



SYNERGY

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Dr. Keenan Interview

1. Your research on reading disabilities has focused not only on decoding deficits, but also on determining whether children's decoding deficits are related to deficits in phonological and semantic processing and in listening comprehension. What results is your research yielding?

Our results suggest that reading disabilities are often not confined to a disruption in a single cognitive component, e.g. phonological representations. Rather, the deficit is typically more general, affecting phonological, orthographic, and semantic representations and the mappings between these. Thus, treatments aimed at fixing phonological representations will rarely be sufficient for remediating a person's reading problems.

2. On the Reading Lab website you state that "understanding, or comprehension, is the basis of all thought and of all social interactions." When I read this statement what struck me is how you distilled in one sentence why it is so difficult for someone with a language-based disability to maneuver through not only the educational system, but in some instances life. After actively researching reading and language comprehension for the past thirty years, where do we need to go in the next thirty years with the goal of improving the lives of individuals with these types of deficits?

I am glad that my statement resonated with your experiences, and I'm happy that you have asked this question because that is really what is most important – how do we improve people's lives. Often people have tried to make improvements in the lives of people with disabilities with the best of intentions, but without having evidenced-based research to know what the nature of the problem was that they were dealing with. The more we can understand the nature of the deficit, the better

position we will be in for knowing how to do effective remediation. That's why my grad students and I do the research that we do, to better understand the nature of the deficit.

Our research shows that people with learning disabilities have compromised learning for biological reasons – how their genes coded their brains. This is important for teachers, parents and children to know so that they are not blamed for their slower learning rates. At the same time, we need to recognize that a genetic basis for a deficit is not the same as saying nothing can be done about the problem. Genes interact with environments. Children with learning disabilities need enriched environments to cope with their learning deficits.

We also need to realize that genes can be correlated with environments: a child for whom reading is difficult will tend to withdraw from reading. Society needs to provide opportunities to counteract that. It can use technology to do this. Screen readers, such as the Kurzweil reading system originally developed to read for the blind, can provide an excellent reading prosthetic for poor readers. Not only can such systems function as prosthetics, but they can also serve as learning aids. Poor readers should be encouraged to spend more time in reading and listening using systems like this so that they can develop those cognitive skills that do not come as easily for them as for others. It may take them more time, and it may require the use of such systems, but if as a society we recognize that these individuals need this support and can achieve with extra time and support, we will be improving their lives.

3. One of my concerns with the No Child Left Behind education legislation is that although I applaud its' efforts at early intervention with primary students who are struggling with reading, I am concerned that at one-size-fits-all approach to intervention has significant limitations. This is especially true for students who have reading disabilities involving more than just deficits at the phonological and semantic level of reading comprehension. Given your expertise, what advice would you give to legislators and to education policy makers regarding the implementation of intervention programming for students experiencing deficits in reading comprehension?

The good thing about NCLB is that it raised the bar overall. The bad thing is that it created unrealistic expectations of parents and teachers for some children. I don't think of it as legislating a "one-size-fits-all approach to intervention", as you

noted; where I see the one-size-fits-all is in its mandates that assume that all children can improve at the same rate with the same amount of instruction.

Advice to legislators? That's hard. I believe assessment should continue to be viewed as important. On the other hand, I think we need to recognize that there are biological reasons why some children are poor at reading and that therefore, teachers cannot make everybody above average. Teachers who are able to move children with disabilities from the 10th percentile to the 20th should not be punished for not making the children above average. I think they should be applauded for helping the child make significant gains.

3. Your study of identical and fraternal twins in determining the genetic and environmental contributions to comprehension deficits has yielded some interesting results. Would you mind briefly discussing your research findings?

We find that identical twins are much more similar to each other in terms of their cognitive skills than fraternal twins are. If environmental factors were largely responsible for the differences in cognitive skills, we would not find identical twins to be any more similar to each other than fraternal twins because both share family and school environments. The fact that identical twins are more similar is the basic evidence for the genetic basis of reading and cognition in general. Our findings show that about 2/3 of the variation among individuals in their reading skills is due to genes. We also find that although word decoding skill and comprehension skill share some common genes, it is also the case that there are different genes associated with word decoding and comprehension. This latter finding was particularly exciting because it provides a genetic basis for why some individuals may be very skilled at comprehension, and only have a deficit in word decoding, while others may be fine at word decoding but poor at comprehension.

4. The work that I have done with students with learning disabilities and their parents over the past twenty-five years has shown me that for a significant percentage of parents, considering a genetic predisposition as a rationale of why their child has an LD and/or ADHD is still a very difficult concept to come to terms with. In your role as a researcher working with the same population, have you seen similar reactions with parents?

I have actually seen just the opposite reaction. Parents often blame themselves for providing a poor environment for their child with reading problems – they think maybe they did not read sufficiently to the child who is having a reading problem. When they learn of the genetic basis, it lets them off the hook, so to speak, in terms of blame for the reading problem; however, it puts them on the hook in terms of taking responsibility to give the child extra support to help overcome this genetic limitation.

5. I asked the previous question because we are now seeing children in the educational arena who have parents that may have actually been diagnosed themselves during their educational career. I have begun to wonder whether parents with diagnoses will use different parenting techniques with a child that has a similar diagnosis. Do you have any thoughts or reactions to the above statement?

Interesting question. I could see it going either way. It might lead the parent to get the child extra support and get it early. Or it could lead them to think that they themselves got by, so their child will too.

6. For those of us working in an academic support capacity, specifically supporting individuals that have language-based deficits, do you have any suggestions on how we can best use your research and other research in improving our work with students?

See #2 above. Basically extra time, extra instruction, learning through nonreading opportunities – videos, hands-on experiences, field trips.

7. Your research in assessing the psychological assumptions made by jurors in our judicial system is fascinating for many reasons. Can you share any findings from this research?

I haven't done that work in a while; nothing new that hasn't been published.

8. After reading about your research in the judicial system, I immediately saw parallels to what goes on in some higher education classrooms today. Do you see any parallels with this research to the college classroom?

The biggest parallel is in the differences between people in their confidence in their memories and how poorly these between people differences in confidence correlate with accuracy. Jurors (Students) might say they know the material, even though their test performance says otherwise; their reports reflect their confident personalities, not the accuracies of their memories.