



Glean Education's Research to Practice Podcast Episode #14 - Katharine Pace Miles (Brooklyn College, City University of New York)

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Jessica Hamman: I'm Jessica Hamman, founder of Glean Education. And today I'm very excited to be talking to Katharine Pace Miles, assistant professor in early childhood education at Brooklyn College City University of New York. Her research focuses on many different areas of literacy instruction, including orthographic facilitation, sight word learning, assessment, and developmentally appropriate, highly engaging explicit literacy instruction for emerging readers. Katharine Pace Miles also works closely with the New York city's Department of Education to support literacy initiatives and research that impact the city's most vulnerable students. Today, we'll be chatting with Katharine Pace Miles about her extensive work in the area of literacy instruction and intervention. Katharine Pace Miles, welcome to the podcast.

Katharine Pace Miles: Thanks for having me, Jessica.

Jessica Hamman: The areas of research that you've been focusing on have a common thread in terms of building practitioner understanding of so many of the elements that contribute to successful reading acquisition and literacy instruction. So can you tell us a little bit about how



your interest in these areas of literacy kind of got started and how it informs your understanding of what teachers need to know about teaching literacy?

Katharine Pace Miles: Sure. So I started as a kindergarten teacher years ago and I was later a third grade teacher and then a learning specialist. And as a learning specialist, I would have these large caseloads of students who were struggling with the ability to read in the older grades. And it was there that this passion around, like how does the mind acquire the ability to read, that's where it came from. And during the time I stumbled really upon [Lane Aire's 00:03:45] research. And I was fortunate enough to reach out to her. I had been working on my master's in educational psychology, and I was very fortunate to receive a fellowship to work with Lane Aire the graduate center at the City University of New York. And that was a real transformative time for me from kind of walking out of the education realm and into the psychology realm that the experimental psychology realm and getting this training I needed in order to deeply understand how words are securely stored in memory.

Katharine Pace Miles: So through this training with Lane, I was able to take a deep dive into orthographic mapping and orthographic facilitation. Some of my early research involved orthographic facilitation around vocabulary learning. And I ran a study with adults. So English language learner adults, and more recently I have some work with colleagues out of the university of London, where we did a review of the research on orthographic facilitation. So that is very deeply an interest of mine having worked with Lane. But while I was working on my dissertation and my pilot study leading up my dissertation, I



went back to my education roots, my teaching roots. I have always been fascinated by this sight word reading phenomenon that goes on in schools. So typically in schools, there's a lot of flash carding going on in the early years, kindergarten, first grade, second grade, and it's called sight word reading.

Katharine Pace Miles: But in research we know that sight word reading is not flashcard reading. Sight word reading from a researcher standpoint is the process by which graph [inaudible 00:05:31] and phonies are analyzed in order to securely store words in memory. In the educator realm sight word reading is this idea of an instructional approach like flash carding. So in my dissertation with Lane Aire I looked at high frequency words. So words off of the Dolch and Fry list, and I ran an experiment where I looked at different types of words on those lists. So content words like the word house or crab versus function words. So those lists are full of function words and those words are context dependent. So they're conjunctions, prepositions, auxiliary verbs, irregular [inaudible 00:06:15] like the word with, of, kept, with, words like that. So I looked at different word type and how you would present them, whether in isolation or embedded in a sentence.

Katharine Pace Miles: I walked away with some really interesting insights into how you present words, what information about the words identity is acquired by a young student and what difference it might make if you are learning a content word versus a non-content word or a function word.



Jessica Hamman: And did you find that when sight words were presented within a context of content that they were more readily learned or more easily remembered?

Katharine Pace Miles: Yeah. So what I learned is that function words were much more difficult to learn how to read, to spell and to use. And this is really interesting because the kindergarten, I worked with 80 plus kindergartners for this study. And in the words that we were using in the function words on kindergarten wordless, those words are very simple. Or for adults, we would think that those are the shortest simplest words on the list. And yet they were the most difficult for these young students to read, spell, and use. And so there's something about these word that make them more difficult to secure in memory.

Jessica Hamman: I really appreciate the focus on that because I think it points to the importance of teacher background in terms of understanding of linguistics grammar and the structure of language and how you could see a common thread in terms of the difficulty of student sight words. And I was a reading teacher myself, and I knew that students continually struggled with like was, but I kind of thought it's because it's obviously irregular. But the consistent struggle with seemingly simple short, if irregular words actually has a linguistic embedded reason to it, which is pretty fascinating. And with that awareness, we're able to better support instruction because we can put it within a context of why a student may not be grasping them as quickly, because they're really not tied to any kind of meaning in any specific way. They're helping words.



Katharine Pace Miles: Exactly.

Jessica Hamman: [inaudible 00:08:49].

Katharine Pace Miles: And you could imagine too for a young student who's learning English, how even more complicated this situation is when they're presented with a list of words that are full of these context dependent words and yet they're being asked to read these words in isolation, which happens a lot actually in ESL classes, all with great intention. Teachers are trying to get these students, "Caught up." And they're thinking one of the best ways to do this is to quickly move through lists of words in an effort to store them in memory as quickly as possible.

Jessica Hamman: And what were your findings when you looked at the sight word list?

Katharine Pace Miles: So this was really interesting. So I looked at, I wound up combining the Dolch and Fry sight word list. And when I [inaudible 00:09:41] over those two list, it wound up being 419 words. I used the categories of regularly spelled words, temporarily irregularly spelled and permanently irregularly spelled. And that's just a mouthful to say that when you look at the common core standards or at [inaudible 00:09:59] graphing phoning chart or you



look at curriculum and what elements they're going to teach at each grade level. You can create these buckets for each grade around graphing phoning units that should be known by the end of the year. And when applied to words, those words are regularly spelled for students at that point in time. Temporarily irregularly, spelled words have a graphing phony unit that may not have been taught yet, but once a student learns it, they can apply that knowledge to multiple words in the English language.

Katharine Pace Miles: Vowel patterns, diagrams, all of that fall into this category. Then permanently regularly words really do have something wonky going on. They have some violation of what we would consider something that is common in the English language. It may be a spelling pattern that's idiosyncratic to that word. There may only be three other words that have that spelling pattern. It may have silent letters that aren't taught, like it's not a spelling pattern of silent letters that's taught in schools. So anyway, back to the high frequency word list. I looked at these 419 words that are considered high frequency words in the early years that are often taught in this flashcard sight word approach. What I found was that when I did the analysis, it was that 84% of the words were regularly spelled or temporarily irregularly spelled when I applied to kindergarten curriculum.

Katharine Pace Miles: That means that only 16% of these words are truly permanently irregular. As teachers say, I don't know what to do with these words, students just have to memorize them. And see that idea that teachers have is often because they think the majority of words on these word list have to be memorized because they're so difficult. It's so impossible to decode these words. These findings



show that in fact, these are highly decodable words, 84% can be decoded. And I [inaudible 00:12:08] with my colleague, Devin Kerns at the University of Yukon, and we did this where we looked at... I put forth a group of expert coders, and we coded these 419 words using kindergarten parameters and using first grade parameters. And Devin used a computer program to analyze these words. What we found is that our, what we came out with as how many of these words are decodable was very similar.

Katharine Pace Miles: So it's not that we were overly biased or that we didn't have enough training and linguistics to go about this, we were comparable. Devin was able to look as to how many graphing phoning units a teacher would need to teach in order to have these words be so decodable. So that part of the research is quite interesting.

Jessica Hamman: In terms of classroom to practice connection, this is relevant because teachers really need to know the underpinnings of all that students will learn in terms of the scope of literacy, the word little, which is actually introduced in kindergarten as a sight word on some Fry or Dolch lists is actually not in irregular word. It's actually a two syllable word that has two different syllable types, but it's taught as in irregular wacky word that you just need to learn. It's so tricky for children who need explicit instruction to just learn words that are not explicitly explained, but easier if you could say, "You need to learn this now, because you'll see it a lot. And down the road, I'm going to tell you why it behaves the way it does. Right now we're going to learn it like this and later on I'll explain it."



Jessica Hamman: So it just almost gives a context for when you're learning it, why you're learning it, and then when you're going to find out more about it so that you can decode it. Because I agree, I think many people don't realize that so much of our language is decodable. And then there's also the element that teachers get thrown off by that 16%. Because as teachers sitting in that room with 24 little faces facing us saying, "Well, why is that spelled with a K in the middle of it?" And frankly, sometimes we don't know. The answer may be because it's a dramatic route and it got borrowed and buried in our history of language. And we don't know the answer, but it's okay to say we don't know, and that we'll figure it out. And we'll see if it's regular or we'll see if it's a temporarily irregular or we'll see if it's one of those ones that was borrowed from a different language. And we don't know why it looks the way it does. And that's 16% is the one we just need to learn.

Katharine Pace Miles: That's right. And even in that 16%, the majority of the letters in those words can still be anchored to reliable graphing phonies.

Jessica Hamman: That's interesting.

Katharine Pace Miles: So even in was, or what, not some [inaudible 00:15:14] irregular it permanently irregular word, you can still ground it. And Lane Aire talks a lot about this anchoring of words, going back to orthographic mapping. You don't just want to throw that word into the permanently irregular pile and never discuss the letter sound relationships within the word. You should actually still analyze the letters and sounds in that word and highlight where the



violations occur. The word island is a perfect example there. There's so much that can anchor you to that word. And then you just have an asterisk in your mind on that silent S in the middle of the word.

Jessica Hamman: So does it call for maybe a critical eye to our high frequency word list and saying, "Why are we providing words like people and little that are so confounding, not only to adult spellers, but to little people who are learning the code for the first."

Katharine Pace Miles: This is a big part of my research and my outreach to teachers is around this. Like, why are we so obsessed with this when we could be spending all of that time, teaching, graphing phoning relationships that it's like teach a young child to fish, right? Teach that unit, and then they can apply it instead of trying to memorize the word people over and over again. I actually did an analysis with some colleagues on kindergartners who had gone through this flash carding of sight words approach. And we looked at whether foundational skills such as phonemic awareness language and whatnot, whether it predicted their ability to actually be successful in flash cardboard reading. And the long story short of this is that we found that students who were in the full alphabet phase were able to benefit from flashcard reading of high frequency words.

Katharine Pace Miles: Students in the partial alphabet phase were not that successful. But what we know is that flashcard word reading is being used a lot with kindergartners and first graders. And those are partial alphabet readers.



Jessica Hamman: So the implications of those for the classroom is make sure that your students alphabet knowledge and sound correspondences are set before stressing sight word knowledge.

Katharine Pace Miles: I question sight word training in its entirety. I mean, I really do this flash carding, just having worked with it. I think we might get more out of reading like once, [inaudible 00:17:54] you emphasize all those things you just said, and then once students have this and they've built up this orthographic memory of words, it's best to practice this in a contextualize setting in my opinion. Just because I know that parents have been asked to do flashcard drills with students for 10 to 20 minutes with young students that can wind up turning into 30 minutes. It's a lot of time.

Jessica Hamman: Well, and not to harp too much on the real specifics of this, but going back to your point that the hardest sight words to learn are the ones that are like the helping verbs and the linking verbs. As we said, those are the ones that don't have necessarily meaning attached to those isolated words. They have meaning with respect to the grammar of the sentence. So he was swinging. Was is only there because he was swinging, because the ING and the verb form. So it makes sense within a context, whereas was necessarily we may see it, but it doesn't attach and contribute to the fluency reading of the situation. Very interesting.

Katharine Pace Miles: That's exactly right. I wish I could give you some of the examples where I asked student to use the function words that I trained them on in isolation. I asked them to provide a sentence of



that word. They were wild. So my research has shown and a lot of Lane's work has shown that this is not the most effective way to do this, to help these students.

Jessica Hamman: And what is the most effective way?

Katharine Pace Miles: Well, what we know from years of research from the field of reading science is that having a strong foundation in phonemic awareness, having strong letter name, letter sound knowledge. And then when presented with words, analyzing graphing, phoning relationships in individual words and repeated exposure and practice those relationships is what has been demonstrated to be the most effective way to store words of memory.

Jessica Hamman: And this process is called orthographic mapping in the literature. I think it's something that's a little bit confusing to teachers if we're not embedded in research. And here's where we talk of the research to practice gaps sometimes. Can you us bridge that by breaking down the word orthography? I mean, let's just start with that and how we can better use that understanding to improve our instruction.

Katharine Pace Miles: Sure. So orthography, ortho means correct. And you can think of orthodontist like the correct way your teeth are positioned. Same thing goes with the spelling of a word. So ortho is the correct and grapho is graphing and we know graphing are letters. So the correct letter sequence of a word. So the word brain, B-R-A-I-N, it's



not B-R-A-N-E. Even though that sounds the same, that's not the correct string of letters for that word.

Jessica Hamman: And then orthographic mapping, just briefly break that down for us.

Katharine Pace Miles: Orthographic mapping is a cognitive process. I would think about it as the process of storing words in memory for later efficient retrieval by analyzing the letter to sound relationships in that word.

Jessica Hamman: So you have an article that kind of takes a different tack and actually researches a specific intervention that's being done in New York City schools. And the articles titled Reading Rescue: A Follow-up on Effectiveness of Intervention for Struggling Readers. Can you tell us a bit about the background behind this article and why you took this area of research on?

Katharine Pace Miles: Sure. So through my work on sight word reading, I became very deeply interested in this research to practice connection. I enjoyed doing more of the experimental psychology work, or even when I was able to conduct studies in schools, I was conducting them in the back of a classroom or in a room off to the side or in the hallway. And I wasn't really embedded or immersed into the instruction going on in the classroom. I found very interesting things about these sight word lists that they're much more regularly than otherwise considered. And that's information that I can give to teachers to use. Reading Rescue became of such interest to me,



because it was an opportunity for me to consider and research a program that is happening in schools in New York City five days a week. The individual who developed Reading Rescue, Dr. Nora Hoover, she was retiring and she was interested in having the program evaluated.

Katharine Pace Miles: And then they wanted the program to have continued academic oversight because they really want the program to be using the most recent research out of the field of reading science. So my first opportunity with Reading Rescue was to conduct some sort of evaluation of the program. And maybe I could tell you a little bit about what exactly the intervention entails.

Jessica Hamman: Yes, please.

Katharine Pace Miles: Okay. So Reading Rescue is a 30 minute one to one intervention. It's conducted five days a week, and it is for first graders who are at risk for reading failure. Right now it's provided to students in New York City. And all of the supports for this program are put forth by an organization called Literacy Trust. Literacy Trust conducts all of the professional development training for teachers on how to conduct the intervention in their schools. And they provide all of the support throughout the school year on evaluating the fidelity to the program, assessment support and anything these instructors would need. That's a really big part of this is the fact that this is not Reading Rescue people who are coming in to do the intervention. The program Reading Rescue, which is trained and supported by Literacy Trust, we train



individuals in schools, whether it's a certified teacher or a paraprofessional.

Katharine Pace Miles: And actually Dr. Hoover designed this to predominantly work with underutilized staff in schools. So paraprofessionals are an outstanding group of individuals who know the students and know the parents really well, and they have tremendous impact with these students, but they haven't been given some sort of skill around literacy instruction. So Nora said, "Why don't we give these individuals professional development on how to do this program?" And what she developed was an outstanding thing for both students and paraprofessionals to receive this training.

Jessica Hamman: Can you tell us a little bit about the aspects of the intervention in terms of kind of the points we were just talking about? We were talking about the things that teachers need to know, specifically with sight words. But if we're looking at the science of reading on a greater scale, how does this intervention align with those elements that we have come to know are commonly associated with what we call the science of reading?

Katharine Pace Miles: Sure. So what I loved about what Dr. Nora Hoover did is that she revamped key aspects of something we all know to do as teachers in the early years, which is guided reading. So she took a classic guided reading template and she incorporated what she knew at that time. She was at the University of Florida, which we know is a powerhouse of reading science. And along with her colleagues thought through how to embed reading science into a classic



guided reading, or more like a classic reading recovery format. So she incorporated Lane Aire's phase theory. She incorporated a much more instruction on letter names, letter sounds, phonemic awareness and phonetic elements. She wanted that to be a through line through this intervention. So there's a lot of fluency building, fluency reading. There is a specific section just for explicit systematic [inaudible 00:26:07] instruction during the intervention.

Katharine Pace Miles: And there's also a component of the lesson that comes right after that, which is writing instruction that also emphasizes the phonetic elements being learned during that session and it spirals back to previous sessions and practices those graphing phoning units. She married all of this with what we know around vocabulary learning, fluency practice and comprehension checks, and she kind of put it all together.

Jessica Hamman: And embedded in it importantly is also training for teachers who are teaching it that go along with this curriculum. So how in-depth is that training and what just basically do those teachers learn in that PD?

Katharine Pace Miles: Great. So the individuals who are going to conduct Reading Rescue in their schools, they're given eight days of professional development broken up over two years. And the professional development is grounded in the five pillars from the national reading panel. And you have to remember, these are individuals who oftentimes are not certified teachers, but what we also know is



often certified teachers don't know about the five pillars of literacy from national reading panel. So it's grounded in that. And we connect each component of the lesson, the five components of the lesson, we connect it back to the pillars. So in part one where the students are doing fluency practice, we connect that back to the five pillars and we talk.

Katharine Pace Miles: So there is this very practical aspect of the professional development where they're learning what exactly needs to be done during that part of the lesson. But there's this larger theoretical framework that we use in the Reading Rescue trainings to ensure that instructors walk away with a larger body of knowledge around the development of literacy in young children.

Jessica Hamman: What were your findings in this study?

Katharine Pace Miles: I was fortunate to investigate a cohort from 2016, 2017, but I'll actually go backwards a little bit because there were two really important evaluations of the program before mine came, and the two that came before mine were much more rigorous actually. So Dr. Hoover believed very strongly continued evaluation of her program. I just want to emphasize that because that's a big reason why I feel comfortable being associated with Reading Rescue. There's lots of other reading programs out there that whether they know they should or not just don't have an evidence based backing to them. They may be research based, but having an evidence base is actually quite difficult to acquire and takes years to build up this



body. So in 2004, an independent evaluation was conducted by the University of Indiana. They used a randomized control trial design.

Katharine Pace Miles: They found that students who receive Reading Rescue, performs significantly better in the [inaudible 00:29:07] and the effect size there was I think [inaudible 00:29:10] 0.3, 2, 3, 3, which is a moderate effect. But what's interesting to note is that the evaluators stated the control group students may have benefited from having teachers in that school to trained in Reading Rescue.

Jessica Hamman: Wow. That's interesting.

Katharine Pace Miles: Right. So which is kind of a beautiful thing to have happened. They did look at students by the end of the year and the Reading Rescue students made much greater gains when you look at scale points. I think at the end of the intervention they were 11 scale points higher than controls on the gates. But by the end of the school year, that gap had widened so that the Reading Rescue students were actually 22 or so points, scale points higher than students who received the controls. Lane Aire and her colleagues evaluated the program in 2007, they also used a randomized control trial design. But as happens in dealing with schools is their randomized control trial was compromised because the district assigned some of the students into a small group intervention that's commonly used and what Lane did and that she pivoted.



Katharine Pace Miles: And she said, "Okay, we still have enough students where we can evaluate randomly assign students from Reading Rescue into the business as usual control group. And we can look at students who receive Reading Rescue to students who receive the small group assigned intervention." So it actually, even though the random assignment [crosstalk 00:30:43] compromise of a became a much more interesting study, I think. She found that students who receive the Reading Rescue intervention performed significantly better than students who received this small group and the control. The effect sizes is what we're really interested in. The effect sizes in her study were around 0.7.

Jessica Hamman: [inaudible 00:31:04] great.

Katharine Pace Miles: So that's getting us into the large effect size world of [inaudible 00:31:11] and Reading Rescue students reached average levels of reading. So they reached benchmark, whereas the small group students and the control group students did not. I know I'm rambling about the findings, but this one is so important and maybe I should have even led with this one. They looked under the hood of the individuals who were providing the intervention, paraprofessionals tutored as effectively as reading specialists. The only thing they didn't do as well was non-word decoding and overall, they just needed more our sessions.

Jessica Hamman: [inaudible 00:31:45] amazing.



Katharine Pace Miles: One thing that Reading Rescue has done based on that finding is we've really beefed up the supports that we give instructors around decoding words, not just non-word decoding, just on supports for how to decode words. And this goes back to graphing phoning correspondence training.

Jessica Hamman: It points to one really interesting thing that I was going to ask which is, do these elements of research inform any kind of tweaks or pivots or changes on the part of Reading Rescue because they have such a strong research to practice connection. And do you answer that in terms of the training, are there any other ways?

Katharine Pace Miles: Definitely. That's a great question because actually in the evaluation that I did that was published in 2018, we found again, these incredible pre to post foundational skill findings, we compared our effect sizes to what Lane had the effects were there. We did this to see if the program was effective 11 years later. And after lots of change, Dr. Hoover being on the brink of retirement and then retiring, does that change the way the program is conducted? So what we found it's demonstrated to be equally as effective, but what we followed up on were the assessments that were being used. So from Lane's study, Reading Rescue recognized that they needed to provide more explicit support for instructors on how to teach graphing phone and correspondences. And I've worked with the program on how to make that a more robust part of their curriculum. And from my evaluation, what we found was that we needed to pivot on assessments.



Katharine Pace Miles: We needed more assessments that were valid and reliable so that we can conduct evaluations on the program every year, not just every 11 years, when you have to go through rigorous research, like getting outside evaluators to come in. So that was a huge pivot. So Reading Rescue did just that. And we also had findings where we looked at student tutor and school variables and how those variables predicted success in the program. And based on those, I've also made recommendations to the program about certain schools need more support than other schools. So the number of site visits that you do, you may be able to differentiate it based on the number of years the school has had the intervention or percent of students who receive freedom reduced launch at that school and other variables like that, like how large the school is. So Literacy Trust who supports the schools was very appreciative of these recommendations and they're following up on them.

Jessica Hamman: I bet it improves their practice considerably. And so what classroom implications are there from the work that you did on the study?

Katharine Pace Miles: So my interest right now coming out of this work is on how schools can consider the spine of their curriculum. And the spine of their curriculum in my opinion and I know the opinion of other individuals who research the acquisition of reading or the field of reading science is that that spine in the early years needs to be strengthened around phonemic awareness and phonics. And what I understand from schools, I work with a lot of schools here in New York City, and they've invested a lot of time around professional development and a ton of money on certain curriculum. And they may not be able or willing to get rid of what they have. And so what



I support those schools in doing is supplementing, but really the supplement isn't this outside supplement that I say attach on. I actually say, go into the middle of that curriculum and have a through line throughout your day, throughout your year and across the grade levels where this spine is this phonemic awareness and graphing phoning or phonetic element component.

Katharine Pace Miles: And that should be the driver through everything. So take guided reading, like Reading Rescue is the perfect example of this. Take your guided reading approach that all these teachers are trained in, take the workshop model that you're all trained in, but please go with this phonetic elements first approach and make sure that in those early years, that's what's driving through guided reading, morning meeting and all of the other approaches you use, share greeting. It can drive all of it.

Jessica Hamman: Because once those phonemic awareness and phonetic elements are solid, they act as a foundation to the rest of the work that guided reading can support fluency and vocabulary building and comprehension. But without those core elements, it won't be as solid.

Katharine Pace Miles: That's exactly right. And we have to acknowledge that in kindergarten and first grade, we have to spend more time on that foundation. If we don't, then we have third through fifth graders who are trying to build up a foundation while they need to read high level content for their grade level. I think we do a great



disservice by not building that foundation in kindergarten and first grade.

Jessica Hamman: I think it really points to an important barrier within the teaching field as well, that teachers may not be cognizant of the explicit element of what enabled them to start reading. And on top of that, they may have not received this training in their pre-service instruction as well. So where should a teacher find themselves in an inservice situation where they're currently teaching, they're becoming aware of the elements of the science of reading that are critical for supporting the students foundation. Where can they turn to gain support in learning more about this, so they can embed these critical elements into whatever curriculum the district is providing?

Katharine Pace Miles: Absolutely. Well, first they should bolster their knowledge of the linguistics of the English language. There are professional development programs out there. And there's also one off webinars that can do a tremendous amount of knowledge building for instructors. I want to give a shout out to Glean. You guys have some great webinars that they can use. [inaudible 00:38:23] has the letters curriculum that you can use. Now, we now have the Reading League which has links to many organizations that provide these webinars. Another is Spell Links. I get emails actually it's interesting you're asking me this because I get emails a lot because I think I'm a professor in New York city who teaches the development of literacy. I'm often asked if we have a literacy program and it breaks my heart, we don't. When teacher are trained in the grade level that I work in, early childhood, they receive one course my course on the development of literacy and that's it. So I often refer them to these



webinars because they often are better than some of the programs that are available in our country.

Jessica Hamman: Well, that is an interesting area of future exploration. I think it points to an area that has potentially room for improvement and just time spent on figuring out why that is and how we can improve those areas in terms of inservice and pre-service education and training of teachers in the area of literacy.

Katharine Pace Miles: Yeah. There's lots of great [inaudible 00:39:45]. There's researchers academics across the country who have evaluated teacher ed programs as you know, and have looked at the dearth of knowledge that pre-service teachers are being trained and around this science of reading.

Jessica Hamman: Which is really interesting, especially because early childhood is focus so much on literacy. So there is a disconnect there that I'd love to delve further into, so [crosstalk 00:40:09].

Katharine Pace Miles: Very much so. Yes. Yes.

Jessica Hamman: So tell me a little bit, and I think you kind of mentioned it and what you just spoke about, but are any future areas of research that you're focusing on and things that you're thinking about moving ahead.



Katharine Pace Miles: Yes. So again, really I've become very passionate about this alignment of practice to what we know about from the field of reading science. My sight word analysis, this 419 word sight word analysis I worked on with my colleague Devin Kerns, that led me to analyze word walls that are in classrooms. I say that they take up a tremendous amount of real estate in a classroom, and are we using them as effectively as we can be? So I've worked with another colleague, [Mary DelGrande 00:40:57] where working on a publication around the analysis of a set of word walls from around New York city and it's been fascinating.

Jessica Hamman: I can't wait to hear that actually, because one of the things we do in our training is asking teachers to shift practice from word walls to sound walls. It's a really hard strategy to ask someone to stop spending time on. And I know Mary DelGrande and her research is focused on this area. And she's amazing. So I'm glad you mentioned her too. We'll link to her work in the show notes as well.

Katharine Pace Miles: I'm so fortunate to work with her on this. I was interested in how these word walls were constructed in New York, in the New York classrooms that I'm in. I know [inaudible 00:41:39] work on sound walls. And then I was fortunate to connect with Mary who has really helped me think even deeper about how we could go about this. It's been great.

Jessica Hamman: So exciting. So I'll really look forward to reading that research.



Katharine Pace Miles: Another publication I'm working on right now goes back to this idea of the spine of your curriculum, which I had mentioned before and having that drive and be at the forefront of everything you do around literacy instruction. So I'm hoping that I could do that. And instead of working individually with schools, I'm hoping to put out something that school leaders could read around when I talk to schools about this and when they rethink what they have going already, how they could do this without doing some crazy overhaul, unless a crazy overhaul is needed. And really your assessments that need to drive this conversation. [inaudible 00:42:33].

Jessica Hamman: And I'm so glad you mentioned school leaders, because a lot of these discussions revolve around teacher training pre-service or inservice. But the truth is we need our school leaders to be just as aware if not more about what their teachers need to know, what type of curriculums they need to choose. They are critical. I've heard them the linchpin really for all the literacy instruction that goes on. And so often we leave them out of the discussion. So I love that you're bringing a focus and providing them with resources so they can learn more about how to better support their teachers and then their students. I know a lot of schools use technology to support their literacy instruction or intervention, and many are research based and incorporate the science of reading. I know that you've been working with a software that is supporting this type of research to practice bridge. So can you tell us a little bit more about the work you're doing in that capacity?



Katharine Pace Miles: Sure. So I've been working with a program called Amira and they are actually the first artificial intelligence reading tutor. And what this program does is they provide oral reading fluency practice for students from K to third grade. And when a student misreads a word, the avatar Amira is able to support the student in resolving this word error and practicing the word and doing what they call micro interventions. My work with the program has been on micro interventions in the early years when students need to do this mapping of letters to sounds. I've been the software and how as human tutors, we might pull out [inaudible 00:44:21] in boxes. As human tutors, we might clap [inaudible 00:44:24] syllables, et cetera. I've worked with the software on how to replicate what a human might do in this software. So it's this oral reading fluency practice support, but also has these micro interventions as if a human is there reading with a student.

Katharine Pace Miles: It'll never replace a teacher or a parent, but for many of our students, we know that they're not getting enough one on one time with teachers in classrooms and they're not getting enough time reading out loud at home with an individual who can intervene when they misread a word.

Jessica Hamman: Yes.

Katharine Pace Miles: The other thing that's really important with this software that I'm really, with that I think is really important in this day and age with COVID is that our reading assessments have been compromised through this remote platform. The validity and



reliability of administering assessment remotely is not the same as validity and reliability that it's been tested on, which is in person. So Amira embedded the TPRI which is a very well regarded assessment tool. If you know DIBELS it's somewhat similar, but TPRI has even more measures than DIBELS on foundational skills and they've done all their predictive analyses too. They've embedded this into their program and built it out even a little bit more. So a teacher can bring her whole classroom of students or we're remote right now. So she can find her whole classroom of students to do the foundational skills assessments on Amira. The student sits and does the assessment with Amira and then the data report is delivered to the teacher. She can look at the student's letter knowledge, phonemic awareness, nonsense word reading, et cetera.

Jessica Hamman: Wow.

Katharine Pace Miles: So it was built for online, whether you're doing it in a computer lab with a teacher walking around or it's at home and you can do these assessments remotely. So I'm interested to see how this software can support us now that we have found ourselves in this unprecedented situation with Coronavirus.

Jessica Hamman: Yeah. And I think also computerized interventions that are aligned science of reading do the work also of kind of reinforcing teacher instruction in a lot of ways too, and reminding or raising awareness with them of the things that they need to focus on for students. And of course, tailoring instruction, concerning database decision making.



Katharine Pace Miles: That's such a great point. Amira will give this report on which words and which phonetic elements the students still need support on. And then it's up to the teacher to move forward with that instruction. So it's great. It is truly blended learning, I think at its best.

Jessica Hamman: Well, Katharine Pace Miles, this has been a pleasure. I've learned so much from the conversation and I'm so glad that we can explore your research and thank you for spending time with us today.

Katharine Pace Miles: I really appreciate you having me on Jessica. Thanks so much.

Jessica Hamman: To learn more about Dr. Katharine Pace Miles, you can find her at her faculty page at brooklyn.cuny.edu or visit her on Twitter @KpMilesPhD.

Jessica Hamman: Thanks for listening to Glean's Research to Practice podcast. If you're interested in learning more head over to gleaneducation.com to listen to more episodes, access teacher resources and join the movement to make in-service teacher education more dynamic and accessible. Bye for now.

