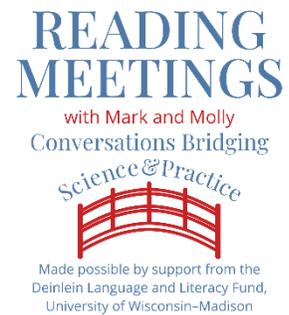


Responses to some of the chat from the May 23 Reading Meeting with Dr. Nadine Gaab



Catherine: Do we have data yet on early screening identifying at risk students actually later being diagnosed with dyslexia? What percentage?

MARK SEIDENBERG: Gee, I thought I'd be able to respond to these posts quickly.

You've raised an important issue: what are the characteristics of the children flagged as at risk by a screening test (or "instrument" as they're called)? How many of them have conditions that interfere with learning to read, requiring intensive intervention? How many are children who might be off to a slow start but will catch up with adequate instruction and practice because they do not have an underlying condition that makes reading difficult?

Here is a short answer. Screening can reliably identify children who are highly likely to develop reading difficulties unless they receive effective interventions. These children will struggle with reading if instruction is limited to standard classroom practices. Outcomes for these children depend on the severity of the underlying conditions that are making reading difficult, and the quality of the instructional response. Many children who would otherwise have developed severe reading difficulties—dyslexia—will instead make good progress.

Screening will also pull in some children who have started slowly but would have attained grade level reading skills with regular instruction and sufficient practice. This shouldn't be a problem. The children aren't going to be hurt by additional instruction in basic reading skills and the intervention can cease as soon as the child has caught up.

Research indicates that it is possible to design screening procedures with good sensitivity and specificity. That means: the procedure accurately identifies children at high risk for dyslexia without casting a wide net that pulls in many children who don't require special instructional attention. But, the screeners that are currently in use may not be this precise.

Details, for the interested:

There's no general answer to Catherine's questions because many screeners are being marketed. Unlike, say, an antigen test for Covid-2, screeners can be sold without data about their effectiveness. It's a buyer beware situation. The good news is that the screeners mainly draw on the same body of research about measures that are predictive of dyslexia and therefore overlap a lot in what they include.

It's also important to keep in mind that dyslexia is a spectrum disorder/condition. People are affected in differing degrees. The underlying causes vary in severity. So "dyslexics" are not all alike and the pre-dyslexic 4-6-year-olds identified in a screening procedure will differ in how much they respond to intervention. In the real world it's often necessary to establish cutoffs for who is or is not dyslexic (e.g., to decide on placement or access to intervention), but there isn't actually a sharp

boundary between them. Because there isn't a clear boundary, where the cutoffs are placed for educational purposes varies a distressing amount.

Finally, the effectiveness of screening depends on what happens *after* at-risk children have been identified. The entire exercise is predicated on being able to provide an effective educational response. This is the weak link, unfortunately. There just aren't enough people with sufficient expertise, and misconceptions about the causes of reading difficulties are widespread. (These issues are discussed in the dyslexia chapter of my book. If you want a copy, send me an email.)

OK, with that background in hand I take your question to be: what percentage of the children who are identified by a screener will turn out to be dyslexic, and what percentage will not?

Screening is useful because it identifies children at risk for reading difficulties at a point where intervention/remediation can be highly beneficial. Many children who might otherwise have eventually been identified as dyslexic can then do well enough to avoid that outcome.

Notice the paradox built into your question: The percentage of children who are later identified as dyslexic is affected by the *results* of screening. The goal is to *lower* the percentage of children who struggle so much as to eventually be identified as "dyslexic". That can be done by coupling screening with quality, relevant interventions. So, if the screening + intervention are effective, the percentage of children flagged by the screener who are later identified as dyslexic could be very low. That would be a good thing.

Screening is also very likely to pull in some children who would have been OK anyway, given adequate classroom instruction and learning opportunities. They are off to a slow start, but learning curves for "normal" readers are highly variable. Kids who differ in how fast they get off the ground can nonetheless end up in the same good-reader place.

These children are "false positives." The screener flags them as being at risk, but they aren't, actually. Does that invalidate the screening procedure? No.

a. the costs of false positives are minimal. A child who "would have learned anyway" will not be harmed by additional instruction in basic reading skills. Moreover, if RTI is implemented effectively, children who respond quickly to instruction will be recognized and moved out of the "at risk" group.

b. the costs of failures to identify children who are genuinely at risk for reading problems are high. Early, effective intervention can allow many of these children to get on track. Children can definitely be identified as having serious reading problems if we wait until they have fallen far behind, but that's unethical (it requires withholding a potentially effective intervention) and having fallen far behind, those children are harder to rescue.

c. we can't tell in advance who is who. At 4th grade we can look back and identify good readers who had been flagged as at risk by the screener. But, that is hindsight.

Monique: I have concerns about a screening centered approach as it implies that children should be taught differently. We need an understanding that all children benefit, and none are harmed from having excellent, evidence-informed, direct instruction. We need excellent teaching for all pupils from the beginning of their education. Any strugglers, for any reason, need to be kept up (rather than caught up later) with extra, targeted instruction in the same vein.

MARK: Screening just identifies children who need more attention with the goal of keeping them from going off the rails. It doesn't signify that they read or learn differently, or imply that they require a completely different approach to instruction. They might need additional instruction, practice, and feedback, however.

Say the screener shows that a child who is entering kindergarten doesn't know all the letters' names and is poor at identifying initial and final phonemes in spoken words. Does screening somehow imply that the child should be pointed in another direction? No. They need to gain these skills, and they need help.

Monique: I would also worry that this "dyslexic" label will give schools/teachers a within-child reason (excuse) for the failure for that child to learn. Low expectations are damning.

MARK: Well, you want to make sure that does not happen. We have to mention Richard Allington here. This was his concern. He thought that dyslexia was an excuse to give up on struggling readers. He was right to try to keep teachers from giving up on those children. Unfortunately, he took the argument further, making the haywire claim that dyslexia doesn't exist and that it had been made up by educators to excuse teaching failures. This is bad history (dyslexia was identified by neurologists working around the turn of the 20th century) and scientifically ignorant (there is a massive amount of behavioral, neural, and genetic evidence about it). The "dyslexia denialism" he encouraged has been very damaging to children and their families. It makes it that much harder to get help.

If teachers learned more about dyslexia as part of their professional training they would be better able to know what to do when children struggle. They might also learn when it is *appropriate* to "give up," i.e., refer the child to a reading specialist or neuropsychologist for help beyond what they can provide, given their many other responsibilities.

People also make the exact opposite argument: We know how to teach children to read: the proof is that many succeed every year. Therefore, any children who fail to succeed must have a condition such as dyslexia. It's then argued that, because dyslexia is a "medical" condition, teachers are not qualified or allowed to "treat" it. Unfortunately, most pediatricians approach it as an educational issue. There's no pill or procedure that can "cure" dyslexia, after all.

Anyone see any flaws in these arguments?

It's arrogant to say, as Allington did, that he knew so much about teaching that he never met a child he couldn't teach to read. There are grave questions about the adequacy of reading instruction in this country. Quality of instruction isn't the only factor that affects reading achievement, but it's a big one. Only about a third of American 8th graders read at grade level.

That's not because the other 2/3 are dyslexic. Poor instruction can cause a "normal" child to exhibit characteristics we observe in dyslexics. When I did research on dyslexia, we privately called them "instructional dyslexics". There was nothing interfering with their reading except the way they were taught.

Then there are the children who are dyslexic, who do have a condition or conditions that interfere with reading. I do not think Allington was helpful to them.

Look: Dyslexia is a type of behavior. Like every other human behavior, it has a biological basis. The only "treatments" we have are also behavioral: providing instruction and other activities that promote learning, which also has a biological basis. Instruction isn't the process of directly rearranging the neurons in a person's brain; rather, we structure experience in ways that create the relevant neurobiological effects.

Dyslexia continues to be used to advance personal and professional agendas at the expense of children and their families. As with other "wars" about reading, I think we have to ask: who benefits from these arguments? How do they contribute to improving literacy outcomes? Of what benefit is this argument for the family of a child who is struggling to read? What, precisely, are you contributing to children's literacy?

Meg: My state (Washington) is mandating all four components of the RAN/RAS (objects, colors, letters, numbers). What information will we gain from using more than one RAN test?

MARK: They yield similar results. One version can be slightly harder than another because of differences in the items that are used. For example, the object version will be harder if the child is unfamiliar with any of the objects, or if the drawings are poor. But, the items are supposed to be equally familiar and identifiable. RAN assesses ability to say the names of familiar stimuli (objects, color splotches, letters, numbers). It's not supposed to be a test of whether they child recognizes the objects (letters, etc.) or knows their names.

Bottom line: It's advisable to use 2 types of stimuli just to get more reliable results. Choose objects carefully.



These stimuli have been used in the RAN-objects condition. The child is asked to name as many of them as they can in, say, 20 seconds.



2 7 6 1 9

Examples of color, object, and number stimuli used in versions of RAN.

Notice that RAN-objects might be more difficult. Some children might be less familiar with stools or flowerpots than with colors or numerals. The words are harder to say, and the line drawings are not as easy to tell apart.

Bottom line: these versions of RAN might yield somewhat different results for accidental reasons.

Frances: Shouldn't screening wait until at least some education/exposure happens? I teach kindergartners in Oakland who have minimal exposure to foundational literacy. They are most likely just as capable as their middle-class white counterparts. They just have not had sufficient exposure to printed language, etc. We don't do much screening at my school. Is there a reason to, when issues are usually experiential rather than genetic?

MARK: FIRST: Do not interpret the results of a screening test as diagnostic of "genetic" effects. That's not what they measure. Differences in performance are almost entirely due to experience: whether for example the child was taught the letters of the alphabet and their names and sounds, or had many opportunities to practice. Performance can be affected by other factors (poor health, nutrition, exposure to environmental toxins, for example), so these are not "pure" measures of reading or language. But they tell us nothing about genes.

Screening is meant to be beneficial: identify children who are behind, provide relevant intervention so that they stay engaged, stay motivated, catch up as much as possible. Screening could be used as a vehicle for expressing prejudice: blaming the child, the parents, the ethnic/racial group, pick your bias. The results could also make the kid feel badly about how they did if you weren't careful. But, the purpose of the screening isn't to gain data about differences between individuals or groups, or to address how they arise. It says nothing about the child's capacities or intelligence. The only purpose is to direct instructional resources to children who need them at a critical point in acquiring a critical skill.

There are substantial differences among children in their ability to benefit from instruction ON THE FIRST DAY OF SCHOOL. Some children are ahead of others. The reasons why do not matter here. We think that they can be helped, they are entitled to be helped; why not start? Waiting is very risky. The traditional response to parents of struggling readers has been, oh they'll catch up. And some children do. The problem is that many will not without a lot of effective instruction. And we don't know who is who in advance. Since falling further behind is disastrous, I would not wait.

Tiffany: How can we design screening and progress monitoring platforms so that it gives better information to teachers with limited training in interpreting and using results?

MARK: Screeners do not provide detailed profiles of information about children's performance. They only indicate whether they child is "at risk" for reading difficulties. The tasks that the screener includes—things like identifying letters, deciding if two words start with the same phoneme, RAN—are included because they have good predictive value: performance is strongly predictive of the child's initial progress in reading. That makes them good tools for identifying readers needing additional attention.

The screener itself does *not* indicate what needs to be taught or practiced. If the child is slow at RAN objects, that doesn't mean they need to practice this task! It's only being used identify children at risk for reading difficulties. RAN is not a crucial component of reading that needs to be mastered! A Snellen eye chart is used to determine a person's visual acuity. If you can't read the letters in the 5th row, it doesn't mean you need to practice reading the Snellen chart, it means you need glasses.

If the screener identifies a child as “at risk,” it should be followed up with a more detailed assessment of reading and language. That would provide guidance about the child’s strengths and weaknesses.

So, the data from the screener should indicate how the child performed overall, compared to the much larger sample of children (at the same age or grade-level) used to “norm” the assessment. (If the screener hasn’t been normed, that’s a huge red flag.) The combination of subtests provides a good indication of where the kid is at; the individual subtests, not so much. I don’t see a need for more detailed information about the subtests. If I’ve missed something here, please let me know.

Note also: one of the strongest predictors of dyslexia is family history (other family members with reading or learning difficulties). This is important information if it can be legally obtained with family consent.

Miriam: @Catherine Tim Odegard has done some work on this.
<https://journals.sagepub.com/doi/abs/10.1177/0022219420914551>

Amelia: Yes Mark!

Frances: exactly mark!

MARK: Must have said something good!

Miriam: I share these concerns, Monique. How do we ensure that teachers understand it's their job to teach them and they can teach them regardless of background and individual differences?

MARK: I agree that this is essential. Screening is just a tool.

Harriett: Are you familiar with the work of Anne Fernald at Stanford on child-directed speech?

MARK: Excellent work, shows that parental speech to children varies a lot, and that is true across income levels (i.e., it’s not just poor kids) and it happens across racial/ethnic groups.

Harriett: Here's Anne Fernald's 20-minute TED Talk.
<https://www.youtube.com/watch?v=lpHwjym7rM&t=9s>

Rebecca: Michigan has a great resource in the Pre-K and birth to Pre-Literacy Essentials. There are modules that can be used for free. Literacyessentials.org

MARK: Very good resource.

Monique: I am in favour of baseline assessments so that teachers have an objective view of where the children are, but screening in this way is quite different and risks, I fear, significant, unintended, negative consequences.

MARK: See above. I believe the risks are real but it’s our job to educate people about why screening is being done and how it is (and is not) being used.

Emily: For the screener, is there a way to know if the lack of achievement is due to lack of opportunity / instruction / exposure? Or does it matter? Do we intervene and the rate of improvement will either be fast or slow?

MARK: Great question. The screening assessment doesn't say anything about the causes. If it is lack of opportunity, exposure, etc., the child should respond quickly to appropriate instruction. A more detailed assessment can provide important information.

Amelia: We are so worried about screening instead of responding. We need protocols to respond! YES Mark!!!

MARK: This must be where I said, the validity of the screening exercise depends on what happens AFTER the child has been identified as "at risk".

Frances: My kindergartners typically lack alphabetic knowledge and early literacy experiences. It doesn't seem like screening is needed. They just lack the foundational experiences of their upper middle-class counterparts. They need high quality, explicit systematic instruction, rich literary experiences, oral language development, etc.

MARK: If (almost) everyone is as you describe then, no, screening isn't necessary because you already know the answers. I have been in other classrooms where every child would be flagged as "at risk" by a screener. Children from very poor backgrounds who had very little reading-related experience before starting school. And they definitely are "at risk". Screener might be required but doesn't add much information.

Frances: Still, will they catch up?

MARK: They could. They haven't stopped learning. There's time. They are behind. They need a lot, as you know. There has to be enough instruction, enough practice, enough time. Throw out the comparisons to children who don't face the same challenges, focus on basic reading skills, knowledge of spoken language, knowledge of the world that's described in books. I'm telling you what you know. The kids need to experience some success: that is crucial too.

Monique: Children need to be KEPT UP not allowed to fail to then attempt to catch up.

Catherine: Monique for President!

Miriam: You have my vote:)

MARK: Agreed.

Frances: True Monique: but my 5-year-olds are coming to school already behind.

Tiffany: And catching a kid up and keeping them there are two diff things:)

Lauren: NJ mandated screeners, but we are far behind on providing appropriate instruction.

Catherine: Screening protocols need to be delivered with intervention protocols already in place, not give screeners and then hunt around for what to do, insane.

MARK: Agreed. Lots of attention being given to screening, seems like people haven't asked themselves, then what do we do???

Monique: Yes, many children will start school already behind which requires intervention from day one. However, this intervention may well be part n' parcel of the whole class diet. I am thinking of direct instruction which is a great leveler. The dominant model is far less direct than needed.

MARK: I don't know how you meet the needs of every child; it seems utterly daunting. I would definitely favor explicit instruction, let's not fool around with "discovery" here.

Martha: Absolutely fabulous discussion!

MARK: Oh, good. Thanks.

Jacinda: One intervention will not solve the problems for all children, so we need to look at the whole child and decide do they need speech and reading therapy? Do they need a listening device in the classroom to learn better? Do they need an in person interventionalist or a computer-based program?

MARK: Yes, children's needs differ. I would just keep in mind that what they need to learn to be a good reader is the same.

Frances: My school in Oakland does not screen. We already know we have to hit the ground running. Our RTI pyramid starts out inverted.

Joyce: And let's not ignore the parents' reaction to learning their child needs intervention. Sometimes, that is a difficult road

MARK: Getting parents on board is important and a very sensitive issue, I'm sure. The message can't be there's something wrong with your parenting. It could be, here are some things that can help. Here are some things you might want to try. Parents often don't know what would be helpful to do.

Megan: It is an uphill battle for sure! We need teacher awareness and understanding, stakeholder buy-in, and systemic change.

Frances: Our interventions also need to be more culturally responsive. A small example: it is difficult to decode and read words that are not already in your spoken lexicon, or are pronounced differently in your spoken dialect. While my materials (SIPPS) are high quality, I often have to be more explicit about things for my population.

MARK: You know that I agree with this. I talk about it every week. It's APPALLING that many materials work better with some children and very poorly with others (guess which is which). It's thoughtless. I'm looking for culturally attuned PHONICS.

Sharon: MTSS is a good concept, but most of my teachers don't know/understand how to implement Tier 1 and Tier 2 into their teaching.

Colleen: As a parent, I know the diagnosis and IEP are the only way I can have a seat at the table to push for appropriate intervention. Tier 1 is balanced literacy, RTI is balanced literacy leveled program...regardless of if a validated screener is used or just the BAS.

MARK: This is a huge problem.

Rebecca: If teachers were well prepared...

Rebecca: Curricular casualties abound

Amelia: "Dysteachia". Nell Duke

Vickie: Is there a difference between how research defines dyslexia and how states define dyslexia?

MARK: Yes. The criteria that states use vary. Researchers' concepts of dyslexia aren't as useful to them because we say things like, reading ability is a continuum and there's no strict boundary between dyslexic and non-dyslexic. They want cutoffs.

Anna: Teacher training, teacher training, TEACHER TRAINING!!!

Monique: "If the dyslexic readers differ from poor readers along the same dimensions that differentiate poor readers from good, it cannot be concluded that the dyslexic readers' performance is due to decoding processes specific to this group. Hence the results failed to provide evidence for the kind of qualitative differences between groups entailed by the standard view. ... If a term is to be reserved for those children who perform at the lowest end of the continuum, we suggest that it be something other than "dyslexic ,or "reading disabled," which carry other connotations. perhaps simply "very poor readers" would do. Seidenberg, Bruck, Fornarolo & Backman 1986.

MARK: WOW. Some of my first research! The term "dyslexia" may have some practical value. But this was some of the early research suggesting that the criteria being used to identify dyslexics back then (e.g., discrepancies between IQ and reading) picked out children whose behavior was much like that of children who were merely "poor readers" (because the discrepancy was smaller).

Amelia: IDA's definition is, "Dyslexia is a specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge."

MARK: It's reasonable, though in practice a combination of underlying factors may be causal.

Sharon: Definitely needed to teach the teachers.

Jo Anne: I wish they'd stop saying say Dyslexia-they get zip

Amelia: Many states have 504 Dyslexia regs and IDEA covers it under Basic Reading and Spelling, but more and more states are passing specific legislation.

Jo Anne: I love the idea of looking at a screener and doing what is needed asap-

MARK: I don't know every screener in the marketplace, but most are short assessments that use a few highly informative tasks/measures. They don't provide detailed information about strengths/weaknesses. Need a follow-up assessment for that.

Amelia: Yes Nadine! We can be 100% Compliant and 0% Effective!

Rebecca: Yes, there needs to be infrastructure in place, enhanced teacher knowledge, and a commitment to excellence for all at the district level.

Monique: If the screening is universal and culturally and environmentally neutral then it would benefit everyone equally. If it is only accessible to those in the know or with the money to pay then it will always exclude.

MARK: Yes.

Amelia: YES! Regardless of etiology, all kids benefit from strong markers of Tier 1.

Danielle: I think oftentimes schools have a one size fits all intervention approach so I think that is a much needed change if we do screenings, we must drill down and figure out exactly what type of reading intervention each kid needs instead of the district buying 1 program for all kids.

Rebecca: Screening then diagnostics

Megan: There is a concern, particularly among EL advocates, that kids will get extra foundational skills instruction in English and will thereby miss out on language rich instruction.

MARK: Need both.

Sharon: It is fairly easy to differentiate instruction when teaching phoneme awareness and phonics.

Rachel: Mark, Molly, and Nadine: You all work at universities with schools of education. What are your thoughts on pre-service teachers being prepared to teach students how to read at those universities? (I ask this as a graduate of UW-Madison in the 90s when I was taught to be a whole language teacher.)

MARK: It's getting a lot of attention. I'm on a task force to look at it. It includes people from SoE and Madison School District.

Frances: I wonder if a truly culturally neutral screener (better yet, curriculum) exists.

Frances: Great question Rachel!

Amelia: Megan that is a valid concern! Assessments do not help teachers separate language from reading issues.

Lauren: What I hear is the fear that kids who have strong phonics or language skills will be held back by getting structured literacy instruction. SL needs to be connected to the practice of differentiation -- which many teachers are not that great at. I.e., stations rather than differentiation by skill needs.

MARK: I think this is an important issue that we should discuss in the future. There is such a thing as over-teaching. "One size fits all" can include rigid programs for teaching phonemic awareness, phonics, etc. The amount of instruction has to be conditionalized on the child's READING. If the kid is reading (recognizing and understanding words, figuring out new words, understanding texts), they can move on!

Monique: Exactly Mark - children vary in the time that they need to get to the same point

Tiffany: Thinking about this in terms of needs for more implicit v explicit learning in various stages too

Rebecca: Yes, Tiffany!

Frances: Great point Megan. we need more options for truly comprehensive ELA programs that cover all parts of the rope and are culturally sensitive as well. A tall order?

Monique: Yes, strugglers need more - however the perverse reality is that in most classrooms they get less (through limiting differentiation)

Amelia: Yes Lauren, like Tim Shanahan said last week, I lose patience with those "thought leaders" who proffer their darling approach under the guise of research. These days that happens a lot. There is ton of research showing the benefits of explicit phonics instruction. When someone is arguing that phonics is beneficial, and they cite research studies and government reports I'm on board. But once they've made that argument and have convinced an audience that systematic daily instruction in decoding in grades K-2 is the way to go, they don't know when to stop. They keep going without any acknowledgement that the claims that follow lack the same evidential pedigree, with assertions about what they may sincerely believe in but about which they should be confessing a lack of certainty: the value of tracing in the teaching of decoding skills, advanced phonemic awareness instruction, decodable text, the most effective sequencing of skills, sound walls, and so on."

MARK: This is correct. I will have more to say about this soon.

Amelia: YES NADINE!!!

Jen: Literacy is a HUMAN RIGHT!!

Jen: What about parents that are not literate or have the education to use screeners.

Elizabeth: @Jen I work with parents. Yes, there will be parents that can't do the screener. But the more people that understand this, the more people can help identify issues. The neighbor or friend knows what to look for and can give advice to the family. I live in a refugee area, but the more regular people that know this the more the community can support each other.

Monique: We need an understanding that all children benefit, and none are harmed from having excellent, evidence-informed, direct instruction.

Anna: Yes, Nadine and Mark! Higher education needs to do a much better job of training teachers!

Jo Anne: Thank You very much

Jen: ty

Megan: Thank you!

Monique: Thank you

Bette: Thank you all! Great day.

MARK: Thank you, Bette. You made it possible!