



Glean Education's Research to Practice Podcast Episode 4 - Dr. Marina Puglisi (Universidade Federal de Sao Paolo, Brazil)

Marina Puglisi: What we know from this very recent research is that certain aspects of reading seem to be much more influenced by genetics than the environment.

Jessica Hamman: Hi, and welcome to Glean Education's Research to Practice podcast where we talk to education experts from around the world about their latest work, and bring their fascinating findings out from the journal pages and into your classroom.

Jessica Hamman: I'm Jessica Hamman, founder of Glean Education, and today we're talking to Marina Puglisi, a speech language pathologist and researcher in the area of child language and child development language disorders.

Jessica Hamman: We'll be digging deeper into a study she published named, The sHome Literacy Environment is a Correlate, but Perhaps not a Cause of Variations in Children's Language and Literacy Development.



- Jessica Hamman: Marina, thank you so much for joining us today. I'd love to get started by asking you to tell me a bit about yourself.
- Marina Puglisi: Hi Jessica, thank you very much. It's a pleasure to be talking to you today. I'm a speech and language therapist, and I do work with child language, as you said. I am currently an adjunct professor at the Federal University of Sao Paulo, in Brazil.
- Marina Puglisi: My research are actually related to language development. I'm mainly interested in three particular topics: One, how to promote language development. Two, how to prevent language disorders and literacy disorders. And three, how to diagnose and to better treat those disorders.
- Marina Puglisi: This particular paper is related to understanding how the home literacy environment is influencing language development and literacy development.
- Jessica Hamman: Can you tell me a little bit about the background behind this research?
- Marina Puglisi: Yeah, sure. It has long been known that the home literacy environment is actually a good predictor of language and literacy development. So when we say something is a good predictor, we try to say that, in this case, the home literacy environment influences the development of language and literacy.
- Marina Puglisi: However, it's important when we try to run research like that, it's important that we understand the nature of those relationships. For example, sometimes you can find relations, but they are not the true relations that are driving other aspects.



Marina Puglisi: So for example, if we are talking about pregnancy, if you get early and regular prenatal care we know that you improve the chances of having a healthy pregnancy, right?

Jessica Hamman: Mm-hmm (affirmative), mm-hmm (affirmative).

Marina Puglisi: But it's not the prenatal care itself that actually is influencing the pregnancy. It's because when you do prenatal care, you're actually taking care of other disorders, or trying to prevent other disorders that may itself be related to the growth of the baby or other aspects of health.

Marina Puglisi: So when we try to see those relationships, it's important that we control for some of the variables that we know are related to something else so that we can understand, what is the particular aspect that's mainly influencing something else.

Marina Puglisi: In the case of this particular paper we were interested to see how the home literacy environment was influencing language and literacy development. Because, again, this is widely known, but we haven't controlled for other aspects. And in this paper we wanted to see if this relationship would remain the same once we control for maternal language, which means oral language and also phonological skills, which is how you deal with sounds of your language.

Jessica Hamman: So were you looking at all learners? Were you looking at a specific subset of learners who struggled with reading difficulties? Tell me a bit about the children you studied.

Marina Puglisi: This was a family risk study, which means that we recruited children that had family history of dyslexia, either because of the mother, or of the father, or the siblings. So obviously when you



have a family history of dyslexia, you have higher chances of also developing dyslexia or other language developmental problems.

Marina Puglisi: Half of the sample have family history of dyslexia, and half of the sample has no history of dyslexia.

Jessica Hamman: And what did you find?

Marina Puglisi: Wanted to assess children and mothers at three different times so that we could understand a little bit better how would be the relationship between each of those variables.

Marina Puglisi: So at time one, when children were three years of age, we assessed their mothers. We assessed their language skills and phonological skills.

Marina Puglisi: At time two, we assess the home literacy environment. So we had different types of measures that we could assess. For example, the number of books at home, how much parents would engage in shared reading activities, and things like that. And we also assessed direct measures of literacy, for example, how much they taught specific aspects of literacy. For example, the names of the letters, or the names of numbers also. We call this direct measures of home literacy environment.

Marina Puglisi: At time three, we assessed children. So that was the only time we assessed children, and they were already five years of age, because we had one year of difference between time one, time two, and time three.

Marina Puglisi: What we wanted to see, first thing that we were interested to see, was first if we could replicate some of the findings showing that the home literacy environment influences children's language and children's literacy skills. So we're looking at the environment and language development and literacy development.



Marina Puglisi: And we did find, as in other studies, that home literacy environment was influencing both children's language and children's literacy skills. But then, the important thing that we found in this study, is that once you control for maternal language, which is those measures that I just mentioned, at time one. When you control for that, actually the relations between home literacy environment and children's language and literacy disappear.

Marina Puglisi: By disappear, we mean that actually what is driving these relationships is mother's language. So we are arguing that the relation that we can see in the literature that shows that home literacy environment influences language and literacy skills is actually, in this particular study, with the measures that we use, it was not found to be as important as in other studies because we controlled for mother's language.

Marina Puglisi: And that may have different types of implications and different types of interpretations.

Jessica Hamman: So, in layman's terms, Marina, can you just explain that a little more? Basically you found with this subset of children who were dyslexic, that their parent's oral language engagement with them did not affect their literacy aptitude? Would you say that was accurate?

Marina Puglisi: Just remember that this sample have children with family history of dyslexia, but also children with no family history. So it's a mixed group.

Jessica Hamman: Okay.

Marina Puglisi: What we can say here is actually that our expectations ... I think this is something interesting to say, our expectations at the very beginning of the study were that we thought we would find that



mother's language would influence the amount of reading to children. And that, itself, would also influence children's language and literacy skills.

Marina Puglisi: So in research terms, that would be a mediation. So something influences something else, influences something else. But actually we didn't find that. We think that it's because mother's language is actually much more important to influence children's language and literacy skills than the amount of reading itself.

Marina Puglisi: It could also be that we're ... So in this study we test certain types of home literacy environment. So for example, we had number of books at home. We had frequency of reading to children, of shared reading. We had the amount of book that parents knew.

Marina Puglisi: So they had a checklist, they needed to check which ones they knew. And this is for adult's book, but also for children's book. Which is kind of a measure of how much you're familiar with books.

Marina Puglisi: But we don't have any specific type of measure of the quality of reading. So that would be something interesting to analyze, and we didn't analyze in this study because these variables of quality were not included in our study.

Marina Puglisi: So what we can say from here is that the amount of reading, if you just look at the frequency of reading, and knowledge about reading, or about books. This is not really influencing children's language and literacy skills. What's really influencing is mother's language.

Jessica Hamman: Very interesting. So were there some surprising findings in there for you? Is this contrary to some of the research that you had read previously, or had believed it would turn out?

Marina Puglisi: Sure, that's a very interesting question, because I think over the last five years we can see a growing number of studies showing the



amount of genetic influences on reading, for example, as opposed to environmental influences.

Marina Puglisi: And obviously it's very delicate to talk about this topic because we need to know that certain aspects of reading might be more influenced by genetics. Some of them might be also influenced by the environment. So we cannot really just talk about reading in general and conclude things, just generalizing those findings.

Marina Puglisi: What we know from this very recent research is that certain aspects of reading seem to be much more influenced by genetics than the environment. Which is quite interesting.

Marina Puglisi: So we think that if we're looking at ways to interpret our data, it could be, for example, we don't have a research design that allows us to say anything about genetics or environment. But we can speculate that if maternal language is actually more important for the development of children's language and literacy, it could be that there's something that's related to genetics, and that's actually driving this relationship.

Marina Puglisi: It will be interesting, or it will be necessary to have specific research designs where you can actually measure the amount of influence that is being driven by genetics or environment.

Jessica Hamman: And this is interesting as a parent of a child in a US public school, as well as being a literacy interventionist myself. Because I've often heard teachers say to me as a parent, or been advised to say, as a teacher to the parent of the children I teach, that we should read to them and encourage reading, and then that will affect their literacy progress.

Jessica Hamman: But it seems that this study indicates something different, which is really interesting for teachers. What else can you say to teachers in



terms of what implications this study may have for their classroom? Or the way they talk to parents, potentially, about reading at home or speaking at home to their children?

Marina Puglisi: First thing is, we haven't addressed any type of intervention in reading to children here. So we're just measuring how much parents read to their children and seeing if that was influencing the outcomes, which would be children's language and children's literacy.

Marina Puglisi: For you to conclude anything about how much reading to your child influences their development, you really need to run a specific type of study that allows you to say something about that. Which would be intervention studies.

Marina Puglisi: So you'd intervene with parents or with teachers, and then you see how much that influenced children's behavior. We're not able to extrapolate from this particular study.

Marina Puglisi: But what we can say, and this is I think very interesting, and we haven't talked about it yet. Those relationships that I just talked about, the home literacy environment, not being able to influence children's language once maternal language is taken into account, is related to storybook exposure.

Marina Puglisi: Which is, when you read to your children, it's shared reading and so you just take a book, and the child is just close to you, and you're reading to them. They're seeing the pictures and also seeing the letters and having exposure to print material. And also understanding the whole story behind the book.

Marina Puglisi: But we also had a different type of measure that I just mentioned at the very beginning, which is direct literacy instruction. And this is mainly how much you teach formal aspects of reading, so it's the



names of the letters and things like that. And that link actually remained significant. So that was still influencing children's reading and spelling at the end. Even when you accounted for mother's language and phonological skills.

Marina Puglisi: I think what we're trying to say here is, the direct exposure to, and direct teaching, teaching directly some specific aspects of reading, actually was important. It's not to say it was very important. We talk about effect sizes when we try to see the amount of importance of some variables.

Marina Puglisi: It's not to say it's explaining everything, but it is actually significant. So it's something that's influencing, somehow, children's reading and spelling. I think it's important to differentiate those aspects of the home literacy environment.

Marina Puglisi: Because this direct measure actually remained significant until the end. So, again, just to put everything together, we're not trying to say that reading to children is not important because we know that there are many importances.

Marina Puglisi: What we're trying to understand here is, people tend to assume that the home literacy environment itself is related to children's language and literacy skills. What we're trying to say here is that this is a more complex scenario, and we need to understand these relationships a little bit better so that we can actually even tell teachers and parents how to do things in a more positive and effective way.

Marina Puglisi: This is the take home message, really, here.

Jessica Hamman: Excellent. Perfect. Before we go, I'd love to hear about what you're working on now and what you're excited to do research on next.

Marina Puglisi: Okay. As I said, I'm very interested in doing some intervention studies to promote language development, and also to prevent



language disorders. So as a speech and language therapist, I have clinical background, and I work with children with language disorders.

Marina Puglisi: But it's not only about diagnosing and trying to find better treatments for them. We also trying to reduce the changes of a child who has high risk of having language disorders and literacy disorders, to develop those disorders.

Marina Puglisi: So I think this is very excited, to me, at least, because we're trying to run some intervention studies. Mainly they are educational intervention studies. You're working with teachers and developing some interventions that are related to school.

Marina Puglisi: We are using [inaudible 00:16:50] knowledge that we have, and clinicians to help teachers to use some strategies or some activities in the classroom that can help children to develop language. And that's going to be helpful for the whole classroom, we hope, in terms of promotion of language development.

Marina Puglisi: But we also have some specific types of interventions that we are testing right now that are aiming to reduce the chances of developing any language problems or language disorders of those students who are already showing some difficulties.

Marina Puglisi: The way we do that is we select those children who are performing poorly on language measures, and then we do small groups and we work with them to develop their language skill.

Marina Puglisi: We're doing that through specific types of studies which are called trials, randomized clinical trials, to see exactly what are the benefits of intervention.

Jessica Hamman: Can you tell me a little more about the intervention structure?



Marina Puglisi: Intervention that we are using right now is one that was developed by Maggie Snowling's and Charles Hulme's group, these are the co-authors of the same paper that we're talking about today.

Marina Puglisi: They have developed this intervention in the UK, and they have found interesting results and the intervention was shown to be effective, especially for children who were already struggling to develop language.

Marina Puglisi: So what we did is, when you try to do those translations into other languages, because I'm doing that in Brazil, you cannot only translate things, right, because we have different cultural background and it's not only about language.

Marina Puglisi: So we completely changed the content of the intervention, but we kept the same structure. So the structure of the intervention is mainly tapping vocabulary knowledge, so we find ways of trying to develop children's vocabulary, but also to relate those words that were learned with other words the children already have.

Marina Puglisi: So it's not only about learning specific words, but also learning how to relate them to their previous vocabulary knowledge. And also creating some opportunities for them to use those words that they learned in the real world.

Marina Puglisi: We believe that by doing that, we increase the chances of them really using this vocabulary. Because if you learn something in a specific context, but you don't have the chance to generalize that for something else, the chances of you really using that in different contexts are not very high.

Marina Puglisi: So one of the wrenches of the program is tapping vocabulary, and then things that are related to vocabulary such as, for example,



grammars, they need to use those words in sentences to tell the story and they need to relate to other words, as I just said.

Marina Puglisi: The other part of this intervention is related to phonological skills. So mainly, how children deal with the sounds of the language. We're phonological awareness activities so that they can think of sounds, think of the words, think which sounds the words start with and which words also have the same sounds. Activities related to that, but also they are nice and funny for them to do.

Marina Puglisi: So this is the main structure, I think, of the intervention.

Jessica Hamman: Fascinating. So it seems like the work you're doing is tackling not only the home literacy environment for children, trying to figure out what supports them best there. But also, now transitioning to the classroom and how you can provide interventions that will help reduce the risk of reading disabilities or reading difficulties.

Marina Puglisi: Yeah. I think one of my main interests there is really the environment. It doesn't matter if it's home environment or the school environment, but trying to deal with people that spend most time with children, because these are the people that are able, actually, to help children if they are struggling to develop language and literacy.

Marina Puglisi: So I think parent training and also teachers' training, these are very interesting things to do and to understand. But I think it really deserves a lot of research because sometimes things that we intuitively think are going to work, they don't work in practice.

Marina Puglisi: So it's really, really important that we develop those types of research, so we see if something that's theoretically reasonable and we base all those interventions on things that we know from theory.



Marina Puglisi: But sometimes, our specific aspect of the context, or you need to be there in the classroom to understand how the intervention is really happening so that you can help them to implement intervention in a way that's feasible to the school environment, for example. Or in the home environment if this is an intervention at home.

Marina Puglisi: I think these are the main challenges when you want to develop those types of research, because you need not only to have a good theoretical background, but also to see if the things you're teaching, or training, or discussing with parents and teachers, if they are really happening in practice.

Marina Puglisi: It's a big challenge, I think, isn't it?

Jessica Hamman: And so interesting. And equally important to get the results once you get them from these wonderful studies, to the people who are serving our children. So make sure that the findings are available to them so they know best practices, and they know how to support their students and their children.

Jessica Hamman: Marina, I can't thank you enough for joining us all the way from Sao Paulo, Brazil, today. Thank you so much.

Marina Puglisi: Thank you very much. It was a pleasure to be with you and I hope this is interesting, also, for this audience.

Jessica Hamman: Thank you, I hope to talk to you again soon.

Jessica Hamman: If you'd like to learn more about Marina's research, you can find her on researchgate.net/profile/Marina_Puglisi or head to gleaneducation.com/podcast and click on the link to Marina's work in the show notes.



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