

**DEVELOPMENTAL PERSPECTIVE ON TESTING  
FOR DYSLEXIA**

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**FIELD HEARING**  
OF THE  
**COMMITTEE ON HEALTH, EDUCATION,  
LABOR, AND PENSIONS**  
**UNITED STATES SENATE**  
**ONE HUNDRED FOURTEENTH CONGRESS**  
FIRST SESSION  
ON  
EXAMINING THE DEVELOPMENTAL PERSPECTIVE ON TESTING FOR  
DYSLEXIA

OCTOBER 13, 2015 (New Orleans, LA)

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## **DEVELOPMENTAL PERSPECTIVE ON TESTING FOR DYSLEXIA**

**TUESDAY, OCTOBER 13, 2015**

U.S. SENATE,  
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,  
*New Orleans, LA*

The committee met, pursuant to notice, at 10 a.m. in Homer L. Hitt Alumni and Visitor Center Ballroom, University of New Orleans, Lakefront Campus, New Orleans, LA, Hon. Bill Cassidy presiding.

Present: Senator Cassidy.

### OPENING STATEMENT OF SENATOR CASSIDY

The CHAIRMAN. Thank you all for being here today. This is the Senate Committee on Health, Education, Labor, and Pensions. I ask that we please come to order.

This morning, we are having a hearing titled “Developmental Perspective on Testing for Dyslexia” that will highlight the importance of early identification of students with dyslexia, how high-stakes testing affects such students, and the need for appropriate accommodations.

I will make an opening statement, and then I will introduce our panel of witnesses. Each panelist will have 5 minutes to summarize their testimony. We have a timer. The green light is go. The yellow light means you have 1 minute left, and so please wrap up your comments. The red light means your 5 minutes have passed, and I am coming over there with the gavel.

After our witness testimony, I will begin with a round of questioning. I would like to give my opening statement. Again, thank you all for being here.

I want to acknowledge a couple people who are running for State office who are here, Sharon Hewitt and J.J. Buquet, just to say that we would like to influence those who are influencers. Those who care about dyslexia need to know this message. They are going to hear today. Either by watching online or being here, please spread the message.

Next, I am very pleased to host this and discuss the issue of dyslexia, an issue important to me as a parent and as a Senator. Our hope is that we bring greater awareness of the issue of dyslexia to help drive new Federal policies and to develop those resources to help those students who are identified as dyslexic. The goals of the hearing are to show the importance of this and how high-stakes

testing affects such students, and the need to provide appropriate accommodations for those students who are dyslexic.

Dyslexia—it is defined as an unexpected difficulty in reading, highlighted by a gap between an individual's intelligence and their reading level. It is the most common learning disability. A National Institutes of Health study found that the prevalence rate of dyslexia is nearly 20 percent. Dyslexia impacts Americans from all walks of life, Members of Congress, our staff, our families, thousands of participants—again, 20 percent of the population.

A couple years ago, my daughter was diagnosed with dyslexia, and that is when my wife and I began to learn as much as we could about the topic. You are amazed by how much is known and yet far too often not incorporated into public policy.

One example, I asked the Secretary of Education on the Federal level, of all the money spent on reading programs, how much was spent on dyslexia? He looks off into space and comes back and says, "as far as I know, not any." It is 20 percent of our population, the most common reading disorder, and we are not addressing it on the Federal level? It just leads to the need for a hearing such as this, so that awareness increases, and hopefully that will change.

A recent GAO report found that many students with learning and other disabilities including dyslexia are not receiving accommodations, such as extended testing time, as required by the American with Disabilities Act when they take high-stakes testing, such as the SAT, the GRE, the LSAT, the U.S. Medical Licensing Examination, and others.

This is unacceptable. Working together, we need to make sure that those with learning disabilities are receiving the proper and legally required accommodations.

For those with money, you can figure it out. That is the issue. There are excellent schools where you can go and have a child and there will be remediation. There are also schools and parochial programs. We are joined by Jan Lancaster, who is the superintendent of education for parochial schools here in Louisiana in the archdiocese in New Orleans. There are programs, say E.D. White and Vandebilt Catholic, parochial schools in which they have integrated such programs for children with dyslexia.

If you cannot afford this tuition, what do you do? Many public schools, like I said, they mainstream dyslexics. Frankly, that is to say that most likely they are not receiving the remediation they need.

I applaud the schools and educators who embrace science and are providing students with the proper educational environment and curriculum that will allow their remediation.

As far as we know, there are two public charter schools in the Nation that address—maybe three, maybe four, but the two we know of are in Louisiana. These are schools specifically for those with dyslexia.

I will say it again later, but Karen Chauvin represents the MAX Charter School, which was the first charter school, the best we know, in the Nation to address the needs of children with dyslexia. The second is the Louisiana Key Academy, which is in Baton Rouge, which, in the interest of full disclosure, my wife helped to start. As you might guess, I am a little partial to it.

I am partial to it mainly because it makes a science-based curriculum available for children whose parents might not be able to afford \$10,000 to \$50,000 a year in tuition. That said, although most of the students qualify for free or reduced lunch, the student body comes from all socioeconomic strata, because when parents are looking for answers, they are looking for answers.

These charter schools are great examples of where we can go forward.

In the House of Representatives, I started a congressional Dyslexia Caucus to raise awareness of those affected. I continue this work in the Senate. Last week, a resolution passed in the Senate that Senator Mikulski of Maryland and I passed, which calls on Congress, schools, States, and local educational agencies to recognize the significant educational implications of dyslexia that must be addressed, and designates October 2015 as National Dyslexia Awareness Month. It is the hope that this resolution is the first of many steps in the right direction.

Despite great strides, we have a lot to learn about dyslexia. I am looking forward to hearing what our panel of witnesses have to say.

Our first witness who will join us via video conference, who had attempted to be here but circumstances did not allow, will be Dr. Sally Shaywitz, who is the Audrey Ratner Professor of Learning Development at the Yale University School of Medicine and co-director of the Yale Center for Dyslexia and Creativity.

Dr. Shaywitz has authored more than 200 scientific articles and books, and together with her husband, Dr. Bennett Shaywitz, is the originator of the Sea of Strengths model of dyslexia. Dr. Shaywitz is also an elected member of the Institute of Medicine, of the National Academy of Sciences. She received her bachelor's degree from the City University and medical degree from the Albert Einstein College of Medicine.

The next witness is Dr. Bennett Shaywitz. He is the Charles and Henry Schwab Professor in Dyslexia and Learning Development and co-director of the Yale Center of Dyslexia and Creativity, and has devoted his career to better understanding and elucidating the neurobiological basis of reading and dyslexia to ensure that this new knowledge is translated into better care and treatment of children and adults who are dyslexic.

Dr. Shaywitz has authored more than 300 scientific papers and has received many honors for his contributions. He currently serves on the Scientific Advisory Board of the March of Dimes and the National Vaccine Program Office Safety Subcommittee. He sits on the editorial board of *Pediatrics in Review*, *Learning Disabilities: A Contemporary Journal*, and *Clinical Neuropsychology*. He received his bachelor's degree from Washington University and his medical degree from Washington University School of Medicine.

Next is Mr. Ameer Baraka. He is an actor and author from New Orleans. He struggled with reading his whole life, but did not learn he was dyslexic until 19 and incarcerated. In prison, Ameer earned his GED and was empowered to influence youth who struggle the way he did.

We are eager to hear how he has used his personal testimony to steer young dyslexics onto the path of reading and off the path to incarceration.

Mr. J.J. Buquet is the president of Buquet Distributing Company in Houma. He is actively involved in numerous civic and community organizations, including past chair of the Houma-Terrebonne Chamber of Commerce, current chair of the Bayou Community Foundation, and chairman of the South Louisiana Economic Council, and serves on other boards and foundations. He received his bachelor's degree from Washington and Lee University and his MBA from Tulane.

Last, Ms. Karen Chauvin has been involved in the education of dyslexics since 1992. She is currently the director of the Louisiana Center for Dyslexia and is the Jimmy and Glenny Lee Buquet Endowed Professor at Nicholls State University in Thibodaux. She is the founding board member and president of the board of the Maxine Giardina Charter School in Thibodaux and founding board member of the Louisiana Key Academy in Baton Rouge, both charter schools were created to serve the needs of children with dyslexia. She is a graduate of Nicholls State University with a master's in education.

I will now go to Dr. Sally Shaywitz or Bennett. I will let you two decide.

**STATEMENT OF BENNETT A. SHAYWITZ, M.D., CHIEF OF PEDI-  
ATRIC NEUROLOGY AND CO-DIRECTOR OF THE YALE CEN-  
TER FOR DYSLEXIA AND CREATIVITY, YALE UNIVERSITY  
SCHOOL OF MEDICINE, NEW HAVEN, CT**

Dr. BENNETT SHAYWITZ. Senator Cassidy, this is Bennett Shaywitz. Sally and I switched. I am going to go first.

Can everybody hear me and see our slides?

The CHAIRMAN. Yes, we can.

Dr. BENNETT SHAYWITZ. That is great.

Thank you, Senator Cassidy. We are pleased to be part of this panel and say hello to the other panel members.

What we would like to do in the next few minutes is give you a sense of why we think this dyslexia is an explanation and potential solution to the national epidemic of reading and school failure.

The problem is that we know we have a national epidemic of reading and academic failure, and science has told us that dyslexia may be at the root of all these reading difficulties. The problem, of course, is that schools are not using scientific knowledge to address and remediate what we know scientifically about dyslexia. Schools really need to increase their awareness of dyslexia.

This is data from the National Assessment of Educational Progress, the so-called Nation's report card. This is the most recent data. It shows that half of African-American children in this national survey were reading below basic level, compared to 21 percent of white children. That is still a large number of white children who are not reading at basic levels, but significantly even more African-American and disadvantaged children.

What we know about dyslexia is that it is especially prevalent and unrecognized in children of color and children who are disadvantaged. In these children, reading difficulties are often written off to environmental issues or lack of ability when they are in fact dyslexic. These problems can be addressed and remediated, but only if the child is identified as dyslexic.



Senator Cassidy talked about the 21st century definition of dyslexia. In fact, this 21st century definition of dyslexia is incorporated into the Cassidy-Mikulski Senate resolution. It is an unexpected difficulty in reading for an individual who has the intelligence to be a much better reader, and we know it is due to a difficulty in getting to the individual sounds of spoken language, which affects the ability of an individual to speak, to read, to spell, and often to learn a second language.

This data is from a paper we published several years ago, and it is documentation of the unexpected nature of dyslexia. Here are the typical readers, their intelligence along this line, their reading along this line. What we see, as Sally likes to say, is that they are kissing cousins. Intelligence affects reading; reading affects intelligence, and so on. They are dynamically linked.

That is what we know about typical readers. Look at dyslexic readers. A child can be very intelligent and have a very low reading level. They are not linked in dyslexic readers. This is scientific documentation of the unexpected nature of dyslexia.

Senator Cassidy mentioned that dyslexia is the most common of the learning disabilities. As you see here, dyslexia represents 80 percent to 90 percent of all of those children who are labeled "learning disabled." It is far and away the most common of the learning disabilities.

We know that dyslexia is universal. It affects all racial, ethnic, and social groups. We know it affects one in five children. That is 10 million children in the United States. Every classroom has children who are struggling.

Here we see the neural signature of dyslexia. This is very well-documented. It is an inefficient function in systems in the back of the brain. We have illustrated it here in this view. Here is the left side of the brain, and you see systems for reading in typical readers in the front of the brain and two in the back of the brain. In dyslexic readers, those systems in the back of the brain are functioning inefficiently. We term that the neural signature of dyslexia. It is very, very well-documented.

What is really important for you all to know is that in dyslexia we have all the scientific knowledge. There is not a knowledge gap in dyslexia but an action gap. The critical issue is to align education with 21st century science.

I am going to stop here, and Sally is going to resume.

[The prepared statement of Dr. Bennett Shaywitz follows:]

PREPARED STATEMENT OF BENNETT A. SHAYWITZ, M.D.

Good morning Senator Cassidy, fellow members of the panel and attendees. Thank you for the opportunity to speak with you about the science of dyslexia and share with you the tremendous scientific progress that has been made in dyslexia. In particular, we want to focus on dyslexia as an explanation and potential solution to the national epidemic of reading/school failure.

My name is Bennett Shaywitz, M.D., I am a physician-scientist and the Charles and Helen Schwab Professor in Dyslexia and Learning Development and co-director of the Yale Center for Dyslexia & Creativity at the Yale University School of Medicine. Both a child neurologist and neuroscientist I have been a leader in applying functional magnetic resonance imaging (fMRI) to understand the neurobiology of reading and dyslexia in children and adults. These studies identify a neural signature for dyslexia, making a previously hidden disability visible, and for the first time demonstrate the brain basis for the lack of fluency in dyslexia. Our most recent studies focus on differences in brain connectivity between dyslexic and typical read-

ing children and adults and studies in progress use fMRI to investigate attentional mechanisms in reading and dyslexia.

The author of over 300 scientific papers, my honors include election to membership in the National Academy of Medicine of the National Academy of Sciences and recipient of the Distinguished Alumnus Award from Washington University. I currently serve on the boards of the Park Century School and the Westmark School. I previously served on the Institute of Medicine Immunization Safety Review Committee, on the National Vaccine Program Safety Subcommittee and on the Scientific Advisory Board of the March of Dimes. I have been selected annually for *Best Doctors in America* and *America's Top Doctors*.

As you will hear, in dyslexia, science has moved forward at a rapid pace so that we now possess the data to reliably define dyslexia, to know its prevalence, its cognitive basis, its symptoms and remarkably, where it lives in the brain and evidence-based interventions which can turn a sad, struggling child into not only a good reader, but one who sees herself as a student with self esteem and a fulfilling future.

#### THE PROBLEM

Overwhelming evidence indicates that we are in the midst of a national epidemic of reading/academic failure. **Accumulating scientific evidence demonstrates that dyslexia both may be at the root of the reading difficulties noted and provide a potential solution to this unfortunate epidemic.** The difficulty is that although the evidence is there, schools do not appear to be aware of and/or using this scientific knowledge to remediate the highly prevalent epidemic of reading failure. It is imperative that schools must increase their awareness of dyslexia.

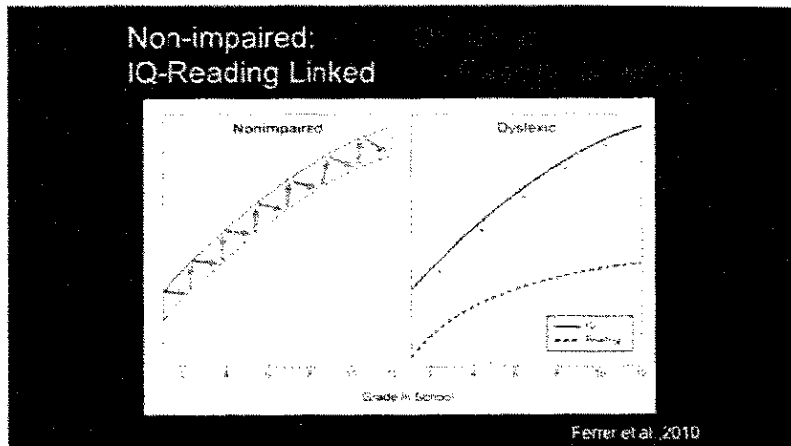
The most recent data from the National Assessment of Educational Progress (NAEP, 2013) demonstrate that African American students are especially impacted by this epidemic of reading failure. For example, fully half (50 percent) of African American boys and girls are reading below basic levels compared to 21 percent of white students. Sadly, these reading difficulties are not only highly prevalent in children of color and those who are disadvantaged, but they far too often go unrecognized and unaddressed. In these children their significant reading difficulties tend to be written off to environmental issues or lack of ability. What science has taught us is that these reading difficulties can be addressed and remediated, but *only* if the child is identified as dyslexic.

#### UNEXPECTED NATURE OF DYSLEXIA

Dr. Morgan's initial description of dyslexia over 100 years ago as an *unexpected* difficulty in reading has now been validated by empiric evidence. Our research group found that in typical readers, IQ and reading are dynamically linked, they track together over time and influence each other. In contrast, in dyslexic readers, reading and intelligence are not linked and develop more independently so that a child who is dyslexic can have a very high IQ and, *unexpectedly*, read at a much lower level.

This unexpected nature of dyslexia is now recognized in the 21st century definition of dyslexia found in Cassidy-Mikulski Senate resolution 275. Here dyslexia is:

(1) "Defined as an unexpected difficulty in reading for an individual who has the intelligence to be a much better reader"; and



(2) Due to a difficulty in getting to the individual sounds of spoken language which affects the ability of an individual to speak read, spell and often, learn a second language.

The Cassidy-Mikulski resolution not only recognizes the unexpected nature of dyslexia but also incorporates what 21st century science knows about the cognitive basis of dyslexia. Dyslexia is a difficulty within the language system, more specifically, the phonological component of language—it is not seeing words backward.

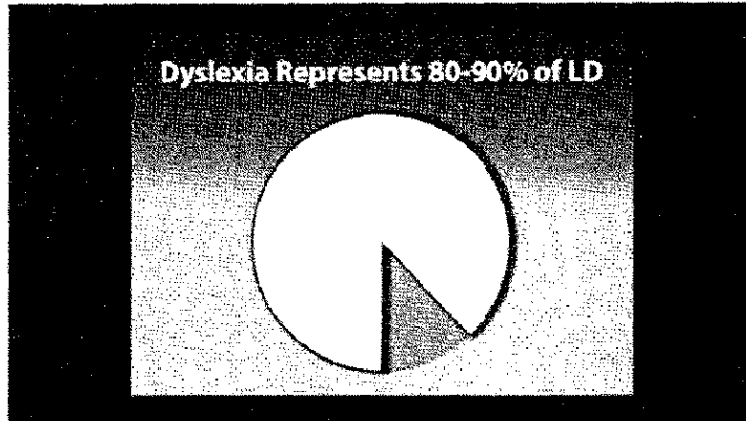
Data from laboratories around the world now answer the question—why do otherwise bright and motivated children struggle or even fail to learn to read? Almost invariably, they have a phonologic deficit. To explain, converging evidence over the past several decades supports the phonological basis of dyslexia. Phonological refers to the smaller pieces of language that make up a spoken word. To understand the implications of this theory, we compare what we know about spoken compared to written language. Spoken language is natural and does not have to be taught—everyone speaks. Reading is artificial and must be taught. The key in learning to read is that the letters have to be linked to something that has inherent meaning—the sounds of spoken language. To read, the beginning reader must come to recognize that the letters and letter strings represent the sounds of spoken language. She has to develop the awareness that spoken words can be pulled apart into their basic elements, phonemes, and that the letters in a written word represent these sounds. Children and adults who are dyslexic struggle to pull apart the spoken word and, as a result, cannot isolate each sound and attach it to its letter. Results from large and well-studied populations of dyslexic children confirm that in young children as well as adolescents a deficit in phonology represents the most specific and robust correlate of dyslexia.

#### DYSLEXIA IS SPECIFIC; LEARNING DISABILITIES ARE GENERAL

Dyslexia is the most common and most carefully studied of the learning disabilities, affecting 80 percent to 90 percent of all individuals identified as learning disabled. Of the learning disabilities, dyslexia is also the best characterized and the oldest. In fact, the first description of dyslexia preceded the first mention of learning disability by over 60 years—dyslexia was first reported by British physician, Dr. Pringle Morgan, in 1896, describing Percy F.,

“He has always been a bright and intelligent boy, quick at games, and in no way inferior to others of his age. His great difficulty has been, and is now, his inability to learn to read.”

A description that characterizes the boys and girls, men and women, I continue to see to this day. In contrast, the term learning disabilities was first used only in 1962.



Dyslexia differs markedly from all other learning disabilities. Dyslexia is very specific and scientifically validated: we know its prevalence, cognitive and neurobiological origins, symptoms, and effective, evidence-based interventions. Learning disabilities is a general term referring to a range of difficulties which have not yet been delineated or scientifically validated. Learning disabilities are comparable to what in medicine are referred to as “infectious” diseases, while dyslexia is akin to being diagnosed with a strep throat—a highly specific disorder in which the causative agent and evidence-based treatment are both known and validated.

#### EPIDEMIOLOGY OF DYSLEXIA

Scientific studies in a range of disciplines provide epidemiologic, cognitive and neurobiological data to characterize dyslexia. Epidemiologic data from sample surveys, in which *each* individual is assessed, indicate that dyslexia is highly prevalent, affecting one in five—yes you read this correctly. It is not the stated prevalence often quoted. Why? The why is the reason we are here today—schools far too often fail to acknowledge, much less identify, students who are dyslexic. Consequently, schools will report low, but incorrect numbers of students affected. *If dyslexic children are not identified, they cannot be counted.*

Many believe that even this one in five estimate may be too low. For example, data from the 2013 National Assessment of Educational Progress (NAEP, the Nation’s Report Card) indicate that two in three students in 4th or 8th grade are not proficient readers. Among some groups of students the numbers are far worse. The NAEP data show that four in five African American, Latino and Native American students are not proficient readers. Many would consider this to be an out-of-control epidemic of reading failure, and considering its negative consequences, a national crisis demanding action. Longitudinal studies, prospective and retrospective, indicate dyslexia is a persistent, chronic condition; it does not represent a “developmental lag.”

Sample surveys in which every subject has been individually assessed show relatively equal numbers of males and females affected. Studies based on school-based identification show a high male prevalence with accompanying data indicating that the often disruptive behaviors of the boys in the classroom play a strong role in bringing them to the attention of their teacher with subsequent referral. Girls who may be struggling readers, but who are sitting quietly in their seats, far too often fail to be identified.

Dyslexia has no known boundaries, it is universal, affecting virtually all geographic areas, and both alphabetic and logographic languages. For example, my book, *Overcoming Dyslexia*. (Knopf) has been translated, as expected, into alphabetic languages (Portuguese, Dutch, Croatian, etc.) but also, a surprise to me, logographic scripts including Japanese and Korean and most recently, Chinese. In addition, dyslexia occurs in every ethnic, race and socio-economic class.

## NEURAL SIGNATURE OF DYSLEXIA

Converging evidence using functional magnetic resonance imaging (fMRI) from our own and laboratories around the world has identified three major neural systems for reading in the left hemisphere, one region, anterior, in Broca's area and two regions posterior, one in the parieto-temporal (or Wernicke's area), and another, in the occipito-temporal region, often referred to as the word form area. Furthermore, such fMRI studies indicate that in dyslexic readers, the posterior neural systems are functioning inefficiently, providing a *neural signature for dyslexia*. Critically, these posterior neural systems appear to be important in skilled, automatic reading and inefficient functioning in these neural systems suggest an explanation for the slow, effortful reading characterizing dyslexic readers. Recent studies of brain connectivity by us and others demonstrate that in dyslexic readers there is reduced connectivity to the posterior neural systems responsible for skilled, automatic reading.

## IN DYSLEXIA: AN ACTION GAP

So what's the problem? The good news is that our problem is a solvable one. Of course, we are always seeking new knowledge. In dyslexia there is sufficient high quality scientific knowledge to help and to turn around the lives of so many struggling children. In dyslexia, remarkably in America, in the year 2015, we have not a knowledge gap but an action gap. We have the knowledge but it is not being put into policy and practice and far too many children and adults, too, are suffering needlessly. There is an epidemic of reading failure that we have the scientific evidence to treat effectively and we are not acknowledging or implementing it. It is our hope that hearing the depth and extent of the scientific knowledge of dyslexia will alert policymakers to act and to act with a sense of urgency.

The really good news: Science is there for those who are dyslexic. We must align education with 21st century science. A major step in bringing science and education together is the Cassidy-Mikulski Senate resolution 275 which provides the most up-to-date, universal, scientifically valid definition of dyslexia incorporating scientific advances in understanding dyslexia, especially, its unexpected nature, and represents a landmark in aligning science and education.

**STATEMENT OF SALLY E. SHAYWITZ, M.D., AUDREY G. RATNER  
PROFESSOR IN LEARNING DEVELOPMENT AND CO-DIRECTOR OF THE YALE CENTER FOR DYSLEXIA AND CREATIVITY,  
YALE UNIVERSITY SCHOOL OF MEDICINE, NEW HAVEN, CT**

Dr. SALLY SHAYWITZ. In working toward translating all of the great scientific progress we have in each practice, the first step is recognizing what is dyslexia, what does dyslexia look like? I will just say here, it is not reversing letters. That is the first answer 90 percent of the people will say.

This is a model that we developed, a conceptual model of dyslexia, to recognize the paradoxical nature of dyslexia. We are using a pointer, but it just isn't showing up on the screen.

In the center, you see an encapsulated weakness in getting to the sounds of words. Initially, it manifests as decoding difficulties and then difficulties in fluency.

That is difficulty. There are also strengths, higher level strengths, as you can see on the slide, in reasoning, concept formation, problem-solving, vocabulary, and critical thinking. The goal is to recognize the weakness and remediate it, but also recognize the strengths and make sure students who are dyslexic can access those strengths, most often through accommodations.

This is a really important slide because dyslexia is an entity where we know the origin of the difficulties, which is getting to the sounds of spoken language. It is not a mystery. But what are the symptoms? What can parents and teachers and others look for?

If you have difficulty getting to the sounds of spoken language, you are going to have problems with spoken language, and particularly, for children, with word retrieval. A child knows what he or she wants to say, but it doesn't come out of his or her mouth. You can imagine how embarrassing that can be.

People who are dyslexic have difficulties getting to the sound of spoken words, so they have trouble pulling apart a spoken word and then attaching the letters to the sound that it represents. Therefore, you have difficulties in reading accuracy and reading fluency.

Reading is decoding, and spelling is encoding. You have differences going from the sound of the spoken word to putting it into print, spelling difficulties. If you have difficulties getting to the sound of your primary language, imagine what happens when you are trying to learn a second language. There are great difficulties in trying to learn a second or foreign language.

We know so much, but at the same time, and almost unbelievably, there are barriers that are preventing the great scientific knowledge we have, that can help so many children to be implemented.

Some of the major barriers are schools—yes, schools—who apparently or seemingly are unwilling to diagnose or even accept a diagnosis of dyslexia. Schools will say, “We don't believe in dyslexia.” My response to that is, if you are talking about religion, you can pick what religion to believe in. If you are talking about a scientifically validated entity, it is not yours to believe in or not. It is yours to accept and use the science.

Also there are barriers and failure to provide evidence-based interventions and accommodations.

This is also very important. It is the failure to address the whole child, to only think of this part or that part and ignore the whole child.

Here is something we are very, very excited about. This is a paper in the *Journal of Pediatrics* that is online now and will be officially published in the *Journal* in November, next month. What this does is we direct a longitudinal study, so we were able to look—the orange are typical readers and the blue are dyslexic readers.

What is the trajectory of reading over time? You can see right at the beginning, it says one below. At first grade already—already in first grade—there is a large achievement gap that has a very powerful influence over what happens after. We have to get to that gap early. We cannot wait until third grade. We have to begin to address this right at the beginning of schooling.

So what do you do? What is the most effective reading intervention for dyslexia? This is something that Dr. Bennett Shaywitz and I think about a great deal. We are very fortunate that we have opportunities to visit schools nationally, public schools, private schools, parochial schools, specialized schools. We sit on the boards of quite a number of these.

First of all, we now emphasize, by the data showing the achievement gap present in the first grade, early diagnosis leading to early intervention, and screening of dyslexia early.

All of our knowledge and all of our clinical experience have come to the very strong conclusion that children who are dyslexic require not 45 minutes two times a week but a specialized school that focuses on the whole child and providing effective interventions.

What is important is the school climate, school climate plus the atmosphere. For a dyslexic child, it cannot be your reading interventionist knows about dyslexia, but no one else does. You need to have everyone on board, from the principal to the teachers to the phys ed—everybody needs to be on board.

Small classes, you cannot do this with large classes. You must have small classes.

You have to use evidence-based methods—methods that have evidence that have proven effectiveness.

You need to have knowledgeable, flexible teachers.

This is really important, consistency in instruction across all classes. What happens to the child who is pulled out, receives his or her 45 minutes, and then goes to a class in history or social studies where the teacher is clueless and doesn't understand why when he is asked to read aloud he cannot or why he needs extra time?

You also require constant communication between teachers. You need a team and not one isolated instructor.

We visited schools that were specialized schools in dyslexia. There is a wonderful school in Westchester County, NY, and now Manhattan as well. It is great. How many of us have \$52,000 a year for tuition?

That is going to work for the top SES group, but what about everybody else, particularly the disadvantaged?

There is another model. I am so proud to know it and to have visited it and to watch it grow and prosper. This is the Louisiana Key Academy that is free to all dyslexic children. Here you see one of my heroes, Dr. Laura Cassidy, who founded and is intimately involved with the school, the principal Evelyn, and one of the teachers, and one of the students.

I am glad Senator Cassidy mentioned accommodations. They are essential for dyslexic students. They are based on scientific knowledge, the law, and ethics.

With the child, you have a child who can think at the highest levels but can't read fluently; that is, quickly or automatically. It becomes critical to ensure that a test measures ability rather than disability.

Basically, accommodations level the playing field, and especially in high-stakes tests. The tests must be appropriate for dyslexic students or the results will be incorrect. Accommodations are supported by scientific knowledge, by Americans with Disabilities Act, and by ethics. I just want to quickly show you that we have neurobiological evidence for requiring extra time.

Basically, as you see on the left, in typical readers, this is the left side of the brain you are looking at, the systems for reading are shown in the front in the green, Broca's area, and also two systems in the back, parietal temporal and the other, occipital temporal.

If you are dyslexic, those systems function inefficiently. If you see a word and you are a typical reader, you are on the express side.

If you are dyslexic, that express line is blocked off and you have to take an alternate, secondary pathway that is much more strenuous and will take you a lot longer. You have to work harder and it will take you longer. You will get there, but you will be exhausted.

By our recommendations, we have to align the patient with 21st century science. Schools must not be allowed to ignore or fail to recognize dyslexia, and we have to create and strongly support specialized schools for dyslexic students using the state-of-the-art Louisiana Key Academy model.

We have to act now. Children go through childhood once in their lives. Our children can't wait.

We have to use the word "dyslexia." It is specific. It is highly relevant and has explanatory meaning. Science provides the definition, its epidemiology and cognitive basis, where it lives in the brain, development and progression, and long-term outcome.

Especially, it is important for the student to help herself, a student who is dyslexic. Knowing what she has is so empowering. It helps the student for the first time to understand what they have, to be aware of what they have, and understand what they need in order to succeed.

Also very often for the first time, it provides students with a community to join, to know they are not alone.

And importantly for the student, the knowledge that he or she is dyslexic brings with it the powerful information that they are not stupid or lazy. Sometimes teachers call them one or the other, and they become to think that. When you know what dyslexia is, it frees them from that misunderstanding.

We want to thank you, and we are so delighted that we are having this hearing. Dyslexia is so prevalent, so well-understood scientifically, and it is so important to address the needs of these children, particularly through specialized public charter schools.

[The prepared statement of Dr. Sally Shaywitz follows:]

PREPARED STATEMENT OF SALLY E. SHAYWITZ, M.D.

Good morning Senator Cassidy and fellow panel members. I too, thank you for the opportunity to speak with you about the science of dyslexia and share with you the tremendous scientific progress that has been made in dyslexia. Following Dr. Bennett Shaywitz, I, too, will focus my statement on dyslexia as an explanation and potential solution to the national epidemic of reading/school failure.

My name is Sally Shaywitz and I am a physician-scientist. The Audrey G. Ratner Professor in Learning Development and co-director of the Yale Center for Dyslexia & Creativity at the Yale University School of Medicine. I am a member of the National Academy of Medicine of the National Academy of Sciences, and have served on the Advisory Council of the National Institute of Neurological Diseases and Stroke (NINDS), the National Research Council Committee on Women in Science and Engineering, co-chaired the National Research Council Committee on Gender Differences in the Careers of Science, Engineering and Mathematics Faculty and have served on the congressionally mandated National Reading Panel and the Committee to Prevent Reading Difficulties in Young Children of the National Research Council. I am also the recipient of an Honorary Doctor of Science degree from Williams College.

I speak to you as a physician-scientist. As a physician, I have all too many memories of sitting by an ailing child's bedside, wishing so desperately that we had the knowledge to help that child. As a physician I know the power of science and how once new knowledge becomes available we act quickly, indeed, race to put that knowledge to good use. We want to close that knowledge gap and improve the lives of the affected children. When I sat on the Advisory Council of the National Institute of Neurological Disorders and Stroke, we constantly asked ourselves: how have



we benefited mankind, how has our research improved the well-being of children and adults.

Given that there has been so much scientific progress, we must take definitive steps to translate this remarkable scientific progress into practice. A fundamental question we can now address is what is dyslexia and what does dyslexia look like.

#### THE PARADOX OF DYSLEXIA

Dyslexia is a paradox, the same slow reader is often a very fast and able thinker—giving rise to our conceptual Sea of Strengths model of dyslexia as a weakness in getting to the sounds of spoken words surrounded by a sea of strengths in higher level thinking processes such as reasoning and problem solving. Reflecting this paradox are many eminent dyslexics—financier Charles Schwab, attorney David Boies, cardiac surgeon Dr. Toby Cosgrove, Hollywood agent Ari Emanuel, producer Brian Grazer and economist, Diane Swonk. On the other side of the coin, are many who are not identified, do not receive evidence-based instruction, continue to struggle to read and see themselves as failures. Sadly, these boys and girls have no knowledge of what their difficulty is or that it even has a name, have no self-understanding, come to view themselves as dumb or stupid, see themselves as not meant for school, suffer low self-esteem, often drop out of school with a loss to themselves, to their families and to society.

#### UNDERSTANDING THE ORIGIN OF THE DIFFICULTIES LEADS TO AN UNDERSTANDING OF THE SYMPTOMS OF DYSLEXIA

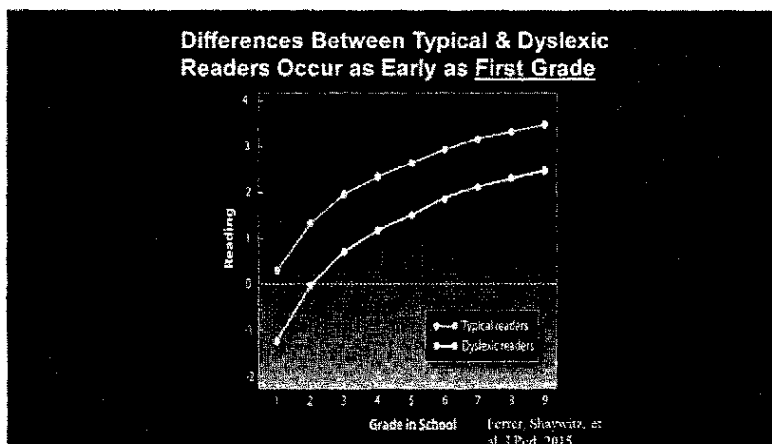
With the phonologic deficit recognized and validated, it is now possible to understand and to predict the symptoms emanating from this basic difficulty, which can be both observed and measured, resulting in an accurate diagnosis of dyslexia. Dyslexia is a language-based difficulty and impacts spoken language, for example, word retrieval difficulties: reading, initially impacting reading accuracy and then reading fluency, the ability to read not only accurately, but also rapidly and automatically with good understanding. Not being able to read automatically, dyslexic readers must read what I refer to as “manually,” requiring the output of large amounts of effort and consuming much of the individual’s attention. A dyslexic reader lacks fluency meaning that he reads slowly and with great effort, although he may understand the content at a high level. Importantly, the dyslexic’s vocabulary and comprehension may be quite high. Spelling is also problematic as is learning a foreign language—all reflected in the Cassidy-Mikulski Senate Resolution 275.

#### BARRIERS TO UTILIZING SCIENTIFIC KNOWLEDGE TO ENHANCE THE EDUCATION OF DYSLEXIC STUDENTS

Unfortunately, scientific knowledge is not being utilized by far too many schools. The major barriers include: schools that are unwilling to diagnose or accept a diagnosis of dyslexia and schools that don’t “believe” in dyslexia. As a consequence, students are hurt by the failure of these schools to provide evidence-based interventions and accommodations. In addition, the lack of understanding of dyslexia leads to a failure to address the needs of the whole child. As noted, dyslexia affects: spoken language, reading accuracy and reading fluency and the ability to read math problems, to spell and to learn a second or foreign language. These struggles particularly when not addressed lead to anxiety and at times depression and loss of self-esteem, often with negative life-long effects.

#### READING GAP ALREADY PRESENT BY FIRST GRADE AND PERSISTS

Scientific knowledge, too, has delineated the progression of reading development. Reading growth is most rapid early on, during the first few years of school and then plateaus. In a report to be published in November 2015, we report the results of a longitudinal study of reading from first grade to 12th grade and beyond. We find that as early as first grade, compared with typical readers, dyslexic readers had lower reading scores and their trajectories over time never converge with those of typical readers. These data demonstrate that such differences are not so much a function of increasing disparities over time but instead because of differences already present in first grade between typical and dyslexic readers. We conclude that the achievement gap between typical and dyslexic readers is evident as early as first grade, and this gap persists into adolescence. These findings provide strong evidence and impetus for early identification of, and intervention for, young children at risk for dyslexia. Implementing effective reading programs as early as kindergarten or even preschool offers the potential to close the achievement gap.



#### NATIONAL READING PANEL AND TEACHING READING

Fortunately, thanks to congressional action there is now strong evidence of what treatment elements are effective in teaching children to read. In 1998 Congress mandated the formation of a National Reading Panel to investigate the teaching of reading. I was proud to serve on the panel which produced the Report of the National Reading Panel. As a result, today it is no longer acceptable to use reading programs lacking scientific evidence of efficacy: instead it should be mandatory to use programs that are evidence-based, proven to be effective in the same way that medications must be tested and proven to be effective before they can be approved by the FDA. Our children deserve no less. And yet, today, this powerful information is not being used in schools, children are not learning to read and giving up, and not reaching their full potential. We have what amounts to an educational emergency in the United States. Children are not learning to read with serious academic, economic and health consequences including, school drop-out, being half as likely to go on to college, significantly lower lifetime earnings, significantly higher unemployment, higher rates of mental health issues such as often incapacitating anxiety, and as reported in 2013, significantly higher mortality rates related to lack of a high school diploma. These harsh consequences harm not only the dyslexic individual but place our country at a competitive disadvantage.

#### EFFECTIVE READING INTERVENTION FOR DYSLEXIA

There is much known scientifically and clinically about dyslexia and its impact on children. Synthesizing that information brings with it the strong suggestion that a dyslexic child is best served, first by early diagnosis which should lead to early intervention, especially that there are now data indicating, as noted above, that the achievement gap is already present and large at first grade. The size of this gap makes it exceedingly difficult to overcome with time. It provides a strong impetus to identify and address dyslexia very early in the student's school career. Assessment for phonological skills early on and/or having the child's teacher complete a relatively short questionnaire, such as the Dyslexia Screening Measure (DSM) which is based on longitudinal data, can provide data with good sensitivity and specificity indicating a child's risk of being dyslexic.

Currently, dyslexic children are either not identified, and even if, identified provided with pull-out instruction of about 45 minutes several times a week. The child feels isolated and embarrassed. S/he is often teased and/or bullied, and returns to a class where s/he has missed the instruction other students have received. Most of his/her teachers have no idea of what dyslexia is, and believe it is reversing letters. This means that teachers in the child's other classes such as social studies, science or biology, math or literature are totally unprepared to understand or educate the dyslexic child. These educators have no or little idea of the student's reading level and how to best address the child's reading, writing, spelling and word retrieval difficulties. Points are taken off for mis-spellings in history, a student's dif-

faculty in reading the words in a math problem are mistakenly ascribed to lack of understanding of math principles and so it goes. It is critical that the dyslexic child is in a school where the entire faculty is on board and understands dyslexia and how best to address the needs of a child who is dyslexic.

Dyslexic students require frequent opportunities to interact with their instructor; this is only possible in small groups as noted by the Report of the National Reading Panel. In large groups, dyslexic students have little opportunity to interact with the instructor, perhaps once during a period, if that. This is totally insufficient and does not provide the opportunity for the instruction to take hold. Methods must be based on evidence and not anecdote or belief systems, e.g., "I know in my heart that this methods works. I believe in it." Teachers must be knowledgeable about dyslexia and flexible. Dyslexic students are not fluent readers, this means that they may know how to read one moment and then, a short while later, not be able to decipher the very same word. It is imperative that teachers understand the impact of lack of fluency on reading, and similarly, are aware that if a dyslexic student is called on to read aloud, it is often unbearably embarrassing or if she is asked a question, her word retrieval difficulties arising from her dyslexia may result in her not being able to retrieve the correct word—due not to a problem in higher level cognitive functioning or lack of knowledge but due to her inability to access and retrieve the sounds of the words that are needed for her to articulate the word correctly. Students are in a school during the day going to many classes: it is critical that the child's teachers are united and function as a knowing and caring team that is fully aware of where the child is in his/her reading, how s/he is being instructed and the effective approaches to supporting this student in each teacher's subject class and is aware of, and following, the student's progress carefully. This requires teachers to function as a team, that is, to be in constant contact with one another and there to be on-going consistency in instruction.

The most effective models that work for dyslexic students are specialized schools specifically for these students. There are a number of such specialized schools for dyslexic students nationally. Students attending such schools benefit, learn to read and succeed in their academic work and come to appreciate, too, that they are not stupid. However, what these independent schools have in common is high tuitions that many middle-class parents, and certainly not disadvantaged families, can afford. What is wonderful to see is a new model that has been developed, one exemplified by the Louisiana Key Academy (LKA) started by Dr. Laura Cassidy, which is *a free public charter school* that brings into the school and each and every classroom all the scientific knowledge now known about dyslexia, along with a deep understanding and concern for each student at the school. I have personally visited the school, spoken with teachers, students and parents and was elated to see how well the students are learning, how they now viewed themselves as learners rather than as school failures, and, perhaps, most importantly, how much pride and self-esteem they have developed. It is very powerful to be at a school where you are part of a community of dyslexic students who are bright and where you are no longer viewed as different, inferior and not part of the group. Given the terrible epidemic of reading and school failure, and the high prevalence of dyslexia of one in five, we must ensure that LKA is sustainable and strongly supported. This school has made an extraordinary difference for so many dyslexic students who were previously ignored, feared going to school and were on the path to academic, and sadly, life failure. The difference this school has made in these students' lives is breath-taking and life-affirming. This opportunity for a chance at success must be made available to every boy and girl who is dyslexic, especially those who are disadvantaged or African American. We, as a society, must do no less; having successful learners will not only benefit the student, but his family and community, and, indeed, the Nation. **The model of LKA, a free public charter school is a model that works, a school that provides the needed "all hands on board" climate and instruction to dyslexic students. Critically LKA addresses the needs of the whole child the entire day rather than the artificial belief that giving a child a package of instructions for a period a day will address the significant and on-going needs of a dyslexic child.**

#### ACCOMMODATIONS

Given that a student who is dyslexic has both a weakness and strengths, it is critical that, for example, tests, both in school and on high stakes standardized examinations and Common Core assessments actually measure the student's ability and not his disability. The dyslexic student may learn to read fairly accurately but hardly ever with fluency; he remains a slow reader albeit a quick thinker. These dyslexic students may know the answer to a test question, but as a result of their slow read-

ing never get to reach many questions or to finish the test, the student simply runs out of time. Or, she is so anxious about finishing the exam that she races through it and misses questions which, given the needed time, she would be able to answer correctly. Thus, it is critical that students who are dyslexic receive the accommodation of extra time; it is not a perk but a necessity if the result of the test is to reflect that student's knowledge. In adolescents and young adults applying for high-stakes standardized tests for college, graduate or professional schools, the Americans with Disability Amendment Act (ADAA) of 2008 is highly supportive of the need for accommodations for those with disabilities like dyslexia that impair a major life activity like reading. The ADAA regulations also state that students should receive accommodations even if they are doing well in school, it is not the outcome of their performance but rather what they have to do to achieve the outcome.

High school and college students with a history of childhood dyslexia often present a paradoxical picture; they may be similar to their unimpaired peers on measures of comprehension, but they continue to suffer from the phonologic deficit that makes reading less automatic, more effortful, and slow. Neurobiological data provide strong evidence for the necessity of extra time for readers with dyslexia. Functional MRI data demonstrate that in dyslexic readers the word-form area, the region supporting rapid reading, functions inefficiently. Readers compensate by developing anterior systems bilaterally and the right homolog of the left word-form area. Such compensation allows for more accurate reading, but it does not support fluent or rapid reading. For these readers with dyslexia, the provision of extra time is an essential accommodation, particularly on high stakes tests such as SAT, ACT and tests for professional schools such as LSAT, MCAT and GRE—and for the Common Core tests. The accommodation of extra time allows the student time to decode each word and to apply his unimpaired higher order cognitive and linguistic skills to the surrounding context to get at the meaning of words that he cannot entirely or rapidly decode. While readers who are dyslexic improve greatly with additional time, providing additional time to non-dyslexic readers results in very minimal or no improvement in scores.

A special word about the Common Core State standards (CCSS) and tests such as PARCC, which are designed to assess whether students are meeting the CCSS. **It can be stated unequivocally, that the CCSS and accompanying tests such as PARCC are totally inappropriate for students with dyslexia. Such tests are based on the mistaken belief that all students, including dyslexic students, will be fluent readers by the end of second grade and that all students should read at grade level and above, clearly an expectation that flies in the face of all that has been learned about the development of reading in dyslexic children.**

Furthermore, CCSS and PARCC are based on the belief that comprehension-focused reading instructions using “complex text” should be the basis of reading instructions, ignoring whether or not the student can actually read the words in the “complex text.” This has had serious implications for dyslexic students. For example, the PARCC test for third-grade students is more targeted to the reading level of students in fifth grade and focused on reading comprehension. This has had the pernicious effect of schools dropping all other instruction, including the much-needed decoding instruction, to focus almost exclusively on comprehension. In addition, it is well-known that multiple choice questions in the PARCC are inappropriate for students who are dyslexic. Common Core's overwhelming focus on comprehension may be appropriate for students in high school but is wholly inappropriate for children in very early grades, especially dyslexic students who are invariably still struggling with and working hard to master decoding.

Although providing extra time for reading is by far the most common accommodation for people with dyslexia, other helpful accommodations include allowing the use of computers for writing essay answers on tests, access to recorded books and text to voice software. Other helpful accommodations include providing access to syllabi and lecture notes, tutors to “talk through” and review the content of reading material, alternatives to multiple-choice tests (e.g., reports or projects), waivers of high-stakes oral exams, a separate, quiet room for taking tests, and a partial waiver of the foreign language requirement. Dyslexic students who have difficulty accessing the sound system of their primary language will, almost invariably, have difficulties learning a foreign language. Students with dyslexia most often have no difficulty with the mastery of high level courses. The problem lies in their lack of fluent, rapid reading so that it is the time necessary for them to read through the materials that is problematic. Many rigorous schools allow these students to take one course less during the school year and take this course during the summer. With such accommodations, many students with dyslexia are successfully completing studies in a range of disciplines, including science, law, medicine and education. It is accom-

modations such as these that are encouraging and allowing more students who are dyslexic to enter and to succeed in STEM fields.

SUMMARY AND IMPLICATIONS OF THE SCIENCE OF DYSLEXIA

Yes, dyslexic children can learn to read and must be taught to read. It is imperative that teachers and parents learn about the powerful science of dyslexia, know how to identify dyslexia early on and to provide a positive climate where the entire school faculty is on-board in understanding and teaching students who are dyslexic. This can only take place in specialized schools where dyslexic students are understood, taught by evidence-based methods and are part of a community that they are welcomed into, rather than being isolated. We must not give up on teaching dyslexic children and limit a child's future options. Education must, and can be, aligned with science. To best serve the dyslexic child, we must serve the whole child throughout the school day and not limit his education to a 45-minute pull-out once a day.

We must ensure that scientific knowledge is translated into policy and practice and that ignorance and injustice do not prevail. We know better, we must act better.

I cannot look into the face of one more child who has lost faith in himself and the world, I cannot look into the face of a child's father who is desperately trying to hold back tears; I cannot hear once again about how a school told a mother, "we do not believe in dyslexia."

As an iceberg is 90 percent underwater with only 10 percent visible; similarly, in dyslexia, we hear about the 10 percent who have made it. Let's not give up on the invisible 90 percent still underwater asking, indeed begging, to be helped.

I am optimistic, once Congress, educators and parents are aware of the strong science of dyslexia, educators will want to align their practices and policies with 21st century science. Congress, in particular, can do much to address the needs of dyslexic students, to transform struggling students who do not see themselves as learners into empowered learners who see themselves as having a positive future. First and foremost, it is critical that all recognize that dyslexia cuts across all boundaries—ethnic, racial, SES, gender, national and political. All including Republicans and Democrats must come together on this human issue; dyslexia is not, and should not, be used as a political issue. Recognizing and addressing dyslexia, the explanation and potential solution to our terrible epidemic of reading and academic failure is in the interest of the one in five who are dyslexic, their families and our Nation. I congratulate Senators Cassidy and Mikulski who have come together to sponsor the bipartisan Senate Resolution 275 that provides a 21st century definition of dyslexia and states, unequivocally, that dyslexia has significant educational implications. Isn't it time that the IDEA written first in 1974 joins the 21st century science and gives dyslexia the primacy it deserves, rather than being lost in the verbiage as an afterthought. Let's rise above political interests, acknowledge dyslexia and 21st century knowledge of dyslexia, including its prevalence, definition, identification, provision of not only evidence-based instruction but, critically, strong support for specialized schools for dyslexic students, schools whose climate of having everyone on-board and instructional methods allow dyslexic students to have their strengths, rather than their weaknesses characterize their future lives.

Schools must not be allowed to ignore or fail to recognize dyslexia. We must act now. This requires creating and supporting specialized schools for dyslexic students using the state-of-the-art LKA model. We must always keep in mind: **OUR CHILDREN CAN'T WAIT.**

For far too long, the word and the condition it represents, dyslexia, has been overlooked, not said and not used, much to the detriment of the millions of children who are dyslexic. Dyslexia is specific, highly relevant and carries with it explanatory meaning. Science provides its definition, epidemiology, cognitive basis, neurobiological basis, developmental progression, and long-term outcome.

Perhaps, most important of all, the greatest beneficiary of knowing who she or he is, is the dyslexic student him/herself. To know what you have has a name and explains so much of what you experience on a daily basis and lets you know that you are intelligent, even if you can't read quickly, is incredibly empowering. I have had the experience of telling so many children (and adults, too) that they are dyslexic and what that means. The absolute relief this provides can be life-changing, and indeed, life-saving. Knowledge that you are dyslexic provides the student with self-understanding and self-awareness of what s/he has and what s/he needs to do in order to succeed. Furthermore, such knowledge provides students with a community to join—for many, it is the very first time they know they are not alone. For his or her parent, teacher and importantly, the student, knowledge that s/he is dyslexic brings with it the information that the individual is not stupid or lazy.

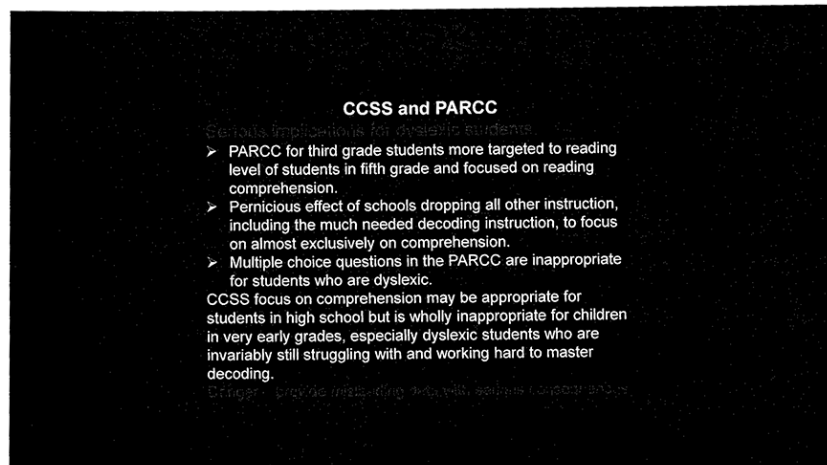
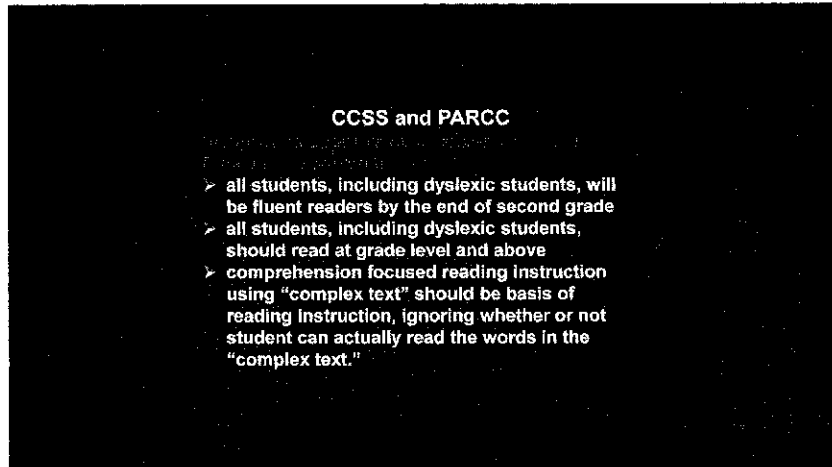
**Top priority recommendation:**

**Given that dyslexia affects the whole child in every class throughout the school day it seems reasonable to strongly encourage the creation of specialized charter schools that focus solely on dyslexia.** Recognizing the rapid growth in reading in the very first years of school and the already present gap by first grade the school should begin as early as possible, by kindergarten or first grade. The goal is to reach children at-risk for dyslexia early on when reading intervention can be maximally effective and before the students fall further and further behind. At such specialized charter schools, such as the Louisiana Key Academy, the entire educational team from principal to classroom teacher to physical education instructor understand dyslexia, it impact students in various situations and are on board to support the students throughout their day. Here, students learn and there is no bullying by students or frustration expressed by teachers who may not understand the impact of dyslexia. These schools can also serve as resources where teachers can come, spend time and learn about dyslexia, what it is and how it impacts a student and learn specific evidence-based methods for teaching reading to dyslexic students and how to best implement these methods.

**Other Recommendations:**

- Schools must not be allowed to ignore, fail to recognize or deny the reality or diagnosis of dyslexia.
- Schools, including teachers, principals and other administrators and parents should make every effort to use the word dyslexia since it has specific, highly relevant and explanatory meaning; science has provided its: definition; epidemiology; cognitive basis; neurobiological basis; developmental progression; and long-term outcome. For dyslexia, knowledge of its cognitive basis indicates what symptoms to look for so that symptoms of dyslexia in the classroom (and at home) are noted and acknowledged rather than as currently happens, ignored or overlooked. This greater awareness and understanding of dyslexia and its impact will benefit both the teacher and student both in the teaching of reading and in the climate and attitudes within the classroom.
- Using the word dyslexia provides a common language facilitating communication among teachers, clinicians, scientists and parents.
- For the student, the knowledge that he is dyslexic is empowering, providing the student with self-understanding and self-awareness of what he has and what he needs to do in order to succeed.
- For students, knowledge that they are dyslexic also provides a community to join—they know they are not alone.
- For the parent and teacher, and importantly the student, knowledge that he or she is dyslexic brings with it the information that the individual is not stupid or lazy.
- Critically important is that schools must use *evidence-based* programs that have proven efficacy; research-based simply indicates that there are theoretical suggestions but does not provide evidence that the program is, indeed, effective. Evidence-based programs are akin to the level of evidence the FDA requires before a medication can be approved for use. Many, many theoretical, research-based approaches, when tested in the field, prove to be ineffective. Our children's reading is too important to be left to theoretical, but unproven, practices and methods. We must replace anecdotal and common, but non-evidence-based practices, with those that are proven, that is, they are evidence-based.
- Professional development programs targeted for teachers must provide *evidence* that the *students* of the teachers using these programs actually improve in their reading performance. This is in contrast to some professional development programs which seem to improve teacher's understanding but not in a way that results in improvement in their student's reading performance.
- Schools of education must ensure that aspiring teachers are taught evidence-based methods to teach reading and have monitored experience demonstrating that they are effective in implementing these methods.
- Scientific evidence that reading growth is maximum in the very first few years of school and then plateaus together with new data indicating that the reading gap between typical and dyslexic readers is already present at first grade and persists means that students must receive evidence-based instructions at the start of their school experience and their progress carefully monitored. Waiting is harmful and not acceptable.

There is so much more to tell; for those who have questions and want to know more, visit the Yale Center for Dyslexia & Creativity website: [dyslexia.yale.edu](http://dyslexia.yale.edu) or look at my book, "Overcoming Dyslexia," which discusses the scientific basis of dyslexia and how to translate this knowledge into practice.



The CHAIRMAN. Thank you.  
Now we go to Ameer.

Let me just say, when I saw that slide, I took a picture of it, about the Sea of Strengths model of dyslexia. Ameer, I looked at you. If you can speak about your testimony, which I think shows the issue of decoding in the midst of a sea of strengths.

**STATEMENT OF AMEER BARAKA, AUTHOR/ACTOR,  
NEW ORLEANS, LA**

Mr. BARAKA. First, I want to say good morning to everyone who is here. I want to thank the Senator and his wife and the panelists for their participation, particularly for allowing me to be here.

It is pretty disturbing. Every time I look at something like that or listen to that lady and seeing that chalkboard with comprehension, reading, the diagram that she has, I find it very difficult. Even as a man, as a grown man right now, there is a sense of

shame. It is not as overbearing as it was years ago, but it still lies there, dormant, waiting to be activated by things like that because it is facts. It is facts.

Both brothers and sisters of mine who went on to college did extremely well. I couldn't get it.

I am going to read my testimony to you guys. This is my story. This is my pain. This is my struggle and, ultimately, my success.

I first would like to thank the committee for allowing me the opportunity to tell my story. I also would like to thank Senator Bill Cassidy and his wife for what they do to help those who struggle with dyslexia.

As a young kid living in abject poverty, it was hard on my mother, who was trying to raise three kids. My two siblings effortlessly excelled in school, and there was joy around their accomplishments. For some reason, I wasn't able to understand what was being taught.

My mother and my siblings couldn't understand why school didn't come as easily for me, so I was called stupid, dumb, and other names that pushed me into darkness and shyness. I became disengaged with school and believed that I just might really be dumb because I couldn't read.

In third grade, I started cutting school and would sleep in the project hallways on Fridays to avoid spelling tests. There was one teacher who tried to help me, but by this time, it was too late. I created this distorted image of myself, and nothing was going to alter it.

I was incarcerated by my own self-imposed limitations. I couldn't read or spell, and my family and peers made that very clear to me.

I'll never forget the day I was called upon to read out loud in the sixth grade. Other kids had their hands up eager to read, but the teacher must have seen me with my head down, trying not to be noticed. It was the most embarrassing moment of my life. I didn't know a single word, and I struggled to read the paragraph.

As I look back now, I can't imagine how teachers kept pushing me to the next grade. That day I made up my mind that I was never going back to school.

Shortly after that incident in school, I was introduced to a drug dealer by another friend who had given up on school as well. This was my solution because dealing drugs required no reading. I would pray at night for God to help me become a big-time drug dealer so I could help my family and community.

Making that choice seemed like my best and only option. I did really well and felt good about myself in the drug world. No one called me dumb or stupid, and we all basically shared the same mindset about hating school.

I made a few attempts to get back into school to alleviate my mother's concerns about my future, but it was not successful. I would just show up for a couple hours and leave to get back to dealing my drugs.

I bought into the lies of the streets, that real men get money by any means necessary and to protect their block, even if it came down to using guns.



I took another kid's life because he was dealing in my projects, and that was a no-no if you weren't from my projects. After serving a year for manslaughter as a juvenile, I was released.

I still couldn't read, so I got right back into the lifestyle of dealing drugs. As time went on, I was getting deeper into this life and was eventually caught with a lot of drugs and was facing 60 years in prison.

With God's help, I was found guilty and received a lesser sentence of 4 years.

That's when the metamorphosis took place. I wanted to learn to read. My GED teacher in prison realized that I was reading poorly and had me tested for a learning disability. Dyslexia was a word I had never heard until I was in prison. He said, if I tried hard enough, I could get my GED.

Every day after I came out of working in the fields, I would go to school and at night stay up learning to spell words. It was hard work trying to believe that learning to read and getting my GED was possible, but my teacher helped me get through it. After 4 years, I attained my GED.

If someone detected this problem earlier in my childhood education, it would have saved me a lot of suffering and possibly my time in jail. My self-esteem shot through the roof after I received my GED.

There are so many kids today that have this same issue with reading and can't get adequate help because teachers can't devote their entire day or class time to one individual student who struggles with reading, or they are never diagnosed and never understood why they are having so many problems in school.

Also, I read my memoir, *The Life I Chose*, to many men in prison now, and they want to learn to read. We can't wait until people get into prison to help them realize their potential.

I hope the committee will take prevention measures now. When a boy or girl can read, anything becomes possible. To reduce incarceration, let's get ahead of this epidemic and turn lives around early. If it wasn't for teachers in prison and God's mercy, I would be dead or in prison with no chance of returning to society.

Reading set me free to dream of becoming an actor, producer, and author.

I appreciate you listening to my testimony, and I hope that you share my story with educators around the world.

This is my story. This is real, people. In this great country that we live in, the Founding Fathers did not construct the Constitution to leave no one behind. It is for everybody to excel.

For some reason, we are declining now. We have gotten away from what the Fathers have said. We have gotten away from looking back and helping our fellow brothers and sisters. We have become selfish.

This is evidence-based practices. It is an epidemic. Both brothers and sisters of mine went on to college. They did extremely well. But I could not get it. I could not get it.

There are thousands of children I come across daily in schools, because I go to schools throughout New Orleans, I go to prisons, and people tell me, "Ameer, I can't read, either. Do you think I can read?" I say, "Yes, you can read." I say, "Can your brother and sis-

ter read?" "Yes, they can read." "So you can, too, but you have to work hard."

They are so in a pit, they have dug themselves so down in an emotional pit, they don't even believe. Only by God's grace I was able to believe, because there was a white man that told me, "Sit in the front of the class in prison." He said, "If you want to read, I am going to help you read."

When I had seen what the Senator is doing, and his wife, when I went to that school and I saw that there was no disparity among race, I said to myself, I want to support these people. These people are trying to help people. I am here today to let you know that what they are saying is true. I experienced it.

Thank you, and God bless you. May you go out and share the message.

[Applause.]

[The prepared statement of Mr. Baraka follows:]

PREPARED STATEMENT OF AMEER BARAKA

I would first like to thank the committee for allowing me the opportunity to tell my story. I also would like to thank Senator Bill Cassidy and his wife for the work they do to help those who struggle with dyslexia.

As a young kid living in abject poverty, it was hard on my mother who was trying to raise three kids. My two siblings effortlessly excelled in school and there was joy around their accomplishments. But for some reason I wasn't able to understand what was being taught. My mother and my siblings couldn't understand why school didn't come as easily for me. I was called stupid, dumb and other names that pushed me into darkness and shyness. I became disengaged with school and believed that I just might really be dumb because I couldn't read. In third grade, I started cutting school and would sleep in the project hallways on Fridays to avoid spelling tests. There was one teacher who tried to help me, but by this time it was too late. I created this distorted image of myself and nothing was going to alter it. I was incarcerated by my own self-imposed limitations. I couldn't read or spell and my family and peers made that very clear to me.

I'll never forget the day I was called upon to read out loud in my 6th grade class. Other kids had their hands up eager to read but the teacher must have saw me with my head down trying not to be noticed. It was the most embarrassing moment of my life. I didn't know a single word and I struggled to read the paragraph. As I look back now, I can't understand how teachers kept pushing me to the next grade. That day I made up in my mind that I was never going back to school.

Shortly after that incident in school, I was introduced to a drug dealer by another friend who also had given up on school. This was my solution because dealing drugs required no reading. I would pray at night for God to help me become a big time drug dealer so I could help my family and community. Making that choice seemed like my best and only option. I did really well and felt good about myself in the drug world. No one called me dumb or stupid and we all basically shared the same mindset about hating school. I made a few attempts to get back in school to alleviate my mother's concerns about my future, but it was not successful. I would just show up for a couple hours and leave to get back to dealing my drugs.

I bought into the lies of the streets, that real men get money by any means necessary and to protect their block even if it came down to using a gun. I took another kid's life because he was dealing in my projects and that was a no-no if you weren't from my projects. After serving a year for manslaughter as a juvenile, I was released. I still couldn't read so I got right back into that lifestyle of dealing drugs. As time went on, I was getting deeper into this life and was eventually caught with a lot of drugs and was facing 60 years in prison. With God's help I was found guilty of a lesser crime and given 4 years instead.

That's when my metamorphosis took place. I wanted to learn to read. My GED teacher in prison realized that I was reading poorly and had me tested for a learning disability. Dyslexia was a word I had never heard of until I was in prison. He said, if I try hard enough I could get my GED. Every day after I came out of working in the fields, I would go to school and at night stay up learning to spell words. It was hard work trying to believe that learning to read and getting my GED was

possible. But my teacher helped me get through it and after 4 years I attained my GED.

If someone detected this problem earlier in my childhood education it would have saved me a lot of suffering and possibly my time in jail. My self-esteem shot through the roof after I received my GED. There are so many kids today that have this same issue with reading. They can't get adequate help because teachers can't devote their entire day or class time to one individual student who struggles with reading. Or they are never diagnosed, and never understand why they are having so many problems in school.

Also, I read my memoir book (The Life I Chose) to many of the men in prison and now they want to learn to read. We can't wait until people get into prison to help them realize their potential. I hope the committee will take prevention measures now. When a boy or girl can read anything becomes possible. To reduce incarceration, let's get ahead of this epidemic and turn lives around early. If it wasn't for that teacher in prison and God's mercy, I would be dead or in prison with no chance to return to society.

Reading set me free to dream of becoming an actor, producer and author. I appreciate you reading my testimony. Please share it with children and educators across the world.

Thank you for listening.

The CHAIRMAN. Mr. Buquet.

**STATEMENT OF J.J. BUQUET, PRESIDENT, BUQUET  
DISTRIBUTING CO., HOUMA, LA**

Mr. BUQUET. I have to follow that? Wow.

[Laughter.]

Members of the committee, ladies and gentlemen, let me begin by thanking you for this opportunity to address you today and to share with you my experience with the learning disability we know today as dyslexia.

My name is J.J. Buquet, and I am the son of Jimmy and Glenney Lee Buquet of Houma, LA. My mother was a teacher in her early years and, therefore, had a background in the field of education. She knew what to look for and could sense when something wasn't right, as my sisters and I proceeded through our formative educational years.

When I was about 8 years old, my parents recognized that there was something wrong. They knew that my sisters and I were going to school. We were doing our homework. We were attending class, behaving, for the most part. Yet, we were struggling. This was around 1974, 1975.

My mother found a testing facility in Lafayette, LA, that was associated with Dr. Charles Shedd and his research with learning disabilities. It was then that my older sister, Andree, and I were both diagnosed with dyslexia.

I wasn't quite sure what to make of all this at the time. I was 8. I recall feeling a little relieved in knowing that my academic struggles were not simply the result of being stupid.

Your self-esteem can be greatly affected in the classroom as other kids are whizzing through their books and math problems, and you are having trouble getting past the first three sentences. This revelation was a little comforting to me at the time.

The problem was that the K-12 world, both public and private, had not really recognized the existence of learning disabilities in general, much less something called dyslexia. There were no accommodations in existence. Teachers had no understanding as to the nature of the problem much less as to how to help a child with dyslexia. The school administrators had no understanding or real

appreciation of the problem and were, quite frankly, frustrated at the thought of having to deal with kids who fell outside of what they considered to be the normal educational process.

Needless to say, my parents, who were very involved in our educational formation, had to fight very hard and advocate strenuously on our behalf. And fight they did.

They began to discuss this discovery of dyslexia with other parents in the community and quickly found out that many of their friends, other parents, their kids were having trouble. Those parents, in turn, had their kids tested. Come to find out, their kids also had dyslexia. A small community of parents began to coalesce in our community.

As I look back, they began to approach the problem with a two-pronged approach. The first was to work within the educational system to advocate for various accommodations. As you might expect, some administrators were more willing than others to assist.

I was fortunate. I was given extra time on tests, provided special meal plans, and given some in-the-classroom remedial training.

The second thing is, in my opinion, the most important thing that occurred. The second thing my parents did was to start a Saturday school program in Houma. Every single Saturday, from 8 to 12, for 4 years, we all went to a site and were given intensive remedial training. This was different from anything that you would normally find in a regular classroom. The program utilized extensive multisensory methodologies. There were multiple one-on-one sessions, running 30 to 45 minutes each.

I must tell you that it was this intensive remediation that made all the difference in the world for me. I believe that had it not been for those efforts and sacrifices of my parents and their friends, I would not have gone on to college much less have gotten my MBA from Tulane.

The one thing that I would really like for you to walk away with today is an appreciation for the fact that those with dyslexia can and indeed do learn. We just learn differently.

The cookie-cutter, assembly line methodology of education simply doesn't work for a kid with dyslexia. A system or methodology is needed that will not only recognize the existence of dyslexia, but provide for a set of accommodations and remediation that will allow a child to realize their full potential.

I would like to thank you for your time and allowing me to provide this review of my experience, and I would be happy to answer any questions that you may have.

Senator, thank you again for this opportunity.

[Applause.]

[The prepared statement of Mr. Buquet follows:]

PREPARED STATEMENT OF JJ BUQUET

Members of the committee, ladies and gentlemen, let me begin by thanking you for this opportunity to address you today and to share with you my experience with the learning disability we know of today as Dyslexia.

My name is JJ Buquet and I am the son of Jimmy and Glenn Lee Buquet of Houma, LA. My mother was a teacher in her early years and therefore had a background in the field of education. She knew what to look for and could sense when something wasn't right as my sisters and I proceeded through our formative educational years. When I was about 8 years old, my parents recognized that there was something wrong. They knew my sisters and I were doing our homework, were at-

tending class, were behaving and participating. And yet, we were struggling. This was around 1974, 1975. My mother found a testing facility in Lafayette that was associated with Dr. Charles Shedd and his research with learning disabilities. It was then that my older sister, Andree, and I were both diagnosed with Dyslexia.

I wasn't quite sure what to make of all this at the age of 8 but I recall feeling a little relieved in knowing that my academic struggles were not simply the result of being "stupid". Your self-esteem can be greatly affected in the classroom as other kids are whizzing through books and math problems and you can't seem to get past the first three sentences. This revelation was a little comforting at first.

The problem was that the K-12 world, both public and private, had not really recognized the existence of learning disabilities in general much less something called Dyslexia. There were no accommodations in existence. Teachers had no understanding as to the nature of the problem much less as to how to help a child with Dyslexia. The school administrators had no understanding or appreciation for the problem and were quite frankly frustrated at the thought of having to deal with kids who fell outside of what they considered to be the normal educational process.

Needless to say, my parents, who were very involved in our educational formation, had to fight very hard and advocate strenuously on our behalf. But fight they did.

They began to discuss this discovery of Dyslexia with other parents and quickly found out that many other parents were having similar struggles with their kids. Those parents had their kids tested. And soon, there was a small community of folks who all found themselves in the same situation. As I look back—they took a two-pronged approach.

The first was to work within the educational systems to advocate for various accommodations. As you might expected, some administrators were more willing than others to help. I was fortunate. I was given extra time on tests, provided special meal plans, and given some in-the-classroom remedial training.

The second thing my parents did was start a Saturday school program. Every single Saturday, from 8 to 12—for 4 years, we all went to a site and were given intensive remedial training. But this was different from anything that you normally found in a regular classroom. The program utilized extensive multisensory methodologies. There were multiple one-on-one sessions running 30 to 45 minutes each.

I must tell you that it was this intensive remediation that made all the difference in the world. I believe that had it not been for the efforts and sacrifices of my parents and the others like them; I would not have gone on to college much less achieve an MBA from Tulane University.

The one thing I would really like for you to walk away with today is an appreciation for the fact that those with Dyslexia can and indeed do learn. We just learn differently. The cookie cutter, assembly line method of education simply does not work for a kid with Dyslexia. A system or methodology is needed that will not only recognize the existence of dyslexia, but provide for a set of accommodations and remediation that will allow for the child to realize their full potential.

I would like to again thank you for allowing me the opportunity to be here today and to thank you for taking the time to consider the academic needs of those with dyslexia and other related learning disabilities. I would be happy to answer any questions that you may have.

The CHAIRMAN. Karen, we have the contrast between a life with no early identification and delayed remediation, and one with early identification and remediation. You are the educator. Please comment.

**STATEMENT OF KAREN CHAUVIN, DIRECTOR, LOUISIANA CENTER FOR DYSLEXIA AND RELATED LEARNING DISORDERS, NICHOLLS STATE UNIVERSITY, THIBODAUX, LA**

Ms. CHAUVIN. Again, I would like to thank you all for having me. I was asked to provide testimony addressing the provision of accommodations for dyslexic students and the resources dyslexic students need to succeed in school and life.

Dyslexic students, because of their creative thinking abilities, can be valuable additions to any classroom. They offer unique perspectives that can enrich learning for all students in the class.

However, these students are often misunderstood by educators, parents, and classmates. Because they struggle with reading, writ-

ing, spelling, and even speaking, they are often perceived as lacking intelligence.

Dyslexia is a deficit in the phonological functioning, or the ability to manipulate the sounds of language, that results in difficulty or inability to decode even the simplest words, as Dr. Shaywitz described earlier.

As a result, a highly intelligent student with great vocabulary and reasoning skills may not be able to decode words, preventing him from using his intelligence, vocabulary, and reasoning skills to make sense of what is printed on the page. One way students with dyslexia can succeed in spite of their reading challenges is to provide them with accommodations.

In addition to effective teaching, accommodations are the key to dyslexic success in school. Some of the most common accommodations are tests read aloud and extended time for tests and assignments. Having a test or reading assignment read aloud or using text-to-speech software allows the student to access his knowledge and utilize his reasoning skills.

Even for a student who has learned to read, reading is mechanical and laborious when you have dyslexia, thus resulting in insufficient cognitive desk space. They can't think about what they are reading, because the reading is so difficult.

Good readers recognize many thousands of words by sight; dyslexic readers tend to have to decode every word on the page, as very few of them are instantly recognized. The student takes so long to read, and reading is so difficult, that he cannot think about what he is reading.

Providing extended time for tests allows the student the opportunity to perhaps read and re-read the material and then to process what has been read. Also, when tests require writing answers, as opposed to just bubbling in answer sheets, the same amount of effort goes into formulating the answer and getting the words onto the page. Extended time is critical.

Another option is to have the student dictate his answers either to a live person or using speech-to-text software. Being able to speak his answers eliminates the troublesome spelling and grammar problems associated with writing.

Another accommodation for dyslexic students is the ability to have a note taker or copies of the teacher's notes for a class lecture. Because of the dyslexic's difficulty with printed words, both reading and writing, the student should have access to the notes while the lecture is going on, so he can simply listen and enhance or highlight the given notes.

All too often, students are forced to try to write notes while the teacher is talking, but there again is the limited cognitive desk space. They can't pay attention to what is said because they are trying to spell words. He may get some words onto the page, but because it is such a struggle, he misses the gist of what the teacher is saying and cannot participate in discussions. Therefore, he seems to either lack motivation or interest, or maybe he just seems like he does not understand.

Imagine the overwhelming challenge of having to attend to each letter printed or each sound spoken in words before you can even begin to think about the meaning of the words.

These types of accommodations eliminate that burden. Unfortunately, many educators and testing companies believe that providing accommodations to some students is not fair to others.

Rick Lavoie, an educator for over 30 years and an advocate for students with learning disabilities, expresses that fairness does not mean that everyone gets the same thing; fairness means that everyone gets what he or she needs to be successful. When students are treated fairly by Rick Lavoie's definition, they can succeed and even thrive in the classroom. We see this happen with college students every day at Nicholls State University.

What Congress can do to help students with dyslexia is provide them with the resources they need to succeed in life and school.

As an educator who travels extensively through the State of Louisiana and into other States, I feel that there are two important issues at hand.

I am going to run out of time.

The CHAIRMAN. You have 30 seconds.

Ms. CHAUVIN. OK.

One is the preparation of teachers at the college level. In 1997, Congress asked the NICHD and the U.S. Department of Education to establish the National Reading Panel that would evaluate existing research and evidence to find the best ways of teaching children to read. The National Reading Panel submitted its final report in April 2000. Back in June 1999, Dr. Louisa Moats published a paper titled "Teaching Reading IS Rocket Science" in which she elaborated on the importance of effective teacher preparation in reading instructions.

Over 15 years later, we still have young teachers in America's classrooms who have received minimal instructions at the college level on how to teach struggling readers. Where months of instructions in the structure of the English language and hands-on application are needed to be an effective reading teacher, particularly for students with dyslexia and similar learning disabilities, many teacher education candidates receive a simple glossing over of phonics.

The research is there. It should guide the profession. It should start in every teacher preparation program in the country.

As I travel to school districts providing professional development, I hear the same story, "We should have learned that in college."

The second important issue, also dependent on funding, is the availability of resources in the public school systems. Right here in Louisiana, there are huge discrepancies in what is available for dyslexic students. School districts are funded largely based on the tax base of the parish. Is it fair that a student who is dyslexic in a poor rural parish cannot have access to the same effective teacher and assistive technology as a dyslexic student in a more prosperous district?

Remember the fairness definition. Give the students what they need to succeed. Allocate Federal funding for dyslexia. Thank you.

[Applause.]

[The prepared statement of Ms. Chauvin follows:]

## PREPARED STATEMENT OF KAREN CHAUVIN

I was asked to provide a testimony addressing the provision of accommodations for dyslexic students and the resources dyslexic students need to succeed in school and life. Dyslexic students, because of their creative thinking abilities, can be valuable additions to any classroom. They offer unique perspectives that can enrich learning for all students in the class. However, these students are often misunderstood by educators, parents, and classmates. Because they struggle with reading, writing, spelling, and even speaking, they are often perceived as lacking intelligence. Dyslexia is a deficit in the phonological functioning (the ability to manipulate the sounds of language) of the brain that results in difficulty or inability to decode even the simplest words. As a result, a highly intelligent student with great vocabulary and reasoning skills may not be able to decode words, preventing him from using his intelligence, vocabulary, and reasoning skills to make sense of what is printed on the page.

One way students with dyslexia can succeed in spite of their reading challenges is to provide them with accommodations. In addition to effective teaching, accommodations are the key to dyslexics' success in school. Some of the most common accommodations are tests read aloud and extended time for tests and assignments. Having a test or reading assignment read aloud or using text to speech software allows the student to access his knowledge and reasoning skills. Even for a student who has learned to read, reading is mechanical (not smooth) and laborious, thus resulting in insufficient cognitive desk space. Good readers recognize many thousands of words by sight; dyslexic readers tend to have to decode every word on the page as very few of them are instantly recognized. The student takes so long to read, and reading is so difficult, that he cannot think about what he is reading; he has limited cognitive desk space. Providing extended time for tests allows the student the opportunity to perhaps read and re-read the material and then to process what has been read. Also, when tests require writing answers (as opposed to bubbling in answer sheets), the same amount of effort goes into formulating the answer and getting the words onto the page. Extended time is critical. Another option is to have the student dictate his answers either to a live person or using speech to text software. Being able to speak his answers eliminates the troublesome spelling and grammar problems associated with writing. Another valuable accommodation for dyslexic students is the ability to have a note-taker or copies of the teacher's notes for a class lecture. Because of the dyslexic's difficulty with printed words (reading and writing) the student should have access to the notes while the lecture is going on so he or she can simply listen and enhance or highlight the given notes. All too often, students are forced to write notes while the teacher is talking, but again, there is limited cognitive desk space. He may get some words onto the page, but because it is such a struggle, he misses out of getting the gist of what the teacher says, and he cannot participate in discussions because of it. Imagine the overwhelming challenge of having to attend to each letter in printed words or each sound in spoken words before you can even begin to think about the meaning of the words. These types of accommodations eliminate that burden. Unfortunately, many educators and testing companies believe that providing accommodations to some students is *not fair* to the others. Rick Lavoie, an educator for over 30 years and an advocate for students with learning disabilities, expresses that *fairness does not mean that everyone gets the same thing; fairness means that everyone gets what he or she needs to be successful*. When students are treated fairly by Rick Lavoie's definition, they can succeed and even thrive in the classroom.

What can Congress do to help students with dyslexia have the resources they need to succeed in life and school? As an educator who travels extensively throughout the State of Louisiana and into other States, I feel that there are two important issues at hand. One is the preparation of teachers at the college level. In 1997, Congress asked the NICHD and the U.S. Department of Education to establish the National Reading Panel that would evaluate existing research and evidence to find the best ways of teaching children to read. The National Reading Panel submitted its final report in April 2000. In June 1999, Dr. Louisa Moats published a paper titled *Teaching Reading IS Rocket Science* in which she elaborated on the importance of effective teacher preparation in reading instruction. Now, over 15 years later, we still have young teachers in America's classrooms who have received minimal instruction at the college level on how to teach struggling readers. Where months of instruction in the structure of the English language and hands-on application are needed to be an effective reading teacher, particularly for students with dyslexia and similar learning disabilities, many teacher education candidates receive a simple glossing over of phonics. The research is there. It should guide the profession, and it should start in every teacher preparation program in the country. Then, the



research should guide professional development for current teachers. As I travel to school districts around the country, providing professional development, I hear the same story, *we should have learned that in college*.

I realize that most decisions boil down to funding, but for the future of our children, we need to be sure that adequate funding is available for teachers (pre-service and in-service) to access high-quality teacher education programs that utilize the research and prepare teachers to teach ALL children. It is estimated that 1 in 5 children are dyslexic. It is not good enough to prepare teachers to teach 4 out of 5 children.

The second important issue, also dependent on funding, is the availability of resources in the public school systems. Right here in Louisiana there are huge discrepancies in what is available for dyslexic students. School districts are funded largely based on the tax base of the parish. Is it fair that a student who is dyslexic in a poor rural parish cannot have access to the same effective teacher and assistive technology as a dyslexic student in a more prosperous district? Remember the *fairness* definition? Give the students what they need to succeed. Allocate Federal funding for students with dyslexia.

The CHAIRMAN. Let me just say, to hear the Shaywitzes with their slides, and then to hear Ameer and J.J. kind of give the real life of what it was about—one thing I took notes from what I think Dr. Sally Shaywitz said, that students must be empowered. They need to understand what is going on with themselves. They need to be in a community and know that they are not alone. And then everybody else must be on board.

Ameer, let me ask, at some point you realized that there was nothing to be ashamed of. You had the brainpower. You had a sea of strengths. For whatever reason, you couldn't read. When were you actually told that there was something called dyslexia and that you might have it?

Mr. BARAKA. I was told that when I was sent to the penitentiary.

The CHAIRMAN. Who told you?

Mr. BARAKA. A schoolteacher.

The CHAIRMAN. What did that do? Sally mentioned, once given the diagnosis, it kind of allows the child or the adult that self-insight. Did that occur with you? I am going to ask the same thing of you, J.J.

If so, what did it mean?

Mr. BARAKA. What made me feel good about myself was, in prison, there are so many men who cannot read. When you go to prison, you are tested. Everyone goes to class and you take this exam. I found out they said I was at the second or third grade level. Another guy said he was on the fourth grade level. I felt good that I was in a room with people that were maybe a year or two above me, but who were all grown men. I felt really good about that.

I said to myself, OK, these guys are just like me. They are just like me, unfortunately.

The CHAIRMAN. That was a community of those who struggle to read. What about the community of those who might have dyslexia and, my gosh, maybe you can read?

By the way, I didn't realize until you just said it that the prisons have data on their percent of newly incarcerated who are functionally illiterate.

Mr. BARAKA. Yes. Very high.

The CHAIRMAN. I knew it was high. I didn't know that they routinely screen for that.

Mr. BARAKA. They do.

The CHAIRMAN. J.J., at some point, you see your sisters. Sibling rivalry must have been tough on you. They are doing well. You are not. Yet then you were told there is a reason that you were not. Dr. Sally mentioned how much that can mean to a child. Then you are instantly went into the community.

It is like you were the PowerPoint slide, J.J. Buquet.

Mr. BUQUET. Right.

The CHAIRMAN. Give us your real life experience with that.

Mr. BUQUET. My older sister and I were both diagnosed, so there was not too much competition. It was early on. I was 8 years old. She was 12. As you progress in age, the more difficult it becomes because the further and further behind you become at your grade level. My sister, Andree, was 4 years ahead and really had more of a compensatory lag to make up for.

It is very, very frustrating. It is a relief. Again, I was 8 years old. That was a long time ago. I had a friend of mine who discovered that he was dyslexic about 20 years ago. He was in college. To see the relief on his face that,

“Hey, I am really not stupid. I just have this little neurological issue, and there is actually some programming out there to help me overcome it.”

It is a huge relief to those who find out.

Senator, the prison system, a lot of those guys who are illiterate, a lot of them have dyslexia. It goes all the way back to—knowledge is power, but power can be dangerous, and it requires a response. If we were testing in our public school systems, and in private, for that matter, at an early age, grades one, two, three, and determined what kids have dyslexia—we test kids so much today, why can't we test for this? I am afraid the administrators don't want to know, because that means they would have to respond to it.

If you have 20 percent of your population with a particular virus, that would be all over the news as a pandemic. You do not hear about it in the field of education with dyslexia.

I really think that the diagnosis early on is a critical first step as we try to wrap our hands around the problem nationally.

The CHAIRMAN. That feeds nicely into the story of your sister—delayed diagnosis bringing on greater difficulty.

Let me ask of either Dr. Bennett or Dr. Sally, you mention that those differences can be found detected in first grade. What is the consequence of not making early diagnosis and not also having that early remediation?

Dr. SALLY SHAYWITZ. The consequences are severe and grave. One is the student and the way that student is treated by his or her teacher. They are often called dumb or, “How can you not understand that?” Or called to read aloud and cannot. That student is teased and bullied.

Because that achievement gap is so large at the beginning, it is just going to persist. The student will believe that they don't have intelligence.

Just like Ameer said, they will feel that school is not the place for me and also feel that they are dumb.

The CHAIRMAN. Sally, so the delayed remediation, it is not as if you don't begin remediation until the fourth grade, you quickly catch up. I am gathering from what you are saying that there will

still be the normal kind of—no, it takes 3 years to learn this course material.

Is that a correct assessment?

Dr. SALLY SHAYWITZ. Yes, and they don't. That is the real difficulty. The systems that are in place are not appropriate, and you have to undo the incorrect and, on top of that, undo all the aversion and lowered self-esteem.

We have to get rid of this reading by grade three. We need to start saying reading in first grade and second grade, at least be on the pathway to reading and not to ignore children who are struggling early on.

There are ways to detect that, to identify that, and to address that.

The CHAIRMAN. Let me ask, because I have learned from you and from others, so let me just bring something to the table, that the first grader has a brain particularly capable at that stage of development, the elasticity, if you will, of that first grade brain may be greater. Not only is it that the intervention is delayed but that that critical moment in which the child's brain is ready to take off, that period is lost.

Do I understand that correctly? Am I overstating it? What would your comment be?

Dr. SALLY SHAYWITZ. That pretty much sums it up. Children are ready, eager when they enter school. Their brains are ready. When children enter school, we tell them, "Oh, you are going to learn to read and you are going to be a reader," and they are all anticipating. Then they see everyone around them doing it and they begin to wonder, "Why can't I?" There is nobody typically around who answers that or helps them.

The CHAIRMAN. Let me ask you both again before I come back to the panel here, J.J. mentioned, why aren't we screening children in first grade? Ameer's testimony suggests that would have made all the difference in the world. You mentioned almost one of five children are dyslexic.

Yet that is not what a typical elementary school will have identified. They will not identify 20 percent of the children as dyslexic.

J.J.'s point that we should be screening all first-graders, would you endorse that?

Dr. SALLY SHAYWITZ. Oh, absolutely. We should be screening kindergartners and first graders.

We can do that. We have the methods to do it. Some methods involve actually testing children, for example, on life knowledge. They are newly developed—I must admit that we develop such an instrument—that teachers complete in 5 or 10 minutes and are highly predictive of which children will go on to have more serious reading problems.

The important thing is it has to be part of the agenda. It has to be part of the curriculum.

I have had parents tell me, for example, "Well, I saw it in kindergarten. I saw it in first grade, and I was told it was a glitch. It will get better." Then in second grade, "Oh, don't worry. He'll catch on." And then it was fifth grade and he was struggling and didn't want to go to school.

We have to detect things early on. Imagine if this was any kind of medical condition. “Oh, well, let’s wait.” That is unconscionable with all the science we have and all that we know. We heard these really incredibly riveting stories of what happens when it is not identified.

We know how to identify it. We can identify it, and there is absolutely no reason that it should not be. It has to be a permanent part of a school’s agenda early, early on.

The CHAIRMAN. We have been speaking about primary and secondary education, but Karen, You might be qualified to speak to this. I have been to Nicholls State University. I know that that is a university that attempts to accommodate children with dyslexia.

I am struck when Sally says that everybody has to be on board, that you can’t have the PE coach not knowing or the history teacher not knowing. We have been speaking about primary and secondary, but speak about how it also, if you will, in the university setting continues.

Ms. CHAUVIN. Oh, yes. We have a program for dyslexic students over at Nicholls State University. This is our record enrollment. We have 130 college students in our program. They attend the classes just as everyone else. They receive a little assistance from us. We have some insight into which professors are more likely to work with them, so we steer them that way. They receive the same instruction, the same curriculum as anyone else. But they get support.

It is sometimes very heartbreaking to see college students who read at the third or fourth grade level who want to succeed so badly. They will suspend hours on end in our Dyslexia Center getting re-taught what they were taught in the classroom. But, they do it.

We have had students who have come through our program who have gone on to fight much bigger and better things. A graduate that I can think of, she is a manager. She came from Lake Charles, LA, and she is a manager at the Four Seasons Hotel in New York City. She got that way through a culinary arts degree at Nicholls State University with the help of the Dyslexia Center.

It boils down to re-teaching, the remediation, and the provision of accommodations.

One thing that I have noticed, though, that is also kind of heartbreaking is that these people come through high school. They have a diagnosis. They get into college. They do very well in our program. Then some of them want to go on and get an advanced degree, and in many cases—this was mentioned earlier—some of those standardized tests, like the LSAT, they have to get reevaluated when we have been knowing for 12 to 15 years that they have dyslexia.

They have to get reevaluated to get accommodations on that test. That should not be because when you have dyslexia, you have dyslexia.

I would like to see that type of requirement changed. Those testing companies could just take their word for it, if they have a documented history.

Some of our students do not get to take that next step because they cannot afford a reevaluation. That shouldn’t be the case.

The CHAIRMAN. I will say that when I was in Congress, we sent letters to a lot of the boards to find which accommodated and which did not. Some do. Some have begun to. And some don't.

Sally has worked on this. It is against the law. Sometimes, I hate to say this, it may take a lawsuit, because you can pass another law, but if they are not obeying the current law, they probably are not going to obey another law, if that makes sense.

Nonetheless, I totally agree with that.

In fact, Sally once told me that many dyslexics are architects, but they do not have a test. They say go draw your project and you draw it. I am speaking for Sally, but she is on mute, so I can get away with it.

Bennett, Karen mentioned people going to college who have struggled so much, and then mentioned the test they must take to go on. For whatever reason, that triggers in my mind standardized testing that is now so prevalent in primary and secondary education.

Can you speak about standardized testing in the primary and secondary setting and what that means for children with dyslexia?

Dr. BENNETT SHAYWITZ. Yes. Thank you for asking, Senator Cassidy.

In fact, we think that the Common Core State standards and the associated PARCC are really inappropriate for dyslexic students, and particularly for dyslexic elementary students. There are reasons for this. There are several that I listed.

These tests, standards and the tests that go along with them, are based on the mistaken belief that all students, including dyslexic students, will be fluent readers by the end of second grade, and that all students, including dyslexic students, should read at grade level and above.

Furthermore, this comprehension-focused reading structure, and I put in quotes using "complex text," because that is the wording of the Common Core standards, that should be the basis of reading instruction. The problem is that ignores whether or not the student can actually read the words in the complex text.

What we think, and more and more evidence is coming to support this, is that this has serious implications for dyslexic students. For example, the PARCC for third-grade students is more targeted for the reading level in fifth grade and is focused on reading comprehension. That is terribly unfair for a dyslexic student.

This further has the pernicious effect of schools dropping all other instructions, including much-needed decoding instructions, to focus almost exclusively on comprehension.

Again, the multiple-choice questions in the PARCC are very inappropriate for students who are dyslexic. It does not give them the context to understand what the question actually is.

We also know that this Common Core focus on comprehension, while it may be appropriate for students in high school who are good readers, it is really inappropriate for students in the very early grades, especially dyslexic students who are invariably still struggling with and working hard to master decoding.

What I think this also has is the terrible consequence of providing misleading data with very serious consequences for students and for schools and for teachers. What really is the problem is that

this is an inappropriate test for dyslexic students. People are beginning to recognize that. Everybody at this meeting should recognize that this is a very serious problem.

The CHAIRMAN. Bennett, that begs the question, if you want to have some way to assess the progress of a child who is dyslexic grades one, four, six, eight, whatever, how do you do so? Can it be done?

Dr. BENNETT SHAYWITZ. Yes. There are a number of other tests that can be used that would give you a sense of whether the child is mastering reading. There are many good reading tests. You can see whether the child is improving their reading as they are going through school.

What I am saying is that the way the Common Core standards and the PARCC tests are set up are very inappropriate for dyslexic students who are still learning to decode text, and that is a very inappropriate way to assess their progress. There many other reading tests that can be used to assess the reading progress of students who are dyslexic. The PARCC is a very inappropriate one.

Dr. SALLY SHAYWITZ. I am going to jump in, too, Senator. Given that dyslexia is so prevalent, one out of five, it really behooves companies like the company that is responsible for PARCC, dyslexia is an important issue to them, to get together and develop tests that are appropriate for dyslexic students.

In developing both the Common Core-based standards and PARCC, it was as if they weren't aware that dyslexia exists, that dyslexia is highly prevalent, and sort of went ahead. It is harming many, many students and teachers, too.

The CHAIRMAN. Let me ask, as long as you all are up right now, J.J. spoke about his mother, who is an educator, detecting that he had dyslexia at an early age.

If there is somebody who sees this testimony and is concerned that their child might be dyslexic, what would be the indicator that, "Oh, my gosh, my daughter or my son may be having this issue. We need to have it further pursued." Just the fact that the child is not reading as quickly as others? Or is there a way to be more proactive?

Dr. SALLY SHAYWITZ. Let me take a shot at that.

Because we know that dyslexia reflects a difficulty in getting to the sounds of spoken language, we can look for signs even before the child is expected to read, signs relating to spoken language.

For example, there may be delayed—not hugely, but somewhat delayed language. A very young child, a toddler, may have trouble learning nursery rhymes, because in order to appreciate a rhyme, you have to be able to pull out a part and focus on just the end—the rhyme, at, hat, cat, et cetera. There may be a lack of appreciation of rhymes. There may be mispronounced words or persistent baby talk.

As the child becomes 4 or 5, there may be difficulty learning and remembering the names of letters. The child may not even recognize letters in his or her own name.

Then as the child enters kindergarten or first grade, they just don't get it, and not because they are not intelligent but because they have phonological difficulties. Words that come apart, "cow-

boy” you can pull apart as “cow” and “boy,” they have a real difficulty, if not inability, to associate letters with sounds.

They make reading errors that show no connection of what comes out of the child’s mouth to the letters of the sound. They will read the word “milk” as “hat,” for example.

Then sadly, the child will turn off of reading and complain how hard reading is and run away or find ways even to get into trouble to avoid having to read, particularly to read aloud.

Early on, there are signs. In my book, “Overcoming Dyslexia,” I list at every couple grades what the signs are. There are often signs, just like we were hearing about intelligence on what children can do. So it fits the Sea of Strengths model.

We have to pay attention to both, and we can’t say, “He will grow out of it.” What we learned from science is that he will not grow out of it. We have to address this early on, and now we can.

The CHAIRMAN. Drawing to a close, first, I will address this to you, Karen, and then come back to the Shaywitzes, because you all are both at academic institutions.

You mentioned the problem of schools and education not teaching teachers, if you will, what Dr. Shaywitz was just talking about. There was a teacher in sixth grade that figured out that Ameer had an issue. He had a lot of teachers before the sixth grade.

I will first turn to you and then to the Shaywitzes, what should we do?

Ms. CHAUVIN. That is a question we all ask, what should be done? Like I said, the research is there. The research has been there. I actually have a book that was written by Anna Gillingham. I believe it was in the 1940s or the 1960s or something. It discusses how children with dyslexia should be taught to read.

What is kind of ironic is that that was the way for dyslexic kids, but what Louisa Moats published in “Teaching Reading IS Rocket Science,” she basically said the same thing.

We have been saying the same thing over and over for decades now. The Shaywitzes have said it. Others have said it. We know how people learn to read. We know why dyslexics students don’t learn to read easily.

I don’t know. The resources definitely need to be dedicated toward training teachers before they get out into the field to work with dyslexic students. When I was a new teacher, my first classroom, they say, one in five? I can name three or four students from that first class that had dyslexia, but I didn’t know it because I wasn’t trained to look for dyslexia.

I had never heard the word dyslexia in 1988 in Louisiana. We had a law that was passed in the early 1990s. I didn’t know one thing about dyslexia.

I had a 10-year-old child in my first class—second grade. I was his first second-grade teacher. What a failure. Somebody failed. His other teachers before me didn’t know.

It’s not their fault. They weren’t taught either.

I don’t know exactly what the answer is, but something needs to be done.

AUDIENCE MEMBER. Senator, may I?

The CHAIRMAN. See that guy over there in the corner?

AUDIENCE MEMBER. I’d have to punch him?

The CHAIRMAN. Exactly. You would have to punch him out first. Under Senate rules, we are not allowed to take questions from the audience, so I apologize for that. I tried to bend the rules, and they told me I would be carted away, too, in a perp walk. We will speak afterwards.

AUDIENCE MEMBER. OK.

The CHAIRMAN. Sally.

Dr. SALLY SHAYWITZ. I have a comment.

The CHAIRMAN. Yes, ma'am.

Dr. SALLY SHAYWITZ. Schools of education have to improve their teaching of reading, but I think it is actually a bigger issue because dyslexia doesn't only affect the child's ability to read. It affects the whole child.

Senator Cassidy, you, Bennett and I know that when we train to become physicians, we have several years of book study, but where we really learn how to take care of patients is where we have real-life experiences—intern, resident, et cetera, seeing and caring for patients under supervision and mentorship.

For example, one of the real advantages of specialized schools for dyslexic students is that teachers in training can come and experience in real life what a dyslexic child is like. It is not only what is written on the page, you can't do this or that, but the whole of that.

Such specialized schools give an opportunity for teachers to really learn in a much broader way and in a much deeper way what dyslexia is and how it impacts a child and how it is best addressed.

The CHAIRMAN. I am going to finish with this question for Ameer. There clearly are multiple challenges here, but one thing we draw from this is, if we choose not to address these challenges, there are incredible consequences.

Ameer, you go to prisons now to speak to those who are in prison about illiteracy. Knowing you do not have hard specifics, but give us a sense, what percent of inmates you interact with who cannot read, and if you can, what percent of those you find really pretty bright and talented, with lots of reasoning skills, who know what is going on? Maybe they used to do a big drug ring. They have business skills. But they cannot read.

Can you give me a sense of the scope of that?

Mr. BARAKA. I would say, just recently I was in a class and they were reading. Only a couple guys in this whole dorm of 60 guys who were reading. Maybe out of the 60 guys, I would say about 40 of them, 40 of them, could not read or have problems reading.

This is something that I tell them they shouldn't be ashamed of because I was just like them, and I tell them that while serving their lengthy sentence, they must pursue academics. They must do everything that they can to learn to read.

I want to say, Senator, he had parents who took him and he was trained in phonics. Every word that I know how to spell, I know that word from looking at it. I cannot break a word down. I don't have that skill. I was not taught that ability.

Back to the guys incarcerated, if we don't get ahold of this problem, particularly in the African American community, what I see is that we are going to have prisons bigger than college campuses. If you want to make some money, start investing in prisons, be-



cause guess what, Black boys are going, because many of them cannot read. They cannot read.

The shame, the embarrassment in the community, you go into a shell. By God's grace, I was able to come out. I don't know if they're able to make it.

The CHAIRMAN. That is an incredible way to finish.

Thank you all for being here. Thank you to the Shaywitzes.

I am instructed to say that the hearing record will remain open for 10 days for me to submit additional comments and any questions for the record that I may have.

I thank you for being here.

The committee will now stand adjourned. Thank you all.

[Whereupon, at 11: 34 a.m., the hearing was adjourned.]

