



Scaling Innovation: Where Do We Go from Here?

*Science has informed us as to what is wrong and what should be done.
Our larders are full, but our children still go hungry.*

By Emerson Dickman, JD, Past President International Dyslexia Association and special education attorney and child advocate specializing in the representation of children and adults with disabilities for over 40 years

The search for solutions is often undertaken without giving due attention to causes. For instance, one needs eyes to read, and as a result, one might assume that problems in learning must be related to how we see. In this case, the truth is counterintuitive. Jeanne S. Chall has written, "The reading gaps of the deaf as compared to the blind seem almost a contradiction. The blind are the better readers. This happens because reading is closer to hearing than to seeing." Perhaps we can modify Dr. Reid Lyon's approach to discovering what should be done to focus on the true core issues regarding causes for the lack of improved

outcomes for students in spite of decades of meaningful research.

1. *How do effective teachers acquire a meaningful depth of knowledge?*
2. *Why do many teachers lack a meaningful depth of knowledge?*
3. *How can a lack of a meaningful depth of knowledge be prevented?*

Decades of consistent, rigorous, and replicable research has informed us about what is wrong and what should be done to help. Some refer to

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this observation as “settled science.” Nevertheless, when confronted with the underwhelming impact that such research has had, we continue to address our limited resources to determining what constitutes a meaningful depth of knowledge when we should be focusing on logistics and the ability to distribute that which has already been stockpiled.

In April 2021, Margie Gillis, Ed.D. presented on the topic “Using Assessments to Drive Literacy Instruction.” As an advocate, I was intrigued by the title. We screen, assess, and evaluate—to what end? Among other reasons, we seek to identify risk, diagnose, establish performance baselines, monitor progress, and prescribe intervention. The overall goal, as I see it, is ultimately to improve outcomes by:

1. *Identifying those in need, and*
2. *Identifying the intervention necessary to address that need.*

That seems reasonable. We can now do both accurately and efficiently. The reason why outcomes are not being influenced is because there is not a sufficient number of interventionists with the requisite depth of knowledge to meet the demand. We know who is sick, we know who is going to get sick, and we have the formula for a vaccine that works, but we do not have the resources to manufacture and distribute the vaccine. I think that this analogy works

perfectly. Our institutions of higher education are not graduating teachers with the depth of knowledge necessary to influence outcomes.

Focusing on new and better screeners and assessments or on further defining the depth of knowledge necessary to make a difference is of no significance if we cannot match the student with a teacher who is properly equipped.

We now know what **informed** intervention looks like. Why aren't outcomes improving? The answer is simple: **informed** intervention is not being provided to the population in need. The challenge now is not to revisit old ground (i.e., what works) but to seed a crop to feed the needy (i.e., deliver widespread depth of knowledge to interventionists who work with children in need).

I have been to many hundreds of IEP meetings when a teacher claims, “I do what works; I use an eclectic approach; no one approach is good for every child, and I don't tie myself down to a particular method; I use multimodal, multisensory techniques; I engage the student; learning with me is not all boring drill and practice; I am familiar with many methods; I get results.” Note that this very confident teacher has not

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mentioned a specific method or approach, claimed any certifications or training, or described how the needs of the particular child would be addressed. Being self-taught is not a crime. However, answers that are counterintuitive are often hidden from the purely self-taught.

A teacher's very confidence is a tipoff to the fact that the teacher probably lacks a depth of knowledge, as are the broad unspecified claims that "I do what works," "I don't tie myself down," "I engage the student," and "I get results." I find the use of the term "eclectic" especially ubiquitous. Eclectic teaching is knowing what you are doing, not simply doing what you know.

I once wrote, "Arrogance and ignorance are twins joined at the brain." The research of Louisa Moats and others has shown that, perhaps surprisingly, there is an inverse relationship between teacher confidence and teacher knowledge. In other words, with shallow knowledge comes hubris, and with deep knowledge comes humility.

I am a fan of the lessons that emerge from a Faustian paradox to the effect that the more one learns, the greater is one's realization of what one does not know. The only discovery one makes in a search for knowledge is an ever-greater awareness of the vastness of one's own incapacities. Will Durant put it this way: "Education is a progressive discovery of our own ignorance." Socrates said, "And in knowing that you know nothing, that makes you the smartest of all." I have come to understand that in any group, the most informed is one who is most aware of what he or she does not know.

The failure to address the needs of children at risk has not gone unnoticed, and the consensus points to teacher preparation as the most significant single variable. In a study published in the *Annals of Dyslexia* (Volume 71 Issue 2, August 9, 2021) "Characterizing

the Knowledge of Educators Across the Tiers of Instructional Support," Susan B. Porter, Timothy N. Odegard, and Emily A. Farris researched the knowledge base of 1,369 classroom teachers, 74 reading interventionists, and 131 special educators and found that "Special educators provide intervention to students with the most severe forms of reading disabilities, yet they had the lowest level of knowledge."

"One factor that impedes effective instruction with children at risk for reading failure is current teacher preparation practices. Many teachers have not had the opportunity to develop basic knowledge about the structure of the English language, reading development, and the nature of reading difficulties." (The NICHD Research Program in Reading Development, Reading Disorders, and Reading Instruction: A Summary of Research; National Institute of Child Health and Human Development, National Institutes of Health, May 1999, p.5)

"The amount of course work in the structure of spoken and written language required by teacher preparation programs and state certification standards are woefully inadequate for the demands of classroom life, particularly classrooms with low-readiness children and diverse range of learners." (American Educator, 19.2, 1995, The Professional Journal of the American Federation of Teachers, p.5, emphasis added)

"It is thus easy to see why teachers may obtain certification without acquiring knowledge of the language content and processes critical to reading and spelling acquisition." (Id, p.45)

"Teachers need to be knowledgeable about the research foundations of reading." (Executive Summary of the Prepublication Copy of "Preventing Reading Difficulties in Young Children," Committee on the Prevention of Reading Difficulties in Young Children, National Research Council (1998), National Academy of Sciences)

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"Teachers need ongoing professional development that has topical continuity, practical application, and opportunities for collaboration with peers."

(Moats, L.C., Teaching Reading IS Rocket Science: What Expert Teachers of Reading Should Know and Be Able to Do, a position paper of the American Federation of Teachers, June 1999)

"Most teachers are not being given the content and depth of training needed to enable them to provide appropriate instruction."

(Brady and Moats, 1997, Informed Instruction for Reading Success; Foundations for Teacher Preparation; a position paper of the International Dyslexia Association, p.1)

"Certification is not a direct analog for qualification and data do not indicate that certification necessarily provides a qualified teacher."

(President's Commission on Excellence in Special Education Report: A New Era: Revitalizing Special Education for Children and Their Families, July 3, 2002)

"Research recently conducted as part of a doctoral dissertation in Colorado revealed that 'only 12% of the more than 400 licensed practicing teachers surveyed could pick out an adjective from a set of nouns on a multiple-choice test.'"

(Moats, L.C., personal correspondence, February 16, 2005)

The Office of Special Education and Rehabilitative Services (OSERS) of the U.S. Department of Education has stated,

"If an IEP team determines that it is necessary for the individual providing the special education or related services to a child with a disability to have specific training, experience and/or knowledge in order for the child to receive FAPE, then it would be appropriate for the team to include those specifications in the child's IEP." (OSEP, letter to Dickman, 37 IDELR 284, April 2, 2002)

Therefore, any child who is not learning to read using "traditional instructional methods" that require "some other instructional strategy" is entitled to a properly trained, experienced, and knowledgeable instructor. The level of training, experience, and knowledge (conceptual preparation) required is a function of the design of the instructional strategy

chosen. Even the best research-validated practice is of no value if it is not delivered with fidelity to design by a knowledgeable instructor. "Teachers must have the knowledge base to be effective before they are given the freedom to be creative." (Georgette Dickman, 2003, Winter Newsletter, NJIDA). "Properly certified" teachers are often "improperly prepared" to deliver effective instruction. (Georgette Dickman, 2003, Summer Newsletter, NJIDA).

The focus of the National Institute of Child Health and Human Development (NICHD) on the child exhibiting difficulty in learning how to read has enlightened the world on why some children have difficulty, how to teach such children, and what happens when such children are not taught. Lack of consensus in the field is no longer an excuse for graduating unmotivated, underachieving students with low self-esteem and limited goals. With such knowledge comes added responsibility for school districts. Prevention and early intervention studies funded by NICHD throughout the United States are providing converging evidence for those children who are at risk for reading failure. Highly direct and systematic instruction that is structured, sequential, and cumulative is necessary to develop phoneme awareness and phonics skills. Automaticity, fluency, and comprehension should be taught within a literature-rich environment in order to obtain maximum gains. "It is also imperative that each of these reading components be taught within an integrated context and that ample practice in reading familiar (95% decodable) material be afforded to enhance fluency and automaticity." (A Summary of Research Findings, by G. Reid Lyon, Ph.D., Chief, Child Development and Behavior Branch, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health.)

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Unfortunately, special education, according to NICHD, is “**not** closing the gap” for a variety of reasons:

- *Identification is based on failure.*
- *Teachers are not adequately prepared.*
- *Group sizes are too large for pull-out programs to be successful.*
- *Inclusion prevents effective practices for children with learning disabilities.*
- *Models of service delivery are demonstrably ineffective for children with learning disabilities in reading.*
- *Intervention and remediation occur too late.*
- *The system is oriented to procedural compliance, not services and outcomes.*

Barriers and Potholes

Only legislation has the potential to provide a guide through the barriers and potholes on the bridge from research to practice. Screening for a learning disability is of no help if appropriate intervention is unavailable.

- **Discrepancy formulas** - The greatest single barrier to preventative intervention is the ubiquitous use of a discrepancy formula. In other words, whether required or not, the mindset of the educational community is to recognize the need for intervention only if the individual is performing significantly below expectations based on an assessment of individual potential or in relation to interindividual norms. Until something is done regarding this “wait to fail” mindset, the high-minded goals and possibilities espoused by the U.S. Dept. of Education and various advocacy organizations will remain unattainable pipe dreams. If we turn away from the discrepancy mindset, all things are possible. Research has given us the tools, but misguided laws and regulations are barring access. Using a discrepancy analysis to justify services has been

criticized by researchers, scientists, and educators for decades:

“This formula requires a student to cross a threshold of failure.”

Nancy Mather, Ph.D., Professor at the University of Arizona in the Department of Disability and Psychoeducational Studies and co-author of the Woodcock-Johnson III and IV. Overcoming Underachieving: An Action Guide to Helping Your Child Succeed in School (John Wiley & Sons). Woodcock-Johnson IV: Recommendations and Strategies (John Wiley & Sons).

“The only thing that this formula prevents is prevention.”

Jack M. Fletcher, Ph.D., (ABCN), Hugh Roy and Lillie Cranz Cullen Distinguished Professor Chair, Department of Psychology, University of Houston. Learning Disabilities: From Identification to Intervention (The Guilford Press).

“This formula is a wait and fail model and is immoral.”

Thomas Hehir, Ph.D., Director, Office of Special Education Programs during the Clinton Presidency. (This statement was made at a public presentation at the Library of Congress while in office.)

“For twenty-five years, we have used the IQ-achievement discrepancy model, a wait-to-fail model that is known to be ineffective, inefficient, irrational, immoral, and indefensible – consensus in the field is that it must go.”

Douglas Carnine, Ph.D., Professor of Education at the University of Oregon and Director of the National Center to Improve the Tools of Educators. Dr. Carnine has directed or co-directed over 20 federally funded grants, totaling over \$15,000,000. (This statement was made during testimony to Congress on the reauthorization of IDEA.)

“It is antithetical to early intervention” and “more times than not, it reflects poor teaching.”

Douglas Fuchs, Ph.D., Professor and Nicholas Hobbs Chair in Special Education and Human Development, Department of Special Education, Peabody College of Vanderbilt University; Senior Investigator, Vanderbilt Kennedy Center. Understanding RTI in Mathematics (Brookes).

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“IQ-Achievement Discrepancy is not a valid means for identifying individuals with learning disabilities.”

Robert H. Pasternack, Ph.D., Assistant Secretary for the Office of Special Education and Rehabilitative Services (OSERS) at the U.S. Department of Education from 2001 to 2004.

“What we can safely conclude from past research and practice is that neither the presence nor absence of an ability-achievement discrepancy is a reliable or valid indicator of learning disabilities.”

Nancy Mather, Ph.D., Professor at the University of Arizona in the Department of Disability and Psychoeducational Studies and co-author of the Woodcock-Johnson III and IV. Overcoming Underachieving: An Action Guide to Helping Your Child Succeed in School (John Wiley & Sons). Woodcock-Johnson IV: Recommendations and Strategies (John Wiley & Sons).

“It doesn’t hold up to scientific scrutiny.”

Timothy Shanahan, Ph.D., Professor of Urban Education at the University of Illinois at Chicago. Director of the UIC Center for Literacy, director of reading for the Chicago Public Schools, and author or editor of over 150 publications.

“Data from research contradicts IQ discrepancy as an approach to understanding reading disabilities.”

John D. E. Gabrieli, Ph.D., neuroscientist at MIT and an associate member of the McGovern Institute for Brain Research.

“NASP strongly objects to continued endorsement of an identification procedure that constitutes ‘bad science.’”

The National Association of School Psychologists (May 20, 2022)

A culture that measures success in terms of immediate gratification is eventually going to lose to a culture that invests in its future. Wait-to-fail is the opposite of smart. What if the medical profession spent all of its resources on curing the sick rather than preventing the illness? We would still be struggling with mumps, measles, polio, and smallpox. It is recognized that there are neurobiological factors that cause children to be at risk for disability. However, neural systems are malleable, and the predictably concomitant disability can often be prevented

by exposing the child to appropriately differentiated instructional programs (Jack Fletcher, Ph.D.). The epiphany contained in this simple statement is that failure is not a prerequisite and can be prevented!

- **Preservice** - We are in a meta-age. Everything is “meta.” We no longer need to learn the answers – they are all on our phones! Learning to ask the right question is more important. Linear thinking is being replaced by critical thinking, gestalt, theory-of-mind, and recognizing alternate approaches to task completion. Preservice teacher education is not only burdened by professors who are comfortable with teaching what they learned 15 years ago, which was already 15 years old when they were being taught, but also influenced by fads and bright objects (e.g., “whole,” “balanced,” “structured,” “multisensory”). The old saying that it is better to teach someone to fish than to give him a fish is apt in this case. Accepting that a teacher wants to teach, is it better to teach the teacher what to teach or to teach the teacher how to determine what should be taught? (A sentence that takes some thought.) In other words, how much time do we spend on teaching how to determine what constitutes a rigorous evidence-base as compared to force-feeding that which is thought to be efficacious by the professor? I would like to think that the many researchers and inspirational professors who are passionate and dedicated are reasonably represented among those responsible for turning out new teachers. They are not. They are the elite; they are today’s Socrates, Aristotle, and Franklin! Their passion fuels innovation, but the inertia of complacency is a barrier to scaling.

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How do we change the culture to be more questioning, less accepting, and instinctually skeptical of what they are told? Ownership is the key ingredient that spurs initiative, persistence, and resilience. I think we need to teach how to determine a rigorous evidence-base rather than to provide that which is assumed to be evidence-based to those who have no ability to judge. Forgive my rants, but every day I see teachers with wonderful potential who have not been given the tools to teach.

- **In-service** - Assuming that every teacher has the ability to be excellent and effective is like saying that every block of marble has within Michelangelo's *Pieta*. It may be true, but the need for a master craftsman to design, plan, chisel, hammer, sculpt, and polish to realize this intrinsic potential is often overlooked. Professional development is costly in terms of money and time, and the commitment is ongoing. However, this is one instance where the benefit clearly outweighs the cost. Good teachers are always receptive to new ways to be more effective. The system must respond to this receptivity by providing opportunities for meaningful training and development. Most in-service mandates are satisfied with stand-and-deliver presentations while audiences fidget, text, and doodle. Such in-service provides no sustainable progress, even for the most receptive. The research and the expertise to develop effective designs for in-service training exist and must be used if progress is to be experienced.
- **Resistance to change** - "I have been a classroom teacher for 20 years, I was teacher of the year in 2007, and I do what works." Ironically, the same teacher may feel different regarding the future, "When I get close to retirement, I am going to take some special training to increase my pay scale and get a credential that I can use to teach children to read after I retire." When I write something like this, I feel that I may have become overly cynical in 45 years of advocacy. I ask you, is such cynicism without justification? Even very well-meaning
- teachers who love and sacrifice for their students and feel that they do a good job are psychologically resistant to a change that questions the efficacy of their past practices.
- **Politics** - There are many different groups and organizations of stakeholders that vie for influence. It was lobbying that resulted in the retention of the option for LEAs to utilize discrepancy formulas in the last iteration of the IDEA. In politics, the self-interest of the powerful often trumps what is right. Daniel P. Hallahan, Ph.D. once commented, "I'll refrain here from elaborating on how seductive inclusion can be to fiscal administrators." Examples of self-serving bias influencing educational decision making can be seen throughout special education. It is this dynamic that often explains why the good intentions reflected in the law occasionally result in unintended consequences in practice.
- **Ignorance** - Research supports the fact that confidence and competence are inversely related. In other words, the more confident teachers appear, the less competent they are likely to be. The Faustian paradox applies; the more individuals learn, the more they become aware of what they do not know. Knowledge and humility are directly and causally related. The more you have of one, the more you have of the other.
- **Resource hoarding** - "We have this second grade teacher that is Level Two Wilson trained, but we have 20 children who need extra help. If we let her work with one or two, all the rest

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will demand a trained tutor. No, it is better that no one knows that she is trained."

- **Resource limitations** – One cannot get blood from a stone. There are more children in need than there are individuals with a sufficient knowledge-base to meet those needs.
- **Lip service** – The three pillars of intervention are structured, sequential, and cumulative. A program built on a foundation held up by these three pillars has the potential to succeed if implemented as intended with meaningful intensity. Research over the last 25 years confirms that which is common sense. Truth, however, is often counterintuitive; therefore, research conducted with rigor is necessary to prove even that which appears uncomplicated and unequivocal. What works? In order to be effective, instruction must be informed as to three essential components:
 - **Method:** *A program that is structured, sequential, and cumulative; has a rigorous scientific research-base; is field tested; and has a track record of success.*
 - **Instructor:** *An interventionist with sufficient training, experience, and knowledge to deliver the chosen program of instruction as intended, with fidelity to design.*
 - **Dosage²:** *Including those elements necessary to ensure a reasonable rate of progress, such as intensity and duration of instruction and the need to integrate and infuse reinforcement. In intervention studies, "the key to meaningful effect size was intensity."³*

² A term introduced by Donald D. Deshler, Ph.D.

³ Hollis Scarborough, Ph.D., October 4, 2013

Each element is necessary, and none alone is sufficient. In other words, the best method is powerless if it is not delivered as intended, and the best method in the hands of a qualified instructor is of no use if provided for a half hour once a week. Many educators know the words (e.g., evidence-based, multisensory, explicit, direct) but lack the will, the ability, or the resources to provide the

service. Instead, the refrain is "we do what works, a balanced approach, a little of this and a little of that, we are eclectic, it is experience that matters." Aspirational but empty promises are fertile ground for a disappointing harvest, and a disappointing harvest fuels distrust and conflict.

- **Monitoring** – If it is cold outside, we turn up the heat inside. If we run out of oil, we turn to gas; if we run out of gas, we turn to wood-burning stoves. We adjust intensity, and sometimes method, to keep from freezing. The point is that freezing is never an acceptable option. This is an apt analogy for the manner in which special education services are intended to work. If the child is not learning when exposed to traditional methods of instruction, it is time to turn up the heat or change the fuel. Special education should not be a place where children with special needs are allowed to develop into adults with limited potential. It is essential that the efficacy of instruction be regularly monitored, variables that influence the validity of monitoring be understood, and that those in charge be willing to adjust intervention to meet the needs of the child.



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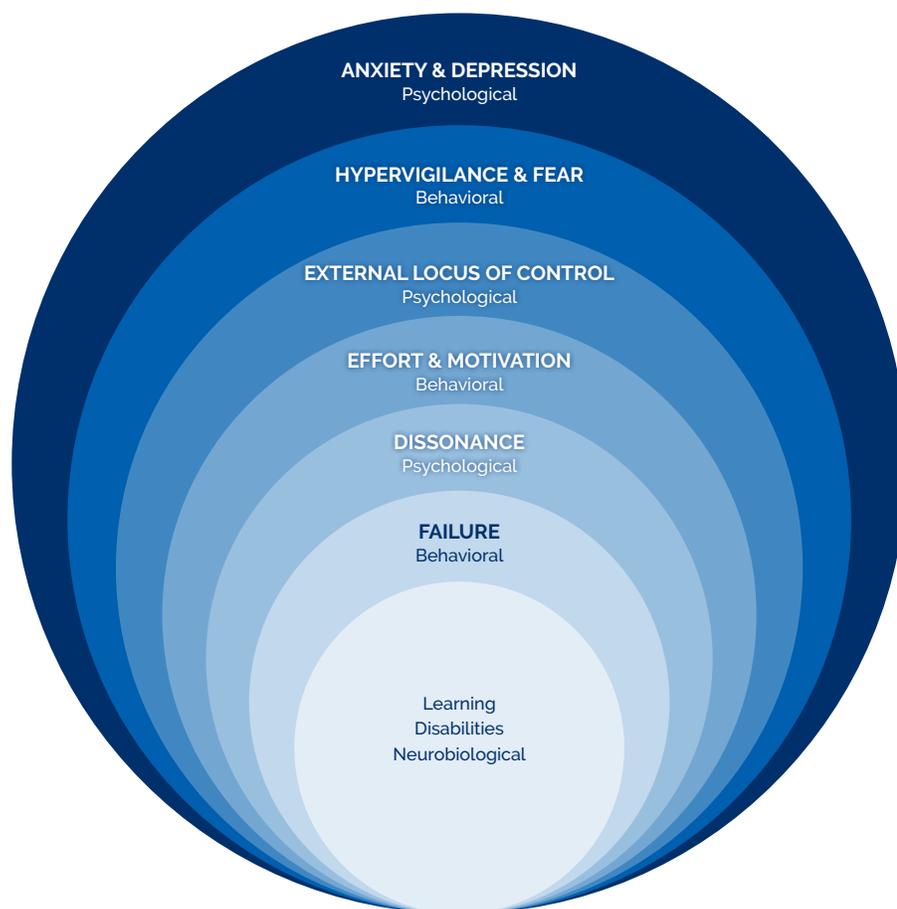
- **Predictable consequences of delayed intervention** - We often refer to the neurobiological factors that place a child at risk for failure as “learning disabilities,” even though the disability (i.e., failure) is not yet manifest. Unfortunately, untreated learning disabilities result in a predictable progression of behavioral and emotional consequences!

Stage 1 - a learning disability (i.e., a natural variation in brain function that predicts unexpected difficulty learning a skill and/or concept valued by the culture in which the individual is expected to perform).

Stage 2 - a learning disability plus failure.

Stage 3 - a learning disability plus failure minus effort and motivation. The child avoids challenges to keep from exposing weaknesses, a subconscious response to cognitive dissonance. Such a child “would rather be seen as unwilling than being thought of as unable” (Barry Lorinstein, Ph.D.).

Stage 4 - a learning disability plus failure minus effort and motivation plus anxiety and depression. The child is disempowered; when the child stops trying to make things happen, the child eventually begins to feel that he lacks the ability to make things happen. The child now believes that whatever happens is due to factors over which he has no control.



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Each stage is exponentially more difficult to treat than the previous stage. By Stage 4, a cycle of causation is created and feeds upon itself. Anxiety results in diminished effort, diminished effort results in failure, failure results in anxiety, and on and on. All too often, children are not provided help until at least Stage 3. Another way to represent the impact on the child is to start with a seed of neurobiological weakness that is allowed to grow into failure, which results in a psychological defense to the pain of dissonance eroding motivation and effort and promoting an external locus of control that explains the hypervigilance and fear that causes anxiety and depression. Blaming the child or the family is like blaming the ground for the injuries suffered when someone is pushed off of a roof. This is not intended of educators, but of politicians and legislators who allow a false assumption of efficiency to overwhelm common sense and morality. The greatest good is always found by preventing need, not postponing help!

The bridge from research to practice is built on a foundation of knowledge. The ability to provide meaningful intervention to those in need is a logistical challenge that requires a redesign of the pre-service and in-service education of our teachers and interventionists. Without such a redesign, qualified teachers and interventionists will always be in short supply, and children in need will be left behind.