

What Do We REALLY Know About Phonemic Awareness?

Reach All Readers Podcast #251

Anna: Thank you so much, Dr. Piasta and Dr. Phillips, for coming to talk to me about phonemic awareness and the research work that you're doing. Before we get into that, I'd love to know a little bit more about you and your history in education. So Dr. Phillips, can you talk to us about that a little bit?

Dr. Beth Phillips: Yes. First, thank you so much for having us. So I'm Dr. Beth Phillips. I am a professor of educational psychology. My current role is in the Department of Educational Psychology and Learning Systems at Florida State University, where I am also one of the associate directors of the Florida Center for Reading Research, also at FSU.

So I've been here on faculty in both of these roles since 2006. And before that I was a postdoctoral scholar also at FCRR. And actually, I'm one of those rare creatures who was hired at their own university because my graduate degree is also from FSU, but from the psychology department, where I have a degree in clinical psychology.

Before that, I started my educational journey as a preschool teacher for several years in Illinois and in Michigan in private preschool centers. So I guess you could say that I've been in this business of supporting young children's early learning and development for many, many years.

Anna: That's really cool. So the work that you're doing with phonemic awareness — you can think back to how that would apply to the students that you taught years ago.

Dr. Beth Phillips: Absolutely. And I think about them all the time.

Anna: And so Dr. Piasta, I know you've been on here before, and we've talked about it, so we'll just have you reintroduce yourself. But as a reminder for listeners, your mom was a kindergarten teacher, right? So even though you weren't a teacher, you were very aware of this space.

Dr. Shayne Piasta: She was a preschool teacher and director. That's kind of how I got into this work. I was a super nerdy kid — I have freely admitted this on various podcasts and other venues — but I liked to go with my mom, not only to her classroom, but also to her professional learning opportunities, and I became fascinated.

I was a psychology major as an undergraduate and also taking education courses, and I became fascinated by where there were similarities in what I was learning and what my mom was learning in her professional learning, and where there were differences. And so my career has really been around identifying evidence-based practices to support early literacy so that we can rely on the evidence, rather than kind of what seems to be in fashion at the moment.

So my degree is in developmental psychology from Florida State University, which is where I met Beth, at the Florida Center for Reading Research. And I'm currently a professor in the Department of Teaching and Learning here at the Ohio State University, and also a faculty associate at the Crane Center for Early Childhood Research and Policy, and I have a courtesy appointment within the Department of Psychology here at OSU.

Anna: Thank you very much. So I heard both of you speak at the Reading League about Project OPAL, which is — you'll get into it — but I understand, a longitudinal study about phonemic awareness, answering a lot of the questions that we still have. So we'll get into that, but before we do, could you remind us of the difference between phonological sensitivity and phonemic awareness?

Dr. Shayne Piasta: Sure. So both phonological sensitivity and phonemic awareness are under this larger umbrella of phonological awareness. Phonological awareness refers broadly to your ability to hear and manipulate different sound units in speech. Phonological sensitivity specifically refers to being able to hear and manipulate those larger sounds in speech, like the two words in a compound word, or syllables, or even onset and rime.

Whereas phonemic awareness is specific to being able to manipulate the smallest units of sound in words, or phonemes — the individual speech sounds.

Anna: So for many years, many of us thought that phonological awareness developed from these larger units to the smaller units — so phonological sensitivity to phonemic awareness. But you talked in your presentation about quasi-parallel development. Could you talk about what that means and what that has to do with phonological and phonemic awareness?

Dr. Beth Phillips: Yeah, absolutely. So in order to understand that term, one first has to grasp that it is true that, typically outside the context of instruction, children's natural development is indeed to learn how to manipulate those larger units of sound, like syllables, before smaller units of sound, like phonemes. My point there — that it's outside the context of instruction — is an important one.

So quasi-parallel development is a term that colleagues and I introduced in a paper two decades ago as a way to describe that natural development of phonological awareness is not a stage model.

In other words, children do not need to have fully mastered skill with those larger units before they can begin to develop capabilities with smaller units. Instead, these units are all developing as somewhat overlapping trajectories. The larger units might have a head start in natural development, but that does not at all preclude a child from being able to work also, and develop skill, with the smaller units at the same time.

Anna: Would you say that it's typical that kids kind of learn to work with the larger

units first?

Dr. Beth Phillips: In natural development, when you just assess sort of how a child is on their own before any instruction, it is typical that they're going to be better at manipulating the larger units than the smaller units, yes.

Anna: But the point that you're making is that we don't need to teach it in that order, that they can be learning both simultaneously. Would you say that?

Dr. Beth Phillips: Yes, we do not necessarily need to teach it in that naturally developing order.

Dr. Shayne Piasta: In fact, that's really what we're testing in Project OPAL.

Anna: Okay, awesome — I can't wait to get into that. Let's talk a little bit about rhyming, just because that's still something that people wrestle with. At one time we were told that was a pre-reading skill that you had to teach, or at least, I don't know if we were ever told that, but that's what was accepted among teachers. And then we would think, "Well, if they can't rhyme, we can't move on. We've got to get this down first."

And then it was more, "Well, rhyming is maybe more of an indicator that there could be a reading problem, but fixing the rhyming isn't going to fix the reading, so just move on." We're even hearing from some, "Don't teach rhyming at all, it's kind of a waste of your time."

So what does rhyming have to do with phonological sensitivity or phonemic awareness skills?

Dr. Beth Phillips: I'm so glad you asked this, because it is a source of a lot of controversy out there, and I think it's really important to unpack what rhyming really involves.

So when one considers how rhyming works, you have to recognize that to manipulate rhymes, you are actually manipulating the onset — the first part of a word before the vowel — and the rime, which is the vowel and everything after.

When you really think about it, words rhyme because they share a rime. So once you realize that, you can understand that rhyming is not at the beginning of the developmental natural continuum, as many think, but rather squarely in the middle of it, because for many rhyming tasks, it's actually an onset-rime skill, which is right in the middle of that natural developmental continuum.

So that being said, it turns out that many rhyming tasks — especially those like matching words that rhyme and asking children to generate new rhyming words — are not really very good indicators of a child's overall phonological awareness skill, and are not the best predictors, relative to other phonological awareness skills, of current or later reading skills.

So if I had to measure only one aspect of phonological awareness, I would definitely not pick rhyming.

Anna: Okay.

Dr. Beth Phillips: And if I had to teach only one aspect of phonological awareness, I would definitely not teach rhyming. It's fun, and the reason that it has garnered a lot of attention over time is that it can be a useful entry point for children to think about how to play with the sounds in words rather than focus on their meaning. But it turns out really to not be all that important.

Anna: Okay, so for teachers who say, "I've heard from some people who've told me that this is really not something I need to focus on, but my students enjoy rhyming poetry and rhyming books." Is there a usefulness to that? What usefulness is there?

Dr. Beth Phillips: The usefulness is in getting them to understand that there's a sound structure in words that is separate from the meaning of words. And if you can get children to pay attention to that, then it can be, as I said, that entry point into attending to that sound structure in words with other units. And so if teachers think about it as that gateway, then that can be the utility. But as a goal in and of itself, it's probably not all that useful.

And let's not minimize the fact that there's nothing wrong with the idea of just playing with rhyming for the fun of it. There's nothing wrong with letting children just appreciate rhyming for the joy of appreciating language. We don't want to be telling teachers to exclude something that's beautiful about language because it won't exactly meet this one particular academic goal, as long as they understand that it's not going to be sufficient for meeting that goal.

Anna: So would you say preschool teachers or kindergarten teachers should be trying to teach their students to rhyme, or should they just enjoy rhymes?

Dr. Beth Phillips: I personally think that if they have limited instructional time, they should just be enjoying rhyme and focusing their instructional time on other aspects of phonological awareness.

Anna: So enjoy rhymes, but save your instructional targets for what counts, in other words?

Dr. Beth Phillips: Probably, if you have very limited time. But I think the reality is the jury is really kind of out on all of this, because we have relatively limited research that pits a lot of the studies head-to-head. And so I don't want to make such a definitive statement that completely throws rhyming out as a useful instructional target before high-quality studies are done that are more definitive on this question.

Anna: I'll go over to Dr. Piasta in just a second, but I appreciate that. I appreciate that in your presentation too, because so often we just want the right answer. What is the

answer, yes or no? And in your presentation, you were very clear that there are so many nuances, and that, you know, we have this study, but there were limitations to this study, and I think nobody wants to hear that. Everybody wants to hear this or that answer. But I appreciate that you help us understand that there's not always a clear-cut answer. Dr. Piasta, what were you going to say?

Dr. Shayne Piasta: I wanted to add — not only to echo what Dr. Phillips was discussing about maybe rhyming not being your primary learning target — but also, teachers are often being guided by state or other types of early learning and development standards. And a lot of those standards do still have rhyming as a targeted goal. So again, it's not that we should not do rhyming, but as Dr. Phillips said, perhaps we teach it partly to meet the learning standards we're obligated to and because it's fun and a useful entry point into this idea of playing with sounds in language, but again, thinking more about other prioritized targets of early phonological awareness instruction.

Anna: And sometimes the teachers just being aware of what's going to give them the biggest bang for their buck adjusts how they approach it, right? So there's less stress around the rhyming, and more thinking about where we should really be spending most of our time.

Dr. Beth Phillips: I think that one of the reasons it's important to talk about this is that, in my experience, teachers are often surprised by how hard rhyming is as a skill for children. Because as teachers, they're often led to believe that rhyming is a very easy or early-acquired thing for children. And then when they ask children to do quite difficult things, like producing rhyming words, the teachers are flummoxed by the fact that it's actually quite challenging for the children. And so the teachers think that they're doing something wrong, when in reality, it's just that this is hard for quite young children — it's not a very early-developing thing. And so just having teachers understand that — no, that's okay, it's not as easy as you've been led to believe — I think is an important reconfiguration of their thinking.

Anna: That was also another takeaway for me from your presentation, because I hadn't really thought about that before. I always thought of rhyming as being at the beginning, but the way you showed it, it's really more in the middle. That makes a lot of sense, and helps us understand why some kids might be struggling with that and not to get too worked up about it, right?

So I want to talk about phonological sensitivity, because we're hearing different things. Some experts will say, "Just throw it out, get right to the phoneme, even in preschool." Is there usefulness for teaching those? We've kind of said that just to have fun with rhyming — but what about syllable counting and things like that? We do know that at some point they have to be able to break words into syllables. What place do those skills have in preschool or kindergarten?

Dr. Shayne Piasta: So the honest answer to that question is, we don't know yet. We know that kids follow these typical developmental trajectories from larger units and less complex manipulations through smaller units, eventually getting to phonemic

awareness. But the research on teaching phonological sensitivity specifically is really not that deep.

So we have decades of research not only indicating that phonemic awareness is predictive of later reading success and difficulties, but that it is causally related. From experimental research, we know that if we intervene and improve phonemic awareness skills, we will have better literacy outcomes for students.

When we look at the literature, it is largely focused either specifically on phonemic awareness or broadly on phonological awareness. So there are very few studies that have specifically focused only on phonological sensitivity, and especially few that can provide any causal evidence as to whether teaching it will result in better literacy outcomes for kids.

I believe when we were writing the grant for Project OPAL, we found only three or so studies that directly looked at whether teaching phonological sensitivity would lead to better outcomes. And a lot of the evidence around this too is coming from meta-analyses, which are great, and a really helpful way of going from a larger body of research to answering questions.

But also, a lot of the meta-analyses were not looking at phonological sensitivity in a causal way. They were looking at whether interventions included phonological sensitivity — that was a comparison across different studies in most cases, not a study that taught phonological sensitivity and looked at outcomes relative to a control later on, and not necessarily studies that had a condition where we were teaching phonological sensitivity compared to teaching of phonemic awareness.

So as part of our work, we have a team of doctoral students right now who are working on a restricted systematic review specifically looking at evidence-based practices — it could be phonological sensitivity, it could be other elements — to really get the scope of the research we have for causal evidence for specific phonological awareness instruction practices. And so far they've only identified eight studies that will move forward for their review. So this is really an area we don't have a definitive answer to.

Dr. Beth Phillips: And I would add to that and say that part of the reason there's a muddle on this is that it gets back to the conversation we were just having about rhyming, which is that because we know that rhyming may not be all that powerful, a number of these studies — both those included in those meta-analyses and the studies that Shayne was just referencing — include rhyming activities with other phonological sensitivity activities. And so some of these studies on phonological sensitivity, these larger units than phonemes, are likely diluting their impact by embedding rhyming. And so studies that may have been more effective are likely being shown to be less effective because they allocated some of their instructional time to rhyming.

Anna: Oh, interesting. When you go through all this, and I think about all the different studies and all the different things you have to look at, it's kind of hard for me to

believe we have any evidence at all, because it seems like it would just take so long to really come to a consensus, because of all the studies that have to be done, and they have to be so high quality. Am I right on that?

Dr. Beth Phillips: I mean, yes and no. What it takes is a couple of really well-done studies that are carefully controlled, that are asking the questions in the right way — that are cutting through the noise. And so that is certainly one of the things that we're trying to do with Project OPAL, as we'll get to. Certainly our one study will not be a definitive answer, but we're hoping it will be a step in the right direction.

Anna: So this gets to all the controversy in the science of reading space. We know the science of reading is a body of research, but we often talk about it as this movement, this area of conversation. And for people who are teachers, and people who just really want to start to understand the research and apply it, it can be very overwhelming to hear all the debates among experts about phonemic awareness. And it can be, frankly, a little disheartening too, because we think, "Oh, I think I heard this from one person, now this other person's saying that. How do I know who to trust?"

It can be really difficult, and I think phonemic awareness is one of the hottest topics, and has been for quite a few years. So I would just love to know from the two of you, what we do or don't know from research related to phonemic awareness — kind of a summary of what we feel there's a consensus on, or where we still have questions.

Dr. Shayne Piasta: So in summary, we know that phonemic awareness is causally related to later literacy outcomes, and we know that phonological sensitivity is also related to many of those outcomes, albeit to a lesser extent. It's a less strong association than for phonemic awareness. But we really don't have a lot of causal evidence surrounding the phonological sensitivity piece.

Dr. Beth Phillips: So one of the complicating factors about stepping away from the instructional perspective to more of an assessment perspective is: when you just look at that whole phonological awareness umbrella, and you assess children, and you look at how all of these assessed tasks at all these different levels — both at the phoneme level and at the larger unit level — associate with each other, it turns out that they all seem to be measuring one core underlying skill.

What that indicates to us is that even though there is indeed some indication that phonemic awareness may have a stronger association with later reading skill, it is still at heart an indicator of the same underlying, abstract thing. So they're not fundamentally different skill sets — they are indeed representing a continuum of skill that is just increasingly refined as you get smaller and smaller in unit.

And of course, it's no surprise that the smaller unit size would be more closely associated with reading, because it is, of course, the smallest unit size that is being applied when you are attaching it to letters and using it to spell or write or read.

Dr. Shayne Piasta: So when we start thinking about instruction and how to best

provide it, I think an important distinction to start with is the idea of research-tested versus research-based, and the evidence that provides. Research-tested means that an actual practice has been examined in a causally interpretable study and shown to be effective relative to other practice. Research-based is much more broad, in the sense that if something is research-based, it is designed in a way that aligns with what we know from research, but the practice or instructional method or intervention itself has not necessarily been tested in an experimental or other causal study.

So when we think about what we do know from the literature and the research about phonological awareness instruction, it's key to keep that in mind, because we have much more that's research-based. But what I think Dr. Phillips and I are most interested in focusing on are the things that are research-tested.

Anna: Sometimes it feels like people talk about things that are research-based as if they're research-tested, and they're really not.

Dr. Shayne Piasta: Absolutely. And we also like to say evidence-based — I think people might have heard that more, but I like research-tested; it's clearer as to what we're talking about.

Anna: And the fact is, we're not going to be able to test every single thing that we want to use in our classroom through research, right? So sometimes the best we can do is just base it on the broad body of research that phonemic awareness is important for reading, and so we can try different ways to teach it.

Dr. Beth Phillips: That being said, if you have the choice between an intervention that has been research-tested and one that has only evidence of being research-based, it would be ideally better to choose the one with the stronger base of evidence.

Anna: Yes, agreed.

Dr. Shayne Piasta: So Beth, do you want to start talking about some of the practices that we've identified from available research?

Dr. Beth Phillips: Sure. So as we were building the evidence base for developing the intervention for Project OPAL, and just getting our own grip on the landscape, to sort of separate what we knew about research-tested versus research-based practices, we went through a lot of different practices.

I can start by talking about things like using manipulatives and using letters inside phonological awareness and phonemic awareness practice, and this is another area of active controversy right now. What I will say is that this is another place where there's not enough evidence for really strong, definitive statements — although there are a lot of strong, definitive statements out there.

There are some meta-analyses out there saying there is no difference on many outcomes with or without letters. There are some meta-analyses also saying that for

certain outcomes there may be a difference that advantages the inclusion of letters, but not on others. The jury remains out, because we need more direct head-to-head studies as opposed to these meta-analyses, which are, in some ways, trying to draw causal conclusions from somewhat correlational evidence.

My hypothesis is that the answer is not going to be clear-cut. The answer is likely to be much more nuanced, as these things often are. The benefit of including letters exclusively versus including some oral-only PA activities is going to depend on how old the child is, how strong their phonological awareness ability is when they start this instruction, and how much letter knowledge they have coming into the instruction. In other words, the individual differences that the child brings to the table.

And so I think we make mistakes when we assume that there's going to be a one-size-fits-all answer to these decisions. I worry when I hear people making universal pronouncements without enough data, but also without recognizing that the answers are likely to be much more developmental, and differ across age and grade levels, and differ across individual children.

Now, the data may ultimately prove me wrong about that, but my working assumption is that as we get better and better data on this, the ultimate answers will likely be more nuanced than a lot of the pronouncements out there right now.

Anna: Dr. Piasta, do you have anything to add there?

Dr. Shayne Piasta: As we continue this systematic review that we're doing, I'm really interested to see if there are any studies that have head-to-head compared using manipulatives versus not — never mind the letter question. But to date, we haven't even run across studies that have specifically made that head-to-head comparison.

Then Beth, I think you have some more practices that we looked at.

Dr. Beth Phillips: Yeah, it's a slightly clearer picture on sound boxes, like Elkonin boxes. There does seem to be some evidence that suggests those are effective, although I would say we need more evidence for this. I don't know if we can say definitively that word boxes are for sure more effective than any other practice — we just know for sure that they're more effective than some other practices. So again, there hasn't been a head-to-head comparison with an exhaustive list of other practices, but just some others. But certainly for phoneme-level instruction, I would put sound boxes on the list of practices that are certainly in the recommended list, and something that we do actually include in Project OPAL.

But there are other things that are often included in phonological awareness and phonemic awareness instruction that we don't have a lot of good evidence for in terms of the head-to-head comparisons of with, without, and against certain other approaches. But we often do them just because they seem to make logical sense, or there's a strong rationale for them.

For example, using images of the words you're working with is a very frequent practice because it helps to reduce the memory load for the children. So we don't know for sure that it's better, but it's something that makes sense — we need to test it more rigorously and do those direct head-to-head comparisons. It makes sense, but is there really a clear advantage to it? We haven't done those really clean, horse-race comparisons of the exact same activities with and without the images, to really know for sure how much of a competitive advantage it's giving us, because we just haven't done the studies at that fine-grained level.

Dr. Shayne Piasta: So there's also ambiguity around other aspects of phonological awareness instruction, including what tasks or manipulations we want to be teaching, and, as we alluded to before, what units are taught. So right now, in terms of the tasks — are we asking kids to blend sounds together? Are we asking kids to split combinations of sounds apart? Are we asking kids to do something more complex, like substituting the onset to generate more rhymes? The meta-analyses to date have really found kind of conflicting information about this — and again, these are between-study comparisons, so this should be considered research-based.

So some have found that teaching fewer skills — one or two, maybe blending and substitution or something like that — has been more effective than teaching multiple different tasks or skills. But others have failed to replicate this finding. Other meta-analyses have also looked at the specific task or skill — blending and segmenting versus identity, or isolation, or deletion — and those findings have also been a little bit all over the place.

So we have some studies showing that there's no difference based on which task is taught on outcomes — Marion Rice's recent meta-analysis, as well as the National Early Literacy Panel back in 2008 — and then we have some other studies suggesting that maybe blending and segmenting are the key skills we should be teaching. But again, I think the jury is still pretty much out on this, as it's not been directly causally tested.

And it's a similar story when we think about the units to teach. Some meta-analyses have shown that teaching phonological sensitivity versus teaching phonemic awareness — like we talked about before — some have shown that there is no difference on outcomes depending on which is taught, or whether both are taught, and that actually includes the National Early Literacy Panel.

Anna: What outcome are they measuring?

Dr. Shayne Piasta: Many are measuring phonological awareness outcomes, and others are following kids to measure more conventional reading and spelling outcomes.

And then we have at least one study by Hatcher and colleagues, back in 2004 — so you can see how long we've been trying to figure out answers to these questions. They found that teaching rhyming, with or without phonemic awareness, didn't lead to any advantage once we got to conventional literacy outcomes.

But again, this gets at the heart of what we're doing in Project OPAL, which is really setting up a study to understand the effects of teaching phonological sensitivity, and the effects of teaching phonemic awareness, to guide our decision-making as we strive to be as effective and efficient as possible in the instruction and intervention we provide.

Anna: So what is your advice to the discerning teacher who is hearing multiple voices? We do hear from some people who say, "Never do PA without letters," and then others who will say, "Well, it's more nuanced than that." There are very strong voices from all different sides, and if a teacher gets in a Facebook group, they'll hear quotes from different people, from different experts. It can just feel, like I said, it can feel disheartening. What would you say to a teacher like that?

Dr. Shayne Piasta: So with respect to that issue: the evidence we have of causal associations between phonemic awareness and later outcomes, and the correlational or predictive data we have on that — many of those studies were not necessarily using letters in the assessments or intervention that were then predicting those outcomes.

So from my perspective, there's this blurry line as to when phonological awareness really turns into phonics instruction and connecting it to letters. Again, we don't have great evidence about this at the moment, but I do think it's important for students to be able to do phonological awareness tasks without necessarily having letters in front of them. Otherwise, we don't need to teach phonological awareness, we just need to teach phonics.

That being said, I don't think there's any harm in introducing letters once kids get the gist of what they're doing with the sound units. As a manipulative, it may be helpful in terms of reducing cognitive load.

So again, we all wish we had better evidence. Research takes longer to do than how quickly we want answers to things. But I don't want teachers to feel like they're doing something wrong when we don't have super strong evidence one way or another.

Anna: One thing I hear a lot about is that we need to really be thinking about the time. You talked about that too a little bit, Dr. Phillips, earlier. When you think about the limited time that you have, you need to maybe evaluate whether 10 minutes of oral-only PA is really the best use of your time. Do you have any thoughts on that?

Dr. Beth Phillips: I have a tendency to think about these things from a very developmental perspective. So my answer to these questions is going to really differ depending on whether I'm talking to a kindergarten teacher versus a preschool teacher. Does the data explicitly support me in that? No. But what I do know is that the other factor we have to be bringing in here all the time is children's motivation, children's sense of mastery, not wanting them to feel eminently frustrated so early on in their reading journey. And we don't ever want to forget that for many, many children, these things are hard — and for a certain percentage of children, they're

really hard.

So my sense, especially for the youngest children... Remember, there are a lot of preschool kids out there who don't know any letters yet, or know very, very few. So when you're talking about bringing in letters, there's often an assumption that they know those letters, and with many young pre-K kids, that's not a reasonable assumption. But with kindergarten, that's often a different story.

So sure, if time is very limited in kindergarten, and you feel like your time would be better spent just spending 10 more minutes on phonics and maybe not doing the oral PA instruction, yeah, I'd probably be okay with that. At the very beginning of pre-K, when kids' letter knowledge is very suspect and they're just being exposed to this for the very first time, my best-practices answer, in the absence of definitive evidence, is going to be different. Again, I don't think it's a one-size-fits-all answer.

In the absence of really clear-cut evidence, because we don't have the strongest head-to-head data on what is exactly right for a 48-month-old versus a 60-month-old versus a 65-month-old, with these kinds of beginning baseline skills, this level of letter knowledge, this level of initial and natural PA ability... We don't yet have all the ducks lined up to answer these questions in the really nuanced way that we need.

So my evidence-based advice would be to take development, and all those other things into consideration, and have a different answer for a kindergarten teacher than for a pre-K teacher.

Dr. Shayne Piasta: Dosage and duration is something where we do have some research-based evidence, with respect to how much phonological awareness instruction and how much time we should be devoting to that. And I think another key point of this is that most of the research is using targeted, but very brief and frequent, opportunities to teach phonological awareness. And again, there haven't been head-to-head studies in terms of overall dosage or duration.

But we do have a couple of meta-analyses, including a very recent one published within the past few years by Orbeli and colleagues, where what they found was that the optimal cumulative dosage — and this is not necessarily for kids who are really having difficulties with this — was around 10.2 hours total. And that fits with what the National Reading Panel had found. Although again, there's another meta-analysis that found no association between dosage and outcomes.

But I think it's important to realize no one's expecting an hour-long phonological awareness lesson. These are ten to fifteen minutes, quick and brief, and we should keep that ten-hour mark in mind.

Dr. Beth Phillips: So I do think that some of the pronouncements coming out about "it's too much, you're going overboard" are in reaction to what may indeed be happening in some schools, especially in kindergarten and first grade and older grades, where perhaps there is too much PA going on. Perhaps there is a vast

exceeding of that roughly 10-hour cumulative total mark being hit, and time could definitely be better spent on reading instruction.

Our concern is that we just don't want to so grossly over-correct that it all gets thrown out. And we forget that perhaps a little bit of it, targeted at the right kids in the right developmental moments much earlier, would still be potentially a good idea.

So we are certainly not sitting here saying that the people who are saying "enough already" don't have a point. There's a balance and there's a nuance to everything.

Anna: Well, in one way it over-corrected, because some of us... I didn't even know what phonemic awareness was when I was a teacher, so I wasn't explicitly teaching it. So we may have over-corrected, but now we don't want to over-correct the other way and say, "Hang on a second, you don't even need to worry about it."

So a lot of our conversation has been about how there really isn't a lot of research on particular things, and you are working to resolve that in one way with your large Project OPAL study. Can you talk to us about that, how it's working, and what you're hoping to learn from it?

Dr. Shayne Piasta: Sure, we're really excited about this project, as you can probably tell. In some part, it actually developed as a reaction to some of these strong stances being taken about phonological awareness instruction, which in our opinion did not have enough evidence to back them up.

So our big question with this study is: should we be teaching phonological sensitivity in addition to phonemic awareness, or should we jump straight to teaching phonemic awareness? And we're specifically focused on pre-kindergarten-age children — so late preschool — as well as kindergarten children, because based on theory and other research, we think there might be developmental differences there. Another question we have is: is the answer the same for both pre-kindergartners and kindergartners?

And we can also start looking at what Dr. Phillips mentioned before, in terms of what children are bringing to the learning task before switching to phonemic awareness instruction. Should they have a certain amount of phonological awareness skill already? What other factors, like letter knowledge and sound knowledge, might determine when we should move into phonemic awareness instruction?

And ultimately — it won't be causal research, but correlational — we're wondering if we can actually identify a transition point at which, if phonological sensitivity instruction is helpful for these young children, we should think about switching over to phonemic awareness, given that phonemic awareness is what we have the most evidence as being causally related to, and predictive of, later literacy success.

Dr. Beth Phillips: So the way we're doing this is with a very tightly controlled four-group design, with children being randomly assigned to one of four conditions. We're doing this in exact parallel in both pre-kindergarten and kindergarten, so we

can evaluate these comparisons equally and compare the impacts in both those grades to see if grade level and age make a difference.

So the first group is the business-as-usual control group, which just stays with their regular Tier 1 baseline instruction. The second group gets 12 weeks of instruction exclusively at the phonemic awareness level — a full 12 weeks of phonemic awareness instruction. The third group also gets 12 weeks of instruction, but this group gets six weeks of larger-unit instruction, and then six weeks of phonemic-level instruction. And then the fourth group gets nothing for six weeks, and then only six weeks of phonemic-level instruction, identical to the third group's instruction.

So we can see, in that way, whether the initial six weeks that the third group got of larger-unit instruction was in some way priming that group to take better advantage of the phonemic awareness instruction they got. And then, for all three active groups, the last three weeks of their phonemic-level instruction embeds letters. So we're not testing the value of the letters, but we are including embedding letters in that last three weeks of instruction. We made the decision not to overcomplicate the design by also testing the letters question, but we are indeed including letters in the last three weeks of instruction.

So for all three active groups, we are taking advantage of some of the research-tested and research-based instructional principles that we've been talking about this whole hour. There are pictures, there are gestures, there are, as I mentioned before, the sound boxes for the phonemic-level activities, and all the instruction is highly explicit, following the "I do, we do, you do" gradual-release model at every activity.

All the activities are very carefully developed around a tightly controlled set of phonemes that the children are exposed to. We deliberately included a set of stop sounds and continuant sounds, and so on, to be really thoughtful about what we're exposing the children to. The children exposed to the larger units are also exposed to words that include those sounds, and it's obviously more challenging to do that with larger units — but to the best we could, we mirrored the phoneme exposure in the larger-unit exposure, especially when we were doing onset-rime instruction as a larger unit.

So as much as possible, the instruction is matched on what phonological sound structures the children are working with. We tried to control all of these features as tightly as possible.

And it's small-group instruction, in groups of two and three children, with interventionists who work for us, so that we are controlling their training and very tightly coaching them, with all of their scaffolding and guidance instruction being controlled by myself and the lead developer of the intervention, who has decades of coaching and professional development experience.

Dr. Shayne Piasta: And one of the things that I think is really key to this study is that we are following these kids longitudinally. So, taking from our developmental

psychology backgrounds, we are following them so that when the kids enroll, they'll either enroll as pre-kindergartners or as kindergartners. They'll be randomly assigned, picked out of a hat to see who gets what condition, so that it's equitable, and that also helps with the quality of our findings and how confident we can be in them.

And then they go through the year in one of those four groups — either an active group receiving instruction, or the control group. But after that, if they were in kindergarten during that intervention year, we'll follow them for at least a year as they matriculate mostly into first grade. And if they were pre-kindergartners, we'll follow them for at least two years, so that they're also matriculating into first grade for the most part by the end of data collection.

This is important because, yes, phonological awareness is important, and that's one of our outcomes, but in this type of work, what's really critical is whether it's translating to better outcomes on early reading and spelling. So the longitudinal results from this project, I think, will be some of the most compelling evidence we're able to produce.

Anna: So what will you use to measure their reading and spelling ability?

Dr. Shayne Piasta: We have a bunch of different measures. In addition to our phonological sensitivity and phonemic awareness measures, we're administering an experimental task of CVC word spelling. We decided to go with this, and it has a scoring system that goes along with the developmental nature of early writing, so they'll be completing that not only at immediate post-tests but at those longitudinal follow-up points too. We'll be administering the TOWRE, the Test of Word Reading Efficiency, so being able to read lists of words and pseudo-words that gradually increase in complexity. In addition to that, we're also using some standardized assessments, mainly the Woodcock-Johnson Tests of Achievement, using their subtests for spelling, word attack, and word reading.

We have to recognize that, even in first grade, these kiddos are going to be at the early stages of their reading, spelling, and writing development, but at least this gives us an initial indicator of whether there are differences on those critically important outcomes.

Anna: So I don't think we mentioned what OPAL stands for — can you remind me?

Dr. Beth Phillips: It stands for Optimizing Phonological Awareness Learning.

Anna: Okay. And when does this get started?

Dr. Beth Phillips: Oh, it's already started — it's actually completed with year one.

Anna: Oh, you have?

Dr. Beth Phillips: We're just wrapping up post-testing of the first cohort. We had a

very, very successful first year with our first set of children, and we've completed intervention with all of the first cohort. We've finished post-testing here in Florida, and Dr. Piasta is finishing post-testing.

Dr. Shayne Piasta: We have two kiddos left.

Dr. Beth Phillips: Basically this week they'll be done post-testing up there, and we're in the final recruiting stages for our cohort two schools, in both locations, for next year. So we are rocking and rolling in the middle of the study.

Anna: Wow. So do you wait to publish something like this until they've all matriculated into the later grade?

Dr. Beth Phillips: Yes, because the statistical analyses require the full sample. So we have to be patient and wait until all three cohorts have completed their baseline year. The beauty of a study like this is that we have research questions for immediate outcomes, and then follow-up outcomes, so we don't have to wait until the follow-up outcomes are complete before we can look at the immediate outcomes.

Anna: Well, we'll have to have you back in a couple of years to talk about all the things you learned.

Thank you so much for sharing this with me and my listeners — what we know for sure, or would like to think we know for sure, about phonemic awareness, and where we're headed, and what else we'd like to learn. Thanks for all the work that you're doing to advance our body of knowledge.

Dr. Beth Phillips: Thank you. Thank you so much for having us.