthographic route.

Zakiya: Orthographic is when I see the string of letters, I remember they mean a thing. So is the string of letters and remembering the meaning. No sound is associated with this. You're skipping the sound altogether.

Dr. Robert Wiley: What it does, it says, I have this abstract representation that the letters are C, A, and T. And then we go into our long term memory, not for the sound, but just have I seen this string of letters in this order. And then as I say oh yes. When I see that string letters, it means a feline, a small animal, a pet, all of that. So what we do is we always do that when we see any word. We try it both ways to figure out that word. We try to sound it out basically, and we just try to find a memory for that string.

Titi: So it's like you see the letters C.A.T. and then they shoot off the gun and it's like whoever gets there first is the winner. Even as an adult, when you get to a word that you don't know.

Zakiya: That's so funny. I don't feel the orthological as much. I do recognize when I shift back to Phonological.

Titi: Absolutely.

Zakiya: And sometimes there's a little trick where I do a blend of both. You know, when we see a new word in science or medicine and probably engineering, too, we have some tricks from root words that we've learned, Latin or Greek, that help us kind of make sense of what a word might

mean. And those things aren't related to sound. It is when I see the string of letters like even 'Phonological' p-h-o-n , and I know that is 'sound', right. Or ortho. o-r-t-h-o, I know that is 'correct or straight' right and immediately when I brought up orthological you said "orthodontist" , "orthopedic". These brains are amazing, bruh.

Titi: Honestly.

Zakiya: Do you remember that meme where they say Cambridge University scientists have figured out even when letters are jumbled in between, as long as you can see the first letter in the last letter. You can understand this passage. Do you remember that?

Titi: Yes, I remember it. And I remember being like, oh, my gosh, look how advanced my brain is. I don't even need these letters to be in order. Your girl is smart. And Dr. Wylie definitely just made me feel duped.

Dr. Robert Wiley: What happened in that thing is that there were really careful about how they jumbled the words. So there are some words where it's true that if you switch around the letters, you still know what that is. So say a word like Judge j-u-d-g-e if you see j-u-g-d-e right. It looks like Jugde. You know that that's judge because there's nothing else that looks like that. So they're careful that they only use words like that. now think of a word like calm. If you switch the A and the L in calm you get clam. And now it's a different word. So we actually can't just jumble letters around.

Titi: Yeah. So in that fake study that they put out, they were very intentional about the word that they chose and they had us all out here thinking that our brains worked a certain way that they don't.

Zakiya: Dr. Wiley tells us we're not really good at knowing exactly the order of letters when we're looking at them. So there's a question of what we actually know when we figure out what a word is. And when you feel like you know it, what concrete things do you know about it? And I think that's what scientists are still trying to figure out.

Titi: So when we see a word and that gun goes off in our brain and our brain starts shooting off phonological and orthological, those two routes and whoever wins wins. But where are they racing to?

Dr. Robert Wiley: So there's this part of the brain that's called it's called several things. So it's been called the brain's letter box or the visual word form area. It's typically in the left hemisphere and a part of the temporal lobe called the fusiform gyrus.

Zakiya: And you have to remember that the brain is split into two hemispheres kind of left and right in the fusiform gyrus is on both.

Dr. Robert Wiley: So the fusiform gyrus in the right hemisphere. So the homologous part, the same part across the hemisphere is a specialized for face processing. So it's called the fusiform

face area, is in the right hemisphere. And then we have the visual word form area on the left hemisphere.

Zakiya: And we see that the brain changes as children begin to learn to read.

Dr. Robert Wiley: When you're first showing them letters. It's very bilateral. So you'll see particular amounts of activity in both the left and the right hemisphere is when they're looking at words before they can really read them. And then as we become more expert in reading and writing, that activity shifts further to the left it lateralizes.

Zakiya: We're using that fusiform gyrus in the left hemisphere to recall those words for reading and writing.

Titi: So this sounds like to me that reading is strongly tied to memory.

Zakiya: Yes, memory plays a big role in reading and writing. And there's quite a bit happening when we think about that race. That is basically an obstacle course,.

Titi: Honestly. And for some people, that obstacle course is instead of it just being, you know, a little puddle that you got to jump over, it's a brick wall that you've got to climb.

Zakiya: Dr. Wiley takes us through two examples. Dyslexia and dysgraphia.

Dr. Robert Wiley: So dyslexia is about reading. Dysgraphia is about the spelling. And that can happen developmentally, of course. And we know many children have those issues.

Titi: But you can also acquire dyslexia and dysgraphia through traumatic brain injury or stroke. And when this happens, it's called aphasia.

Zakiya: Dyslexia is about reading. So a person with dyslexia has difficulty associating sounds or different speech sounds with, in a word, in learning how the letters represent the sound. So this is more phonological.

Titi: So when we think about that, that race, when that gun goes off there, phonological route, there could be some obstacles in the way that causes that portion of the race to go slower.

Zakiya: And dysgraphia is more about writing and spelling.

Dr. Robert Wiley: There's one really cool study that worked with dysgraphic patients. And what they found is there's patterns of behavior when things go wrong. So, for example, some individuals, their deficit, the longer the word is, the more likely they are to make an error. And what we know from then is that this is what we call orthographic working memory problem. So when you go to spell a word, when you go to write a word, you have to hold onto those letters in memory. But what can happen if you have dysgraphia is that that can really break down. During this process of reading or during this process and trying to spell something they lose track. And so they get funny errors because what might happen is they might delete letters, like suddenly, its

supposed to be 8 letters, and only write down five of them, but they may also insert them. And those letters may come from things like recall perseverations. So it maybe the previous word they spelled is sort of still active in their memory. So you can have these deficits that are showing you that and this sort of temporary storage that can go wrong.

Zakiya: Sometimes is a problem of losing your place, remembering what you've already said versus what comes next. Sometimes it's a case of not being able to clear your memory.

Dr. Robert Wiley: And that's in a different part of the brain than the long term storage. So you find other people where it doesn't matter whether the words three letters or 10 letters. That has nothing to do with their deficits. It's all about the frequency. What do those people do? And this also happens with dyslexia. You're going to rely on that phonological route. So if you have a problem with your long term memory, you have a hard time just holding on to those less strings of letters than what you need. You're going to rely on that process of sounding words out.

Zakiya: And we know nothing is, as it seems in the English language. We've got to be easier on ourselves. You know, we're all out here trying to spell it right. Get it right that the punctuation in the right order. Make sure we say the word right. We retrieve the right word. This is almost like a false construct we're putting on our minds. We didn't evolve the capacity for this. Like we're enforcing this. This is why you have to teach is not innate. Speaking, learning to the spoken language that happens automatically. You just need to be immersed in spoken language. Written language laying amongst pages of text does not help you to learn to read.

Titi: You cant lay your head on these books and get these words.

Zakiya: It don't work like that. And so when we really think about it. We are forcing our brains to do something that is not designed to do. And that's kind of cool. But it's also meaning that we got to give these brain some room to make some mistakes.

Dr. Robert Wiley: One of the things that's so cool to think about with the written language is we know that evolutionarily right, there's not been time for this to have evolved. And one of the questions that makes us try to understand is how are we able to do something that we know we didn't involve any capacity to do? So we have to be using some part of the brain that will let us read and write. That didn't evolve to do that. And so people wonder, well, what does that part of the brain do if you don't know how to read and write? What would it be doing otherwise? And is there something that can no longer do now that you're using it for reading and writing? So those, I think, are really fascinating questions that are very difficult to answer, but really important ones.

Titi: Evolutionarily, reading is not critical to survival. And the only times that we have evolved as a species is in order to survive. So what it takes for us to be able to live.

Zakiya: And not just to live, but to live long enough to reproduce.

Titi: OK. Because, I mean, it's true. There are people who don't know how to read and write and they're still able to function in society. We haven't gotten to that point evolutionarily where it is absolutely necessary. So then we would eventually change our brains to need that ability.

Zakiya: Compare reading and writing to speaking. So if you think about it, we have communication centers in the brain. Because you have to be able to communicate, if you're going to get to a stage where you're reproducing with another human.

Titi: Right.

Zakiya: Right. So that can be sign language. That can be multiple ways of communication. But we have evolved the communication center because it's been necessary for our survival, even when we think about gathering and living in groups which we know early on in the evolutionary process. Humans began to do.

Titi: But that's not true for reading and writing.

Zakiya: You can still communicate even if you can't read and write. There's no selective pressure on reading and writing.

Titi: Also, the ability to write does not put you at a evolutionary advantage.

Zakiya: No, not yet.

Titi: Not yet. And I feel like my handwriting. But I do feel like my handwriting does put me at a social disadvantage currently. And so I want to know if there is anything that people, when they see my handwriting. If there's anything that people can assume about me, because I think. No. But we asked Dr. Wylie if there was any information that you could discern from someone's handwriting.

Dr. Robert Wiley: It definitely tells you something. So here's one thing on what I know about that and how people vary. So one thing we there's some research on is the fact that so people will typically tend to write letters more or less the same. But there is a lot of variability there. And some of it is what we call individual differences. And some of it is more cultural. So, for example, X's and other parts of the world like in Britain. So you probably do one of the diagonal lines and then you fall across it. Right. Would you believe that there are people who do it as like greater than sign and then a less than sign?

Zakiya: What?

Dr. Robert Wiley: Because there are.

Zakiya: No, no, no.

Dr. Robert Wiley: Yes.

Zakiya: How are you going to make sure those things touch just at the right place? That's crazy.

Dr. Robert Wiley: I was glad to hear that. Dr. Wiley said that really the only thing that you can really take away from somebodies handwriting might be just where they grew up. Like, it's just a geographic thing. Like in this area of the world, folks write certain letters this way and there's really nothing else you can you can get from that. You can't assume anything about their their personality. So that that kind of makes me feel a little bit better about my thicc letters.

Zakiya: Does this mean you'll share your handwriting with all of our listeners?

Titi: Oh, man. I see. I had a feeling you were gonna do this. I will do it if Zakiya does it, if you put up your handwriting. I will also put up mine.

Zakiya: I'm game.

Titi: We'll post on our Instagram, our writing samples.

Zakiya: Yes.

Titi: And our comments will be closed to shade. OK.

Zakiya: You know, I feel like there are a thousand questions we could ask. And Dr. Wiley really got us together so we can understand just how complex written language is.

Titi: There's honestly no limit to where written language has influence. And that's what I learned from Dr. Wiley answering all of our questions is that it's way deeper than what we think.

Zakiya: Its deeper than rap. I remember our first question to him was like, what can you tell us about written language? Here's what he said.

Dr. Robert Wiley: There's a lot going on. So there's a there's a lot to unpack. And one of the things that I always have to think about when, you know, when people want to talk about things like this is you have to think kind of about the level of analysis that you're interested in. You know, even if you just want to talk about the brain. So what are the neural substrates that support reading and writing? It really depends. Like, well, what do you mean when you mean writing? Do you mean the actual process of using your hand to produce letters on a page? Or do you mean spelling? Which for psychologists we usually actually mean spelling. Right. So spelling traditionally, you know, you do that by writing by hand. But now most of us are doing it by typing. And we also have oral spelling. Right. Which we still do when some says, how do you spell your name? I have to do this all the time. Right. I say w-i-l-e-y. So those are we talk about the modality of these things. And what's so cool about written language is that it actually has representations in all these different modalities.

Zakiya: That's it for lab 030. But we have so much more for you to dig into on our Web site. Go to dopelabspodcast.com.

Titi: On our Web site, you can find a cheat sheet for today's episode, along with a ton of other links and resources in our show notes.

Zakiya: And if you want to stay in the know with dope labs, don't forget to sign up for our newsletter to your basically will become our virtual pen pal.

Titi: Special thanks to our guest expert, Dr. Robert Wiley. Visit his blog at writingbrain.blog. You can find out more about his work in our show notes.

Zakiya: Also, we love hearing from you. What did you think about today's lab? Do you have ideas for Future Labs? Call us at 202-567-7028 and let us know!

Titi: you can find us on Twitter and Instagram at Dope Labs podcast.

Zakiya: Titi is on Twitter @Dr_Tsho..

Titi: And you can find Zakiya @zsaidso.

Zakiya: Follow us on Spotify or wherever else you listen to podcasts.

Titi: Dope Labs is produced by Jenny Radelet Mast of Wave Runner Studios.

Zakiya: Mixing a Sound Design by Hannis Brown.

Titi: Our theme music is by Taka Yasuzawa and Alex Sugiura with additional music by Elijah 'LX' Harvey. Dope Labs is a production of Spotify and MegaOhm Media Group.

Zakiya: And it's executive produced by US.

Titi: Titi Shodiya.

Zakiya: And Zakiya Whatley.

Zakiya: You know, something that I realize I haven't used in a while, but, you know, I message has that feature where when you turn the phone to the side, you can actually write with your finger.

Titi: Yes. Well, the thing is, is that it never knows what I'm writing. So I get these letters just to voluptuous.