

# The Beacon

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## A Cumulative Risk and Resilience Model of Dyslexia

By Hugh W. Catts, PhD, and Yaacov Petscher, PhD

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Developmental dyslexia is now recognized worldwide as a specific learning disability (Mather et al., 2020). In the United States, grass roots organizations of parents and educators have advocated for state legislation to better address dyslexia (Youman & Mather, 2018). These efforts have resulted in most states passing laws requiring that intervention services be provided to children with this condition, especially in the early school grades. Many states also have legislation that calls for mandatory screening to identify students with dyslexia. A major challenge that states face in implementing this legislation is how to best define and operationalize dyslexia (Miciak & Fletcher, 2020). In this article, we argued that rather than defining dyslexia on the basis of an underlying cause, it is better viewed as a label for an unexpected reading disability. Such a view is consistent with a preventive approach in which risk for reading disability is identified and intervention is provided prior to children experiencing reading failure. To expand on this approach, we introduce a risk-resilience framework that can assist in operationalizing risk for dyslexia and potentially lead to more timely and effective intervention.

### Defining Dyslexia

Despite the extensive scientific evidence concerning dyslexia, there is still disagreement of how best to define it (Elliott, 2020; Elliott & Grigorenko, 2014; Protopapas, 2019; Snowling et al., 2020). Most researchers, clinicians, and educators

## Letter from the Director of The Windward Institute

Becoming a skilled reader is a complex process that continues to elude far too many children. Thoughtful and intentional action is required; action that is informed by research and not subject to well-intentioned but misguided solutions that lead to more of the same results. Improving student reading outcomes in this country requires a deep commitment to reading research, teacher training, the de-implementation of inadequate programs, and the implementation of effective, evidence-based instructional methodologies, curriculum, and interventions.

In this issue, Hugh Catts, PhD, and Yaacov Petscher, PhD, put forth a multifactorial causal basis of dyslexia, suggesting that a range of influences impact a child's difficulty in learning to read as opposed to a core deficit in a single area. With this model, dyslexia is a result of cumulative effects of risk and resilience factors, with resilience mechanisms having the potential to mitigate risk. Of the resilience factors discussed, it is not surprising that explicit instruction in decoding and word reading is underscored. For a discussion about the need to address word reading difficulties through multicomponent interventions, see Research Roundup.

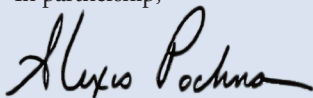
Given that high quality reading instruction is critical for all children, not just those at risk of reading difficulties, teacher training in effective practices must be at the forefront of the work. Such training begins with pre-service education programs and continues through ongoing professional development. See Head Lines by Jamie Williamson, EdS, for an in-depth look at the principles of cohesive professional development and the ways in which this model is actualized at The Windward School.

The most well-trained teachers cannot move the dial on reading achievement with reading programs and interventions that are not solidly grounded in the Science of Reading. In *Inside the Institute*, John J. Russell, EdD, reveals the troubling truth about Reading Recovery, an intensive intervention program for struggling readers in first grade.

How can schools respond when faced with the daunting realization that the programs and interventions they are implementing are not efficacious? De-implementation in education involves discontinuing ineffective or outdated programs that don't serve learners to the greatest degree possible. As Danielle Scorrano, MPS, notes in *Intersecting Research with Educational Practice*, understanding the complexities of and executing de-implementation are essential for impactful reading reform. And as Annie Stutzman, MS, outlines in *Turning the Tide*, striving for mutualism, or holistic systems, in school communities addresses the larger contexts and influences that affect learning and benefits all stakeholders, including teachers, parents/guardians, and students.

The above are just some examples of articles in this issue that highlight themes integral to reading reform. We invite you to join us in exploring these topics and more as you delve into The Windward Institute's Spring 2023 Beacon. Thank you for taking this journey with us and for advocating in support of the right to literacy for children everywhere.

In partnership,



Alexis Pochna, EdM  
*Director of The Windward Institute*

agree that a primary characteristic of dyslexia is a severe and persistent difficulty learning to read (and spell) words despite adequate opportunity and instruction. There is also agreement that children must have adequate vision and hearing acuity, whereas the adequacy of verbal and/or nonverbal intellectual abilities is still under debate. In regard to the latter, research indicates that measures of IQ should not be part of the definition of dyslexia (Francis et al., 2005; Stuebing et al., 2002) but some continue to argue for the use of IQ-achievement discrepancy definitions (e.g., Hammill & Allen, 2020). Also, some have suggested that dyslexia be defined on the basis of a discrepancy between listening and reading comprehension, which could exclude children with low verbal abilities like those with a developmental language disorder (DLD; Wagner et al., 2019).

Another issue in dispute is what role an underlying cognitive deficit should play in defining dyslexia. Historically, such a deficit has been a central component in definitions of dyslexia (Crichtley, 1970). According to this view, individuals with dyslexia have a neurologically based disorder that limits their ability to respond to typical reading instruction. Diagnosis of this condition often involves the use of neuropsychological assessments to identify areas of cognitive strengths and weaknesses. Some even believe that assessments can reveal special gifts that many individuals with dyslexia are proposed to have (Davis, 1997; Eide & Eide, 2011). A major problem with defining dyslexia on the basis of an underlying condition is that there is considerable variability in the causal basis of reading difficulties (O'Brien & Yeatman, 2021; Pennington et al., 2012; Snowling, 2008). Research shows that multiple neurological, behavioral, and environmental factors are associated with dyslexia and that these factors may act and interact in complex ways to influence the trajectory of reading development (van Bergen et al., 2014). As a result, there is no single deficit or small group of deficits that are consistently associated with dyslexia that could be used for diagnostic purposes.

Because of these issues, some argue that the term dyslexia is better thought of as a synonym for a reading disability (de Yong, 2017; Elliott, 2020; Protopapas, 2019). According to this view, dyslexia is not considered a discrete condition that underlies a reading disability but rather the name or label for the disability. Furthermore, this disability is unexpected on the basis of adequate opportunity and instruction in reading as well as adequate hearing and visual acuity. Significant intellectual disabilities are also ruled out. This type of definition has been operationalized in the vast majority of studies that have investigated dyslexia. In most studies, individuals with dyslexia have been identified on the basis of poor word reading performance, measured in terms of accuracy and/or fluency, that falls below some expected normative cut-score (e.g., Pennington et al., 2012; Snowling et al., 2019). Such a definition has the advantage of not specifying a distinct causal basis but allows for multiple factors to be involved. It also accommodates the fact that reading ability is on a continuum and dyslexia represents the lower end of that continuum. As such, dyslexia is not discrete in its

presentation, but rather part of normal individual variability in reading development.

The latter view of dyslexia also has the advantage of being more easily operationalized in most contexts. In fact, this definition is especially well suited for educational settings and could work well under new state legislation. Most schools have personnel with training in reading development and experience with assessing and evaluating reading performance. Defining dyslexic on the basis of difficulties learning to read provides educators with a clear target for diagnosis and intervention. Of course, decisions still need to be made concerning the severity and persistence of these difficulties along with an evaluation of hearing, vision, and other exclusionary criteria (e.g., severe intellectual disability). But focusing on children's reading development would take some of the mystery away from dyslexia and offer clearer directions for educational practice.

Defining dyslexia on the basis of reading failure also fits well within a preventive model. Such a model seeks to identify risk factors associated with reading failure as early as possible to provide timely intervention (Catts & Hogan, 2021). There is now a large body of evidence concerning potential risk factors that could guide early identification (Catts et al., 2015; H. Lyytinen et al., 2015; Peterson & Pennington, 2015). Research also demonstrates that early intervention based on the identification of risk can be effective in improving the outcomes of at-risk children (Lovett et al., 2017; Wanzek & Vaughn, 2007). Such an approach to defining dyslexia and identifying risk has the added advantage of using what is known about the causal basis of dyslexia without requiring that it be central to the diagnosis of the condition. That is, causal factors could be considered in risk assessment without any one factor being necessary for diagnosis. Finally, defining dyslexia as reading failure allows for the use of poor response to reading instruction, both general classroom and supplemental instruction, as a potential risk factor for dyslexia (Miciak & Fletcher, 2020).

## Multifactorial Causal Models

In many causal models of dyslexia, it has been common to focus on a single causal factor (Snowling, 1998; Vidyasagar & Pammer, 2010). These models have argued that a specific deficit in sensory, linguistic, or cognitive processing (e.g., phonological processing) is the primary cause of unexpected difficulties learning to read. More recently, however, research clearly indicates that single deficit models do not fully account for the variability found in dyslexia. This work shows that not all individuals with a reading disability have the same underlying deficit and no single underlying deficit consistently leads to problems in learning to read (Catts et al., 2017; O'Brien &

Yeatman, 2021; Pennington et al., 2012; Snowling, 2008).

The lack of support for single deficit models has led to the proposal of multiple deficit or multifactorial causal models of dyslexia (Catts et al., 2017; McGrath et al., 2020; O'Brien & Yeatman, 2021; Pennington, 2006; van Bergen et al., 2014). These models propose that multiple factors combine and/or interact to cause a difficulty in learning to read. Such a view is consistent with recent arguments that developmental disorders in general are best explained by a constellation of strengths and weaknesses rather than "core deficits" (Astle & Fletcher-Martin, 2020). This would seem to be especially true for disorders involving reading development.

Research shows that the development of accurate and fluent word reading abilities rely on a host of linguistic, cognitive, socioemotional, orthographic, and instructional factors that act and interact in various ways (Cain et al., 2017). As such, difficulties in learning to read are likely due to individual differences and experiences across many of the factors.

A multifactorial model also fits well with what is known about the genetic basis of dyslexia. Multiple genes are associated with dyslexia, but none of the candidate genes account for more than a small proportion of the variance in reading ability/disability (Bishop, 2009; Mascheretti et al., 2017). Rather, it appears that multiple genes, some more generalist genes (Plomin & Kovas, 2005), work together to increase the likelihood of dyslexia. Genes also influence the environment and can have a subsequent effect on reading achievement (Cheesman et al., 2020). In addition, environmental factors influence the expression of genes and their impact (Plomin et al., 2013). Because of the varying genetic and environmental influences, multifactorial causal models are probabilistic rather than deterministic. In other words, multiple risk factors work in conjunction to increase the probability of difficulties in learning to read rather than any one factor or combination determining that an individual will have these difficulties.

## Risk-Resilience

Whereas multiple risk factors can increase the likelihood of dyslexia, positive factors can decrease this likelihood. A framework that accounts for the impact of such influences is the risk-resilience framework (Fraser & Galinsky, 2004). This framework has been applied in disciplines such as child maltreatment and psychopathology (Masten & Wright, 1998; Rutter, 1985). In these contexts, it has been observed that individuals with very similar risk factors can have very different outcomes. Some individuals seem to show resilience against even the strongest risk factors, while others do not. These differences in resilience have been explained in terms

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Figure 1. Cumulative risk and resilience model of dyslexia.



of promotive or protective factors. Promotive factors are those associated with better outcomes for all individuals regardless of risk, whereas protective factors are moderators and have their greatest influence in the context of heightened risk, but have limited influence by themselves (Masten & Barnes, 2018). An example from nutrition sciences may be helpful here. A well-balanced diet is a promotive factor for good health in all individuals, whereas for those with Phenylketonuria (PKU), a metabolic disorder, a diet low in protein and other foods is a protective factor for good health. Within a statistical framework, promotive factors may be viewed as main effects and protective factors as moderators. Although the distinction between promotive and protective factors is often made, one factor may be both promotive and protective depending on the sample. For example, effective parenting may simultaneously promote positive outcomes across all individuals, while also having the greatest protective influence for those most at risk (Masten & Barnes, 2018).

Figure 1 is a graphic representation of a proposed risk–resilience model as it relates to dyslexia. We refer to this model as the Cumulative Risk and Resilience Model of Dyslexia. A similar model has been used in the field of child maltreatment to account for factors that contribute to child abuse (Masten & Wright, 1998). Some components of a risk–resilience model have also recently been considered in relationship to dyslexia (Haft et al., 2016; Yu et al., 2018). In our model, we display risk and resilience factors in terms of a seesaw. On the left side are risk factors that increase the probability of an individual having an unexpected and severe difficulty in learning to read. On the right side, we list examples of resilience factors that can buffer the effect of risk. In both cases, we include influences that can be divided into those that are internal and external to the individual. Taken together, these various risk and resilience factors are proposed to work jointly in a complex and nonlinear fashion to influence children’s trajectories for reading development.

### Risk Factors

In our model, risk factors are variables that increase the likelihood of severe and persistent difficulties learning to read. Depending on the variable, they can have different degrees of negative impact on reading. It should also be recognized that the positive end of these variables could well serve as promotive factors. Primary among the risk factors associated with dyslexia are deficits in phonological processing. Deficits in storing, retrieving, and/or reflecting on the sounds of language are often reported in individuals with dyslexia. See Melby-Lervåg et al. (2012) and Peterson and Pennington (2015) for full consideration of this work. Whereas evidence is strong for a phonological processing deficit as a causal factor in dyslexia, it does not appear to be a necessary or sufficient cause of a reading disability. For example, Pennington et al. (2012) found that only about half of each of two samples of kindergarten children who later developed dyslexia had a severe deficit in phonological awareness (PA). Somewhat similar results have been reported in other case-based studies of children with dyslexia (Carroll et al., 2016; O’Brien & Yeatman, 2021; White et al., 2006 but see Ramus et al., 2003). Examining the relationship from the opposite perspective, Catts et al. (2017) found that only about half of the children with a severe deficit in PA at the beginning of kindergarten had dyslexia at the end of second grade. This work does not negate the role of phonological deficits in dyslexia, but rather suggests that other factors operate in combination, or sometimes in lieu of these deficits, to lead to severe and persistent deficits in reading development.

There are a number of other potential candidates for risk factors associated with dyslexia. One is slowed performance on measures of rapid automatized naming (RAN). Research has shown a relationship between RAN and reading achievement across numerous orthographies and reading tasks (Araújo et al., 2015). RAN is partly a measure of phonological retrieval but also likely shares many features with the process of reading, including saccadic

eye movement, lexical access, cognitive vigilance, and automaticity. As such, poor performance in RAN can be a multifaceted indicator of risk for dyslexia (Norton & Wolf, 2012). Furthermore, it has been proposed that children with deficits in PA and RAN or what is called a “double deficit” are more likely to have a reading disability than those with a single deficit (Wolf & Bowers, 1999). However, given the mild-to-moderate correlation between PA and RAN, when both deficits are present, each tends to be more severe in nature than when only one deficit is present (Compton et al., 2001; Schatschneider et al., 2002). Thus, at least part of the double deficit effect may be related to the severity of either deficit rather than the presence of both. Nevertheless, evidence linking slowed rapid naming to a reading disability is strong and of clinical/educational significance.

Another risk factor for dyslexia is a deficit in other aspects of oral language. Numerous studies have shown that deficits in vocabulary, grammar, and discourse are often present in children with dyslexia (Catts et al., 1999; P. Lyytinen et al., 2001; Scarborough, 1990; Snowling, 2008) and that dyslexia is frequently comorbid with a developmental language disorder (DLD; Catts et al., 2005). Also, early identification studies have shown that oral language abilities predict reading success or failure over and above PA, RAN, and other variables (Catts et al., 2001; Thompson et al., 2015). Furthermore, in studies examining children at family risk for dyslexia, preschool oral language problems appear to be among the earliest precursors of later reading difficulties and at school age differentiate those who have dyslexia from those who do not (P. Lyytinen et al., 2001; Scarborough, 1990; Snowling & Melby-Lervåg, 2016).

Like reading, oral language is dimensional in nature and both mild and severe language difficulties can co-occur with a reading disability. When language problems are severe, children may be diagnosed with DLD (Bishop et al., 2016). However, in our model they would still be considered to also have dyslexia if they had a severe and persistent word reading disability. But it is important to note that not all children with DLD have significant difficulties learning to read words. Whereas oral language problems are a risk factor for dyslexia, they alone do not always lead to severe word reading problems (Catts et al., 2005; Snowling et al., 2019).

### Non-Linguistic Risk Factors

Another risk factor that has been linked to dyslexia is a deficit in visual processing. Behavioral and neurophysiological evidence has documented an association between dyslexia and problems in visual temporal processing (O'Brien & Yeatman, 2021; Stein, 2001), visual attention (Bosse et al., 2007; Facoetti et al., 2010), and visual

crowding (Joo et al., 2018). Whereas there is a converging body of evidence indicating a link between visual processing problems and dyslexia, it remains unclear as to the extent and nature of their causal role (Olulade et al., 2013). Much of this research has examined specific aspects of visual processing in isolation, independent of other risk factors. However, studies have begun to investigate deficits in visual processing in the context of other risk factors. This research indicates that visual processing may make a unique contribution to reading development when considered alongside other risk factors (Facoetti et al., 2010; O'Brien & Yeatman, 2021; van den Boer et al., 2015). For example, van den Boer and colleagues found that visual attention explained variance in reading and spelling abilities beyond that of phonological

awareness, phonological memory, and rapid naming. While these results imply that visual attention deficits could be an additive risk factor for dyslexia, the authors also suggest that non-visual factors (i.e., quality of connection between orthographical and phonological units) may underlie these findings. To better understand the role of visual deficits in dyslexia, large-scale longitudinal studies should examine the co-development of multiple aspects of visual and other risk factors and their relationship to reading.

Deficits in executive function or more specifically attention have also been linked with dyslexia (McGrath et al., 2011; Willcutt & Pennington, 2000). The relationship between these conditions, however, is highly complex and far from being well understood. Research shows that the overlap between

dyslexia and attention deficits (25%–40%) is higher than would be expected by chance (Willcutt & Pennington, 2000). Such comorbidity could be taken to indicate that attention deficits are a risk factor for dyslexia. Indeed, Torgesen et al. (1999) reported that attention was a unique predictor of response to intervention in children with dyslexia. An alternative line of research indicates that the comorbidity of attention deficits and dyslexia may be due to shared problems in processing speed (McGrath et al., 2011). If this is the case, then attention deficits may not be a risk for dyslexia but a separate condition that shares a common underlying risk factor.

### Exogenous Risk Factors

The above factors are all endogenous or internal to the individual. External or exogenous variables may also play a role in dyslexia. Whereas such variables are not generally considered to be part of dyslexia, and are often used as exclusionary criteria, we choose to include them in our model. We do this because these factors can co-occur with endogenous risk factors and increase the probability of a reading disability. Variables that function in this way have sometimes been referred to as vulnerability factors. These factors are analogous to protective factors in that they are moderators and have

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their primary impact in the presence of other risk factors (Masten & Wright, 1998). For example, low socioeconomic status (SES) or poverty likely increases the risk for a reading disability when other risk factors are present. Of course, SES is a corollary of a host of associated risk factors, including limited literacy and language experience, poor nutrition, low maternal education, and homelessness. Another risk factor that is related to poverty but can also occur in higher SES families is trauma. Research shows that children who have experienced trauma and other adverse childhood experiences often have difficulties in school performance including problems in learning to read (Blodgett & Lanigan, 2018; Delaney-Black et al., 2002). Given that approximately 60% of adults report having at least one adverse childhood experience (Merrick et al., 2018), it is likely that it is the cumulative effects of multiple experiences and/or the co-occurrence of other factors that place children at the highest risk of severe reading problems. Furthermore, minority (i.e., Black, Hispanic, & multiracial children) experience adverse childhood events at disproportionately higher rates than non-minority children (Merrick et al., 2018) and minority children have higher poverty rates. Consequently, the intersection among these factors produces increased risk for poor academic achievement and behavioral outcomes (Skiba et al., 2008). Finally, whereas adverse childhood experiences may be classified as exogenous factors, these experiences can have neurological consequences, and in this sense, become endogenous (De Bellis & Zisk, 2014).

Before moving on, it is important to acknowledge the role of family history in our model. It is well documented that dyslexia runs in families and has a genetic basis (Bishop, 2009). Other multiple deficit models explicitly address family risk in dyslexia. Specifically, van Bergen et al. (2014) nicely demonstrate how family risk contributes to and supports an intergenerational multiple deficit model of dyslexia. While we do not explicitly include family history in Figure 1, we acknowledge that genetic influences underlie and are responsible for many of the risk and resilience factors in our model. There is also some evidence that family risk may account for variance in word reading ability that is independent from that of the commonly recognized predictors (e.g., PA, RAN, oral language) in our model (Carroll et al., 2014; Puolakanaho et al., 2007; van Viersen et al., 2018). Of course, such a finding is consistent with a multifactorial causal model of dyslexia.

## Resilience

Some children appear to avoid reading problems despite having one or more risk factors (Catts et al., 2017; Pennington et al., 2012; van Bergen et al., 2014). In our model, we propose that resilience against poor reading outcomes is the result of protective or

promotive factors. Recall, protective factors are moderators and only have an impact in the context of risk. Promotive factors, on the other hand, operate like main effects and can have a positive influence for both those at risk and not at risk. We believe the distinction between promotive and protective factors is important and highlight it when evidence is available. But research is just beginning to examine the role of resilience factors in dyslexia and to determine which factors are better described as promotive or protective in nature. With the appropriate data and statistical analyses, we should be able to more clearly delineate how these factors operate in dyslexia.

## Instruction

The most notable factor that can have a positive impact on risk for dyslexia is instruction. Explicit instruction on how to decode and read printed words is critical for promoting word reading abilities in all children not just those at risk for dyslexia (Ehri et al., 2001; Fletcher et al., 2019). By definition, the delivery of appropriate reading

instruction is a necessary condition to identify children with dyslexia. Without good instruction, it is not surprising to find large numbers of children who are slow to learn to read words. But when high-quality instruction is provided, we will inevitably find some children who continue to experience difficulties, and when these difficulties are severe and persistent enough, these children may be diagnosed with dyslexia.

While appropriate instruction is a promotive factor for all children, and a defining inclusionary criterion for dyslexia, it may also serve as an important protective factor for at-risk children. Indeed, there is some initial indication that at-risk children may benefit the most from high-quality instruction. For example, Foorman et al. (2003) found that a prescriptive kindergarten curriculum that included phonological awareness instruction differentially raised the letter-naming and phonological awareness skills of the lowest performing students as compared with higher performing students. In addition, Connor et al. (2004) reported that teacher-managed explicit code focused instruction had a significant impact on first graders' reading skills, and this impact was greater for poor readers than for good readers. Numerous other studies have also documented the special role of good instruction in offsetting the negative outcomes associated with dyslexia (Scammacca et al., 2007; Wanzek & Vaughn, 2007). If instruction does operate as a protective factor, it may have its greatest impact when used within an early intervention program for at-risk children (Lovett et al., 2017). In our model, the risk factors described above, along with initial poor response to instruction (Miciak & Fletcher, 2020), can be used to identify children early and provide them with supplemental reading intervention.

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## Cognitive Resilience

Beyond instruction, children's cognitive abilities can serve a compensatory role in risk for dyslexia. Berninger and Abbott (2013) reported that students with dyslexia but with high verbal reasoning skills had better outcomes than less verbally gifted students. Van Viersen et al. (2014) further found that at-risk children with better verbal short-term memory, working memory, and language skills had better reading scores than less verbally gifted children. In addition, van Viersen et al. (2019) reported that among gifted adolescents with dyslexia, those with more strengths in verbal working memory, vocabulary, and grammar were more likely to resolve their reading problems. These results suggest that verbal skills in general might be considered a promotive factor in dyslexia. As noted earlier, this would be the case of the positive side of a risk factor serving as a compensatory mechanism. That is, while language deficits can increase risk for dyslexia, better language skills may reduce this risk. Indeed, Snowling and Melby-Lervåg (2016), in a meta-analysis, found that among children with a family risk for dyslexia, those with better language skills had better reading outcomes.

Another cognitive factor that has been linked to outcome in dyslexia is children's mindset toward their intelligence. Individuals with a growth mindset broadly believe that intelligence can be attributed to learning, practice, and effort whereas persons with a fixed mindset hold that intelligence is fixed and cannot be changed (Dweck, 2006). Numerous studies have examined the connection between growth mindset and academic achievement including reading achievement. A recent meta-analysis of this work found that, on average, the connection was rather weak (Sisk et al., 2018). However, this relationship might be stronger for children at risk for dyslexia. In support of such a relationship, Petscher et al. (2017) found that growth mindset was moderately related to word reading ability in a sample of children with low reading ability and/or from schools with a large percentage of children from low-income families.

A growth mindset may provide some benefit to those at risk, but success requires more than belief about intelligence. It requires that children put in the effort to achieve better results. Research has begun to examine how this effort is linked with outcomes in children at risk for dyslexia. Specifically, Eklund et al. (2013) examined what they called task-focused behavior in children with a family history of dyslexia. They defined such behavior as the tendency to remain highly engaged in tasks and/or to be persistent in the face of failure. Investigators found that a high level of task-focused behavior in children with a family history was associated

with the absence of reading problems irrespective of the presence of a phonological deficit. Whereas task-focused behavior has just begun to be examined in relationship to dyslexia, others have documented its relationship with reading achievement more generally (Hirvonen et al., 2010; Stephenson et al., 2008). In addition, Petscher et al. (2021) showed in a latent profile analysis that effort, a variable similar to task-focused behavior, combined with growth mindset to predict vocabulary and reading achievement.

That is, students who see themselves as the origins of their actions, have high aspirations, and take control of their learning have better academic outcomes than those who do not share these resilience factors.

## Socioemotional Resilience

Difficulties learning to read can lead to anxiety, frustration, anger, poor self-concept, and/or depression (Arnold et al., 2005; Maughan et al., 2003; Morgan et al., 2012). However, some at-risk children meet learning challenges without strong negative emotions and consequences. Goldberg et al. (2003) found that students with dyslexia who had developed adaptive coping skills had fewer negative consequences than those who did not develop these skills. The former students tended to be more proactive, set goals, and react to failure with less frustration. Research also shows self-determinism is related to outcomes

in students with learning challenges (Zheng et al., 2014). That is, students who see themselves as the origins of their actions, have high aspirations, and take control of their learning have better academic outcomes than those who do not share these resilience factors. Finally, others have argued that hope mediates the connection between risk and resilience factors. Specifically, Idan and Margalit (2014) found that hopeful thinking leads at-risk students to be more goal oriented and to invest more effort in order to achieve their academic goals. Taken together, this research is supportive of a link between socioemotional factors and reading/academic achievement. However, more work is needed that explicitly examines how these factors interact with known risk factors to increase or decrease risk for dyslexia.

## Exogenous Factors

Resilience not only resides within the individual but can also result from the context in which dyslexia occurs. Indeed, as mentioned above, instruction can serve this role. But also, the connections that children have with other people and systems can act as protective/promotive mechanisms and reduce the negative consequences of dyslexia. Much of the support for the compensatory role of the context comes from other fields of study where resilience has been examined from a developmental systems perspective (Masten & Barnes, 2018). Research has just begun to examine exogenous factors related to resilience in dyslexia, and this work has primarily focused on adolescents with learning disabilities



including some with dyslexia. This research suggests that a student's teacher can play an especially important role by providing support and encouragement (Al-Yagon & Mikulincer, 2004). Teachers can also mitigate interactions with peers and increase peer acceptance that can reduce the feelings of loneliness and social isolation associated with dyslexia (Connor et al., 2004). Strong parent–teacher partnerships may also influence literacy development in at-risk children (Dearing et al., 2006). Furthermore, nurturing family members and high family cohesion may serve as protective mechanisms in dyslexia (Al-Yagon, 2010; Idan & Margalit, 2014). Future research can add to our understanding of these effects by examining contextual factors within developmental models that better allow for the examination of causal relationships across the school years.

A contextual factor that has been examined from such a perspective is home literacy environment. Research shows that children who have more books and/or whose parents read more often to them have better early literacy skills than children without these experiences (Frijters et al., 2000; Levy et al., 2006). However, the relationship between informal home literacy and children's reading achievement does not seem to be a direct one. Rather, research suggests that the link between informal home literacy practice and risk for dyslexia is better accounted for by maternal skills and/or genetic influences (Puglisi et al., 2017; van Bergen et al., 2017). This work shows that mothers with higher literacy skills or a genetic predisposition toward higher language/reading skills read to their children more often and pass on their competences/genes that confer good language/reading. Thus, what appears to be an environmental contextual effect may also involve genetic influences.

*For a thorough discussion of the implications that the risk and resilience model has on the early identification of children at risk of dyslexia as well as implications for intervention, see the full article by Catts and Petscher, which can be found at [journals.sagepub.com/doi/10.1177/002221942111037062](https://journals.sagepub.com/doi/10.1177/002221942111037062).*

## Conclusion

We have argued that a multifactorial causal model can best account for dyslexia when defined as an unexpected reading disability. We further have proposed that placing such a model within a risk–resilience framework could be advantageous for the early identification and treatment of dyslexia, which would assist school personnel in meeting state mandates. Currently, there is considerable support for many of the components of the risk–resilience model. There is also emerging evidence for multifactorial

causal models that are central to the framework. Case-based studies have been especially informative in this regard (Catts et al., 2017; Pennington et al., 2012; Snowling, 2008). But these studies have mostly examined well-documented risk factors at single points in time. Additional support for multifactorial models could come from investigations that include a wider array of risk and resilience factors examined within a longitudinal perspective. This would better allow us to differentiate possible causal and correlative factors. Of course, other research designs (e.g., intervention studies) would be needed

to fully support a causal basis.

Beyond case-based studies, investigations that treat risk and resilience factors as continuous variables could be particularly valuable both from the study of individual differences and causal modeling. This work would allow us to better investigate the additive and interactive effects of these variables. Specifically, exploratory research projects that study the presence of latent risk and resilience factors, including a wide range of exogenous and endogenous variables, would represent an initial step in analyses (e.g., Petscher et al., 2021). Finite mixture models (FMMs) such as latent class or latent profile analysis represent one methodology

to look at heterogeneity in risk and resilience factors along levels of categorical latent variables. When combined with latent class regression models (e.g., three-step approaches; Asparouhov & Muthén, 2014), FMMs may both highlight levels of differences in such factors in a nuanced manner and test the extent to which profile differences in risk and resilience factors are predictive of individual differences in distal reading performance. Continuous latent variables of risk and resilience factors may also be used in sets of structural equation models as additive and interactive factors predicting individual differences in either dichotomous variables (e.g., performing below or at/above a cut-point on a selected outcome) or continuous measures of word reading. Moreover, classification accuracy models (e.g., logistic regression, CART analysis, ROC curve analysis) could be extended to not only consider the inclusion of single screener measures or multiple screener measures in an additive model but to look at statistical interactions across multiple screener measures to further study classification accuracy. For example, Petscher and Catts (2021) found that the area under the curve in a multifactorial risk model improved from .88 to .96 by including pairwise interactions among the indicators. Multifactorial risk–resilience models could further gain support from their application to early identification and intervention. For example, studies examining the effectiveness of interventions directed at both risk and resilience factors could be supportive (Masten, 2018). It is through these efforts and others that we may better serve children who are at risk for dyslexia.

Future research can add to our understanding of these effects by examining contextual factors within developmental models that better allow for the examination of causal relationships across the school years.



For a full list of references, see <https://journals.sagepub.com/doi/10.1177/00222194211037062>.

## About the Authors



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**Dr. Yaacov Petscher** is a Professor of Social Work at Florida State University, an Associate Director of the Florida Center for Reading Research (FCRR), and the Director of the Quantitative Methodology and Innovation Division at FCRR. His areas of focus include applied quantitative methods, research design, psychometrics, reading and language development, screening and identification, and computer adaptive testing.

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## Head Lines

# Building a Structure for Literacy Part III: Crafting Coherency in Professional Development

By Jamie Williamson, EdS, *Head of The Windward School*

In the first two articles of this series, I discussed the importance of pairing a solid core reading program with universal screening and pairing a solid intervention program with screening for dyslexia. This article will explore crafting a coherent framework for professional development.

Imagine two new graduates of the same teacher preparation program—grounded in the Science of Reading—embarking on their first teaching positions: One joins a school that has recently adopted a model of systematic, explicit instruction in reading but has not developed a professional development (PD) framework to implement it; one lands a job at a school with a long history of utilizing research-based curriculum tied to robust professional development with continuous feedback.

In the first school, the new teacher observes that each of their colleagues seems to approach instruction in a different way, having developed their own teaching materials and methods of instruction. When questions arise, they are not sure who to ask for clarity or even what the established policy is. There is not a consistent routine for observation of new teachers with subsequent feedback.

In the second school, the new teacher receives intensive professional development prior to the start of school, works closely with a mentor teacher for their first year, and participates in weekly professional development sessions. When they encounter questions, they can address them immediately with the senior teacher or raise them with the larger group during the week's session. They also receive continuous feedback based on observation of their work in the classroom. Which of these teachers is more likely to remain in the profession long term? Which is more likely to burn out?

Sadly, this example is fairly common in education. There are vast differences in how effectively administrators and leaders elucidate a shared vision to those in the classroom, how effectively they provide the tools to implement this vision, and how effectively they support teachers in an ongoing and consistent manner. Further, although preservice teachers may be exposed to coursework on scientifically aligned practices of reading instruction, often they do not experience these practices in the field (Solari et al., 2022). This fragmentation—a lack of bridging theory to practice—creates

confusion on the part of educators, doing them a grave disservice. In order to support teachers (and by extension, their students) in the way they deserve, educational leaders have a responsibility to create coherent systems, to communicate policies clearly, to connect their strategic plans with day-to-day work in the classroom, and to attend to any environmental factors that impact implementation.

Coherent systems, in the context of professional development, are those in which clarity and commitment exist among stakeholders, such as teachers, administrators, and leaders; opportunities for professional learning logistically and organizationally aim to a common goal, both conceptually (entwining theory with practice) and structurally (aligning learning in the context of an overarching framework).

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of educators, doing  
them a grave disservice.

### Addressing Fragmentation in Teacher Preparation Programs

Coherence begins with unifying coursework and practice at the teacher training level. “Educator preparation programs have the potential to impact both the early career practices of teachers and their career-long engagement with research and evidence-based practices” (Solari et al., 2022). When university-level teacher programs lack a clear vision for their programmatic elements, the result is a fragmented, disjointed learning experience. In some cases, students face directly conflicting approaches to reading instruction; one professor may routinely cite whole language proponents such as Marie Clay, while another professor embraces a direct instruction model as outlined by Louisa Moats (EdWeek Research Center, 2020). One’s student teaching experience may exacerbate confusion: Even if there is a consistent vision of learning put forth by the student’s university coursework, their preservice environment may represent a dichotomous viewpoint to reading instruction.

By contrast, when universities integrate courses through a defined scope and sequence that builds upon and supports previous coursework, when they align student teaching placements with the

school's chosen methodologies, and when they actively forge connections between the program's content and its structure, learners reach clarity (Lindvall & Ryve, 2019). The result is a more powerful learning experience and a roadmap that informs decision making for new graduates, as they will be more likely to seek teaching positions that align with their own educational philosophy.

Achieving coherence at the teacher preparation level involves acknowledging the interrelated pieces of a degree program as well as the importance of designing experiences in the field that parallel theory taught in the classroom. Hammerness (2006) documented the efforts of the Stanford Teacher Education Program (STEP) to become more coherent during a four-year period (1999-2003). At the outset, they identified several areas of focus:

Establishing a shared, common view: eliminating "contradictory practices and mixed messages" (Fetterman et al., 1999)

Matching school placements to the teaching vision embodied by the program, or selecting placements based on direct firsthand knowledge of the participating school's and teacher's practices

Addressing identified gaps in the curriculum, such as student assessment or specific methods for diverse learners

Adjusting the curriculum sequence to reflect the developmental progression of teaching knowledge and skills

Integrating coursework, supervision, and field placements

Directly connecting theory and practice, particularly in foundations courses, with theoretical constructs addressed explicitly and frequently, anchored in activities that help students learn to apply them to their classroom practice

*Hammerness, 2006*

The result of this four-year effort revealed clear progress toward structural and conceptual coherence, both internally and externally to the program.

The core program faculty developed a vision around which the program could be redesigned, and the vision was clearly and consistently in evidence across key program documents and in interviews with them ... Furthermore, interviews with clinical faculty (such as cooperating teachers and supervisors), who corroborated aspects of the vision and an understanding of program goals, suggested some external conceptual coherence in the program (Hammerness, 2006).

These changes were also borne out in the practices of program graduates. Observers identified core aspects of the STEP vision in graduates' practices, despite these individuals having taken different courses. Regardless of their course progression, students encountered consistent messaging around teaching and learning, which enabled them to synthesize the same ideas with practice within their teaching environments.

Essentially, "programs that have a cohesive focus on what preservice teachers should know and provide opportunities for practice with scaffolded supports and feedback, graduate teachers who feel better prepared, and are more likely to continue teaching (Brownell et al., 2005; Grossman et al., 2009)" (Solari et al., 2022).

## Coherent Professional Development in the School Setting

Ideally, a teacher receives multiple opportunities to practice in the controlled setting of a teacher training program that prepare them for the cognitive flexibility required in the classroom. Obtaining the depth of content knowledge to facilitate truly effective problem solving in the learning environment is typically outside the scope of a university-level program alone, as "teacher preparation programs are often limited in terms of their length and flexibility" (Solari et al., 2022); I would argue that sustained, robust professional development in the school setting is fundamental to bridge that gap.

## Working Toward a Shared Vision

Just as it's critical for students in teacher preparation programs to see their learning as connected and related to a common set of ideas, it's equally important for teachers to possess a shared vision around professional development with school leadership. Leaders and administrators can evaluate the presence of a shared vision by asking themselves, do all our teachers see themselves in the work?

The Mississippi Department of Education has shepherded a period of massive growth in literacy outcomes for the state, placing them first in the nation for NAEP gains (NAEP, 2019). Throughout the process, a key facet of achieving buy-in from stakeholders—teachers, administrators, parents, and community members—has been transparency about the target outcomes and consistency in messaging around how to achieve these goals. Whether it's sharing conceptual understanding of what the science of reading is to families and community members or drilling down into the data when speaking with educators, the message is consistent. In a recent LEAD on READ podcast, State Literacy Director Kristen Wynn explained, "People have to see where they fit into the work" (Scorrano, 2020-present).

## Weaving Together Professional Development Experiences

Professional development experiences, when not designed for coherence, have the potential to be siloed from one another, missing the key connecting elements that tie the work back to an overarching framework and collective goals. For example, say an elementary teacher participates in the following professional development sessions within a single month: facilitating small-group reading lessons, addressing executive functioning challenges for older students, relationship building with students, and viewing a district-wide presentation on antiracist teaching practices. There is potential for these experiences to feel isolated from one another, or even inconsistent, if there is not an active effort on the part of planners to frame them as interrelated.

Effective professional development, at its core, aims to both (a) improve teacher practices and (b) positively affect student learning outcomes. In order to achieve this, leaders can design a coherent framework by referring to seven critical features, which represent a level of agreement in the field that many regard as consensus (e.g., Desimone, 2009; Penuel et al., 2007; Russell et al., 2009).

Darling-Hammond (2017) outlined these seven features of effective PD:

**A content focus:** Teaching strategies linked to specific curriculum content facilitate teacher learning in the context of the classroom. There is an intentional focus on discipline-specific curriculum development and pedagogies in content areas.

**Active learning:** Teachers engage in designing and testing teaching strategies, utilizing the same style of learning as designed for students. Professional learning is highly contextualized and embedded in practice.

**Collective participation:**

Teachers are more invested in PD experiences when leaders create space for collaboration and sharing of ideas within classroom-specific contexts.

**Modeling of effective practices:** Highlighting best practices through curricular models and modeling of instruction help teachers realize a clear vision to apply to their work in the classroom. Models can include lesson and unit plans, observations of senior teachers, and case studies.

**Ongoing coaching:** Support through coaching should be focused on observation of a teacher's practices, as well as feedback directly related to teachers' individual needs and areas for growth.

**Reflection:** "High-quality professional learning frequently provides built-in time for teachers to think about, receive input on, and make changes to their practice by facilitating reflection and soliciting feedback" (Darling-Hammond et al., 2017).

**Sustained duration:** Teachers require "adequate time to learn, practice, implement, and reflect upon new strategies that facilitate changes in their practice" (Darling-Hammond et al., 2017).

At Windward, these seven features are interwoven with all professional development experiences, both at the beginning and throughout each faculty member's tenure. A primary element is a rigorous mentorship structure: All teachers new to the School, for example, begin as teachers-in-residence. Prior to assuming primary teaching responsibilities, they must successfully complete a one- to two-year training period. Each new faculty member is assigned to a mentor teacher, who explains curriculum and instructional strategies, models effective classroom management techniques, provides guidance, and offers explicit feedback on the teacher-in-residence's professional growth. The culmination of the first year

is the Summer Intensive Program (SIP), which is in-depth, collaborative work on different areas of curriculum and lesson planning.

Mentor teachers, dedicated staff developers, and members of the administrative team also observe teachers-in-residence, both formally and informally, on an established schedule. Reflection by the teachers-in-residence on these observations help to identify areas for growth and refine teaching techniques.

Weekly professional development sessions for all faculty can include teaching strategies, new research findings, teacher-generated topics, and presentations by experts in a

chosen field. Teachers-in-residence receive targeted, weekly PD in addition to these sessions. Throughout the year, teachers attend regular, sustained curriculum staff development meetings and are expected to take an active role in these professional discussions.

## Attending to Environmental Factors Impacting Implementation

Professional learning is only as effective as the system in which it operates. When examining policy design for professional development through a lens of coherence, leaders must "recognize the interdependence of various aspects of their school...—its culture, systems and structures, resources, stakeholder relationships, and environment—and to understand how they reinforce one another to support the implementation of an improvement strategy" (Public Education Leadership Project, Harvard University, 2023). Key questions administrators and school leaders may consider are

Which systems in place support implementation?

Which systems present areas of challenge?

Are there forces in the educational environment that will affect implementation?

Professional development experiences, when not designed for coherence, have the potential to be siloed from one another, missing the key connecting elements that tie the work back to an overarching framework and collective goals.



In the example introducing this article, the first teacher found themselves in a school environment with recent, sweeping changes to curriculum; however, there was not a clearly defined process of de-implementation for the previous programs (For an in-depth discussion of de-implementation, see Danielle Scorrano's article on p. 21 of this issue.). Left to interpret new guidelines independently and apply them to their classrooms, many teachers in this setting likely created an amalgam of potentially conflicting methods, returned to their previous instructional practices out of sheer frustration, or both. The second teacher, working within a coherent professional development framework, experienced clarity around expectations, in addition to support, feedback, and a clear path for professional growth.

Harvard University developed a Public Education Leadership Project (PELP) Coherence Framework (2023) as a tool for reaching and reinforcing coherence, which outlines key elements:

**Instructional core:** There are three interdependent elements to the instructional core: teachers' expertise, student engagement, and challenging program content.

**Theory of Change:** What is the organization's approach to connecting its mission or high-level goals to its strategy to achieve these goals?

**Strategy:** This refers to the set of actions taken to improve student performance by strengthening the instructional core.

**Stakeholders:** People both internally and externally to the organization, including staff, unions, families, community members, and governing bodies

**Culture:** This includes the mission, values, and norms that define and drive behavior in the organization.

**Structure:** How is the work defined in terms of organization, responsibility, accountability, and decision making? Structures can be formal (an established framework) and informal (norms for how work is typically approached).

**Systems:** These are the processes and procedures by which work gets done. For example, systems may be in place related to career advancement, student placement, resource allocation, and so on. Established procedures are critical when addressing important, multi-step tasks.

**Resources:** Resources include not only financial allocations but also people, technology, and use of data to inform decision making.



Harvard University, 2023

**Environment:** Consider any external factors that may impact the overarching strategy and tactics for accomplishing the organization's objectives.

Building a structure for literacy not only requires a foundation constructed of a solid core reading program, universal reading screening, a solid intervention program, and screening for dyslexia; it also requires its cornerstones, effective professional development designed for coherence. When these building blocks are placed securely, the effect on teacher learning—and by extension, student learning—can be transformative.



READ

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WATCH

A Roadmap to Success: Mississippi's Journey to Improve Literacy Outcomes. 2021 Fall Community Lecture.



LISTEN

LEAD on READ, Episode 40: Kristen Wynn and Literacy Leadership in Mississippi (2022). Research Education ADvocacy (READ) podcast. [readpodcast.org](https://readpodcast.org)

## RESEARCH ROUNDUP

# Mixed Deficits Point Toward Multicomponent Interventions

By Alexis Pochna, EdM, *Director of The Windward Institute*



A student's academic life is shaped by the act of reading, from the moment printed text yields meaning to the acquisition and construction of knowledge across content areas. In addition to the obvious challenges faced in ELA, struggling readers in the upper elementary grades are unable to fully access the texts that drive the curriculum in most subjects. Without evidence-based, intensive interventions for these children, the prospect of academic failure having irreversible consequences that last a lifetime grows. A recent study by Capin et al. (2021) sheds new light on the profiles of students with significant reading comprehension difficulties and casts a lantern's glow on important considerations for reading interventions targeted toward these students.

Capin et al. (2021) researched the profiles of late elementary students with significant reading comprehension difficulties based on component reading skills. They looked at the word reading and listening (linguistic) comprehension skills of students with severe weaknesses in reading comprehension as well as areas of cognitive deficit related to these component skills. Approximately 90% of these students demonstrated deficits in both word reading and linguistic comprehension, pointing to the continued significance of decoding interventions for struggling readers in the upper elementary grades and beyond.

## The Simple View of Reading

In their study, Capin et al. (2021) used the theoretical model of the Simple View of Reading (Gough & Tunmer, 1986) to define the reading profiles of students with significant reading comprehension difficulties. While there have been criticisms of the Simple View of Reading, it is a well-validated, widely accepted model that has significantly advanced the Science of Reading. It defines skilled reading as the product of two components: decoding and linguistic comprehension.

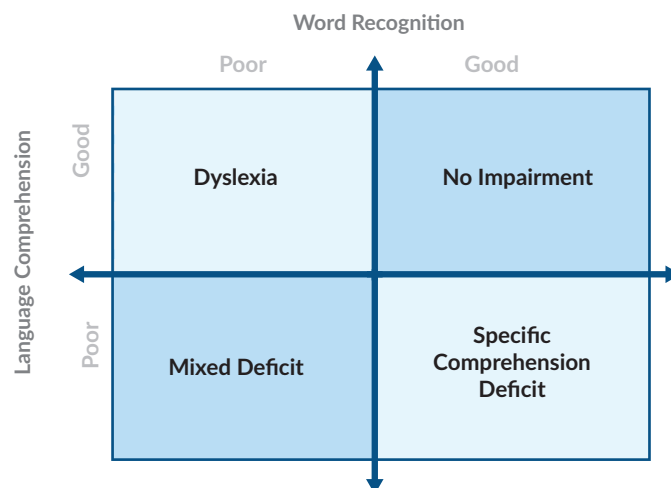
## Decoding (D) x Language Comprehension (LC) = Reading Comprehension (RC)

*Gough & Tunmer, 1986*

In the Simple View of Reading, decoding is defined as efficient word recognition, and linguistic comprehension is the ability to understand language and interpret lexical information. Reading comprehension involves understanding linguistic information that

is presented graphically through text (Hoover & Gough, 1990). "According to the simple view, reading ability can result only from the combination of decoding and comprehension. But reading disability could result in three different ways: from an inability to decode, an inability to comprehend, or both" (Gough & Tunmer, 1986). Catts et al. (2006) put forth a classification system for readers, which categorized students in relation to their weaknesses in word reading, language comprehension, or both components (mixed deficit).

**Figure 7. Classification system based on the simple view of reading**



*Catts et al., 2006*

Such a system, they argued, would help guide interventions to target specific deficits. Capin et al. (2021) applied this work to their study to identify the profiles of subgroups of students with significant reading comprehension difficulties in order to estimate the occurrence of each subgroup among struggling readers in the late elementary grades. They studied 446 fourth-grade students who scored below the 16th percentile on a nationally-normed assessment of reading comprehension. A significant portion of the sample qualified for free or reduced lunch, and about half of the students were categorized as English learners (ELs). Capin et al. identified three reading profiles: moderate reading learning difficulties (moderate RLD), severe word reading difficulties (severe WR), and severe listening (linguistic) comprehension difficulties (severe LC) which coincided with the classification system outlined by Catts et

al. (2006). What makes this study especially interesting is that more than 90% of the students demonstrated challenges in both word reading and listening comprehension. Less than 10% of the students fell into subgroups that were based on word reading or listening comprehension as singular component deficits impacting reading comprehension. While the rate of occurrence of different reader profiles has varied across studies, “overall, research on poor reader profiles supports the idea that significant problems in word reading persist in many older poor readers” (Spear-Swerling, 2022).

As educators, researchers, and policymakers strive to identify the most efficacious interventions for struggling readers, Capin et al.’s (2021) study offers valuable insights. Results of the 2022 NAEP reading assessment, which measures students’ reading comprehension skills, have been widely reported in the news. Not only have scores decreased from 2019 to 2022, they remain consistently abysmal. In 2022, 37% of fourth-graders performed below the NAEP basic level in reading, and only 33% of fourth-grade students performed at or above the NAEP proficient level on the reading assessment ([www.nationsreportcard.gov](http://www.nationsreportcard.gov)). Fourth grade has long been considered a pivotal year in a child’s reading life. It is around this time that students enter what has been referred to as the reading-to-learn phase of reading development (Chall, 1983). Texts and content become more complex, and core subjects such as social studies and science rely more heavily on reading for information. If foundational skills are not solid, learning across subjects is lost.

## Applying the Research

A goal of the study by Capin et al. (2021) is to show the potential of applying the Simple View of Reading to focus interventions for students with weak comprehension. When identifying students with poor comprehension skills based on the severity of their reading deficit, adjusting the dosage of the intervention is warranted. However, when characterizing these students by area of weakness in relation to the Simple View of Reading, the focus of remediation can be tailored to the specific component skills (Capin et al., 2021).

Catts (2018, reprinted in *The Beacon* Spring 2021 issue) argues that the Simple View of Reading has led to false impressions about the complex nature of both language comprehension and reading comprehension. He states, “Comprehension is a multidimensional cognitive activity and one of the most complex behaviors that we engage in on a regular basis” (Catts, 2018). As such, comprehension cannot be reduced to a single skill or set of skills and requires a far more nuanced approach to intervention than discrete strategy instruction. This position is vital to understanding the limits of the Simple View of Reading in describing the complex, multifaceted nature of the reading process and important to note when considering the potential implications of Capin et al.’s (2021)

research on instructional choices. However, students with weak comprehension scores are frequently assumed to have weak general comprehension at the expense of a proper assessment and intervention approach that includes decoding weaknesses (Farrell et al., 2019).

Capin et al. (2021) cite several supporting research studies including Clemens et al. (2017) and Brasseur-Hock et al. (2011), which looked at middle school and ninth-grade students with weak comprehension. Both point to weak foundational reading skills among adolescent struggling readers. According to Clemens et al., “Results suggest that for most struggling adolescent readers, problems in understanding text may be rooted in insufficient knowledge and skills that are needed to read text efficiently and free the cognitive resources to permit higher order processing, connect ideas, infer meaning, and draw conclusions” (2017). They suggest that interventions that only target specific reading comprehension skills may not be addressing the scope of difficulty, which includes efficient text reading.

Vaughn et al. (2019) showed that initial word reading, rather than listening comprehension, was the better predictor of reading comprehension performance for students with significant deficits in reading comprehension in fourth grade. While linguistic comprehension plays a greater role in reading comprehension as students progress through the grades, the study by Vaughn and colleagues shows that this shift is delayed for students with weak reading comprehension. They too concluded that word-level reading continues to play an important role in the upper elementary grades for students with reading challenges.

## Implications for Intervention

As the nation’s reading scores remain deplorable, the reading wars continue, and national frustration over the state of reading remains at a persistent boil, we must be wary of narrow interventions that miss the forest for the trees. Reading is a complex process that involves a range of component skills and cognitive variables and is influenced by a host of external factors. While it is abundantly clear that there will be no quick and easy fix to the nation’s reading crisis, there is a growing body of research pointing the way toward effective interventions.

The Capin et al. (2021) study is important because it supports the need to address word reading difficulties in upper elementary school students and beyond. This does not mean that word reading should be an exclusive focus for older students with weak comprehension; these students require a multifaceted approach that addresses a range of reading skills (Cirino, 2013). In a meta-analysis of interventions, Scammacca et al. (2015) found that the body of research they reviewed supported interventions at both the word and text level for struggling readers in grades 4–12.

Although average and above-average readers may shift from learning to read to reading to learn by the upper elementary grades (Chall, 1983), results indicate that fourth graders with well below-average reading comprehension skills present deficits in word reading that will likely require remediation. This is not to discount the importance of developing vocabulary, general knowledge, inference-making, and other linguistic processes that facilitate reading for understanding. We interpret our results as highlighting the need for multicomponent intervention approaches that target linguistic comprehension as well as word reading. (Capin et al., 2021).

In the recent Institute of Education Sciences guide, “Providing Reading Interventions for Students in Grades 4-9” (2022), evidence-based recommendations for students with reading difficulties include building decoding skills and fluency, instituting comprehension-building practices, and exposing students to complex information via challenging text. The significance of accurate decoding for skilled reading of higher-level texts is emphasized in this important guide’s first recommendation, which points to the increasing frequency and level of challenge of multisyllabic words as students progress through the elementary and middle school grades.

**Table 1.1 Recommendations and corresponding levels of evidence**

Practice recommendation	Level of evidence		
	Minimal	Moderate	Strong
1. Build students’ decoding skills so they can read complex multisyllabic words.			✓
2. Provide purposeful fluency-building activities to help students read effortlessly			✓
3. Routinely use a set of comprehension-building practices to help students make sense of the text			✓
4. Provide students with opportunities to practice making sense of stretch text (i.e., challenging text) that will expose them to complex ideas and information.		✓	

*Institute of Education Sciences, 2022*

In a recent review of intervention research for upper elementary struggling readers, Donegan and Wanzek (2022) concluded that multicomponent interventions that include instruction in foundational reading skills as well as comprehension and vocabulary

instruction are positively indicated for improving reading outcomes for these students. According to Spear-Swerling, “many poor readers require multicomponent interventions. This tends to be especially true of poor readers in the upper elementary grades as opposed to the primary grades, and those with relatively severe as opposed to milder reading comprehension difficulties, as well as English learners (ELs) and children from low-socioeconomic backgrounds” (2022). Furthermore, assessing reading comprehension alone does not provide the necessary information to adequately tailor interventions for students with poor comprehension skills. In addition to the comprehension assessments (such as the NAEP) that are relied upon, assessing word-reading accuracy and fluency should be considered in order to identify component weaknesses and target the most effective interventions (Cirino, 2013).

Multicomponent interventions utilize assessments to drive, monitor, and adjust instruction. Instruction is explicit, and time on task is maximized. A multicomponent intervention plan might include elements that address decoding, spelling, fluency, text comprehension, language comprehension, vocabulary, background knowledge, and writing. Learning tasks are carefully considered to allow for integration of interventions and processes, such as texts that allow for practice with decoding patterns as well as comprehension, and which lend themselves to corresponding writing activities. By applying the Simple View of Reading and the competencies integral to each component, multicomponent instruction can be adapted to an individual student’s needs (Spear-Swerling, 2022). The significance of integrating knowledge acquisition with reading instruction through content-rich materials is essential in such a comprehensive approach (Catts, 2021).

The Simple View of Reading has pulled back the curtain on the broad components of skilled reading. Acknowledging and assessing the component skills of efficient reading remain critical for struggling readers in the upper elementary grades and beyond. Capin et al.’s (2021) research points to the need for increased awareness of the profiles of struggling readers, especially with regard to the prevalence of mixed deficit profiles with weaknesses in both word reading and linguistic comprehension. The evidence supports incorporating and integrating instructional practices that deliver multicomponent interventions for these students in the upper elementary grades. Educators must invest in evidence-based instructional approaches for these children with urgency. At fourth grade and beyond, there is truly not a single moment of instructional time to waste.





READ

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## Q&A with Inspiring Leaders in the World of Dyslexia

# Margie Gillis: Expert and Advocate



*In this Q&A series, we interview individuals from the dyslexia community who are influencers in their respective fields. We hope this series provides insight into how dyslexia impacts our world and inspires our readers to see the potential that dyslexic children can achieve in the future.*

By Jana Cook, *Associate Director of Marketing and Communications*, and Danielle Scorrano, MPS, *Research and Development Director of The Windward Institute*

Margie Gillis, EdD, has been a nationally recognized expert in literacy and dyslexia for decades. Throughout her career, Dr. Gillis has steadfastly worked to improve reading education for all children, especially students with dyslexia, by targeting teacher preparation and professional development, shaping state policy, and broadening education and information about reading. Specifically, Dr. Gillis has been instrumental in enacting Connecticut's state policies on reading through her efforts in the adoption of universal screening of K-3 students, incorporation of certification tests for teacher candidates in reading, and implementation of evidence-based reading practices. As the founder of Literacy How, Inc., Dr. Gillis has been a pioneer in supporting teachers implement evidence-based reading instruction through coaching and other professional development opportunities. She has also founded and served in leadership roles in organizations dedicated to conducting research and disseminating information and education to educators, families, and the public about reading and children with learning disabilities.

For the complete interview, go to [www.thewindwardschool.org/the-windward-institute/thebeacon](http://www.thewindwardschool.org/the-windward-institute/thebeacon).

### Where did the passion for reading education and helping children who struggle to read originate?

When I was a young girl growing up in a family of six children, I loved to read and learned to read pretty easily. I taught my little sister to read. She was sad when I went to school without her, so we would play school. One of my older brothers, though, really struggled with reading. He learned some phonics [at school], but it wasn't enough. I'm sure he was dyslexic, but he was never diagnosed. I was unaware of what was driving his struggles at the time, but I felt like I wanted to learn how to teach reading. Then, when I was 11 or 12 years old, a family friend had a child in the family who was about my age who couldn't read. The mom said, "You love to read so much, Margie, would you help?" I didn't know what to do, and I would sit and read with him, but it was clear to me, even at that young age, that some kids couldn't read easily.

As I got older, I went into an undergraduate program. There wasn't an education major there, so it was more of a generic program to get certified. This was in the early 70s, and it was a time of learning more holistically. We learned about how you can motivate and engage children, and we just read a host of articles about how they taught children to read in England. It was really the precursor to whole language, and I knew enough to know that wasn't going to get the job done.

After substitute teaching for a year after I graduated, I realized I had no idea what to do to teach reading. Having had the different experiences with my sister, brother, and my family friend's son, I knew I wanted to teach kids who struggle with reading. [I often wondered], what was it that distinguished children who could [read easily] from children who couldn't? Then I heard about the program at the University of Connecticut with Isabelle Liberman, who was a cognitive psychologist, and when I got into that program, that started to become clearer.

### How have you approached your work in changing the educational landscape to better support literacy for all children?

I [focus on] teacher preparation. For the last 22 years, my team and I have been working with teachers who are already certified, and we know how hard it is to change practice. When someone's been teaching, even if they've taught only one year, they've gone through a teacher preparation program. If the program taught balanced literacy, which the majority of them do, then it takes more to persuade the teachers of the Science of Reading.

If we start at the pre-service level, at the undergraduate level, then we get it right from the beginning. In these programs, you have to provide substantive practicum experiences for students to learn how to teach the structured literacy content. And you know this at Windward—those practicum experiences matter greatly, particularly when you're working with students that struggle, including kids with dyslexia, kids with other reading disabilities, or kids with other profiles that necessitate individualizing instruction.

You could have one practicum experience that's steeped in word recognition skills and how to address those, but then you could have another student who has comorbidities with executive functioning that impact reading comprehension and writing. As a result, you have to learn some other strategies associated with that learning profile that necessitate looking at comprehension and writing.

Inspiring pre-service teachers with good models is key. They need to be with master teachers who know what they're doing. Developing pre-service teachers—because that's how they'll stay in the profession—is a long process. I feel that basic certification should be a five-year program, where pre-service teacher candidates devote that fifth year to being out in the field, to developing the application of [what they learn in the university program]. Then the teacher can go on to get a specialization, for example, in dyslexia or other reading disabilities.

The final piece is coaching. We really need to prepare coaches, and you see the importance of this in Mississippi, where they have been able to provide teachers with the right knowledge and understanding to be able to coach their teachers effectively.

### In your career, what is one story that sticks out to you as a moment you felt most proud for the work you've done?

One of the most satisfying things that happened fairly recently was teaching my granddaughter to read during COVID. She was five years old, in kindergarten. They stopped going to school in person, and she had Zoom sessions, but it wasn't enough. She wanted to read, and I wanted to teach her how to read, or at least encourage her to read.

Every day, we'd spend a half hour, sometimes longer, on Zoom calls. We used [phonics-based] books, really cute books; Phyllis [Bertin] wrote some beautiful new PAF books and she and I had this conversation once about how important it is that kids don't rely on pictures.

So, we covered up the pictures, and she'd read the texts and I'd say, "What did you picture when you read those words?" She'd tell me, and then we would uncover the pictures. I could see what she had been taught in kindergarten, which was a balanced literacy approach, and that she'd been told to look at the pictures. She was already in the habit of doing that at the tender age of five. I said, "When you don't know a word, it's not the picture that's going to help you." And because of me working with her every day, she stopped looking at the pictures.

It was exciting, and what was so impactful, for me, was having that hands-on experience with a child after having been removed from the classroom environment for so long. And I realized that it's really important to stay connected to the kids, because I never want to lose sight of that, the heart of the work we do.

### What do you wish more people knew about dyslexia?

What I want people to know is that dyslexia is not one thing. It's so much more than having trouble hearing sounds. It's hard to characterize it because it looks so different for every child. It's complex.

We know a lot about it because it's the most well-researched learning disability. We have this juxtaposition of something that is a challenge—the complexity of it—but also hopeful in that there are so many people studying it so that we can do better for our kids.

### Tell us more about the political and advocacy work you have led in your home state of Connecticut as well as nationwide.

When you're on the ground every day—and I'm personally not but my team is—I talk to communities and hear the stories of what's happening in schools that is disheartening. It propels me to think about the policy work and how important it is. You can have great policies, but if you don't have accountability for those policies, they won't do what they're intended to do. At the state and national levels, I talk about how you can take policies and have them be implemented in effective ways. What would that look like? I love the Mississippi story. That is the best example of having policy and ensuring it's implemented with rigor, fidelity, and accountability.

Something I've talked about nationally is finding your partners: Make sure you connect people in different organizations and agencies, as well as stakeholder groups, because otherwise the work gets siloed, which happens all the time. For example, in Connecticut, we have reading legislation and we have dyslexia legislation, and a lot of people don't see the connection between the two.

One thing I talk about with states, especially those considering legislation, is that they ensure they define the language of the policies clearly. In Connecticut, we developed the literacy model in 2012, and for 10 years we've been trying to take that model to scale. We started it with five schools, and we've scaled it up to about 70 schools in the state. It's still not enough, but it's a model that we

have studied to understand: What are the pieces of creating a literacy model for a school that are important? One of the ones that I've been personally working with a lot is family engagement. How do we engage families in their children's education, and what does it look like? That is a significant part of the policy work.

### Can you speak more about your experience in the de-implementation practices that are ineffective or not research based?

This is a really important concept. First and foremost, if you're using three-cueing, it is not compatible with structured literacy. They cannot co-exist peacefully. So, that's one thing I would take off the table as a non-negotiable. In addition, when Literacy How provides professional development and we go into a school system for a period of years, we talk about coherence within the district and the schools. We refer to coherence in a lot of ways. In this case, if a school district is bringing in some other initiatives, whatever they may be, the leaders of that district have to examine whether all the initiatives are aligned. New initiatives may also mean competition for time, too. There's only so much bandwidth teachers have for new professional learning opportunities. De-implementing programs that aren't really priorities, aren't working, or aren't evidence-based strategies is important.

### How can we empower educators, families, and children to advocate for better reading education in their communities?

One of the primary ways to empower others is to inspire them to advocate, first for themselves and for the people in their close circle, like their family. Once you have done that for your children, how do you then expand so you advocate for others? We can't stop with our own little world.

Empowering communities, first and foremost, is giving them knowledge and resources that they can actually access easily. Then, I think you have to build in support systems. When we work with educators, we get them together in teams, and we try to build a professional learning community so that they can start supporting each other. For families, it would look similar. If you're struggling, you're going to go to another parent who's walked that walk and will give you good information. We get a lot of parents that come to our offices because someone gave them our name, and they need support. We start with bite-sized chunks of information and explain that getting the right support for their children is a long process. "You're not going to figure this out in six months or a year. Just know you're in it for the long haul." Once we work with families, they see where their children are now compared to where they started. That is when many families think about what they can do for the children of their community who also need advocates.

### What is your hope for the future in reading education professional development?

My team and I always feel like we'd like to reach more teachers, because we have limited capacity, and we believe that the coaching support is what really brings teachers to that level of understanding and ability, to really apply the Science of Reading and the research. Maybe 10% of teachers figure it out on their own, but the vast majority don't, and then they default to what they've always done. So, the role of the coach is extremely important. We have to find ways to leverage technology, because we can't reach all the teachers [without it]. In the near term, we finally wrote our first online course, on syntax. We've had about 120 teachers complete it and share feedback. We're looking at writing a course that inspires teachers to try it out in their classroom, but [integrating] coaching as well, someone observing in the classroom, sharing input, cheering them on, helping them tweak it. The role of the coach is cheerleader: encouraging, facilitating, modeling. For me, this is the next frontier.

#### Advocacy Toolkit

[Understood.org](https://understood.org)

[Smart Kids with Disabilities](#)

[Haskins Global Literacy Hub](#)

[National Center on Improving Literacy](#)

[International Dyslexia Association  
Fact Sheets](#)

[Reading Rockets](#)

[READ Podcast  
Episode 8: Translating Literacy  
Research & Empowering Educators](#)

[EdukateNYC](#)

[Promise Project](#)

[Literacy Academy Collective](#)



## Intersecting Research With Educational Practice

# De-implementation in Education: Removing, Reshaping, and Reprioritizing for Reform

By Danielle Scorrano, *MPS, Research and Development Director of The Windward Institute*

The need for reform in education has endured through generations as educators across systems continuously strive to better serve learners. At times, reform can appear too prolonged, arduous, or overdue; yet, at other times, it may feel inappropriate or untimely. In the context of how reading is taught, widespread reform is both timely and beyond overdue. The calls for change have echoed across public discourse, driven by decades of evidence that continues to demonstrate the ways in which reading pathways develop in the brain and supporting effective instructional practices. At the same time, the NAEP (2022) illustrates the decades of stagnant rates of reading proficiency, with only about one-third of the nation's fourth-graders demonstrating proficiency and wide disparities that exist across race, socioeconomic status, and disability status. Refusing to accept this status quo, calls for reform reverberate with this truth: Certain current methods of reading instruction are not serving most students across the educational system.

Reform in education mirrors a research process that is iterative, complex, and multifaceted.

What does change in education actually mean, and how is it effectively facilitated? Calls for reform in reading instruction have forced stakeholders across the system to examine the process of effective change in education. Just as science has informed our understanding of the reading brain and instruction, researchers are also providing expertise into this process through a lens of implementation science. In fact, reform in education mirrors a research process that is iterative, complex, and multifaceted.

This article examines how implementation science can inform how we navigate change in education with a specific focus on de-implementation. De-implementation, a dynamic process that has been utilized across disciplines, involves stopping or reducing certain practices that are deemed no longer effective or low value (Dewitt, 2020). While de-implementation may seem intuitive and ubiquitous in many areas of life, it can be misunderstood or

misapplied in education. Without intentionality, educators may move through de-implementation haphazardly, ultimately harming the stakeholders they seek to protect and serve. This article

- outlines a foundational synthesis of current research on implementation science and de-implementation;
- translates de-implementation into practical educational practice;
- offers insights and implications to leverage de-implementation as a valuable tool for program reform, scalability, and sustainability.

### Implementation Science

Implementation science has gained increasing attention across educational research in the last decade. Originally designed to address initiatives in healthcare, implementation science provides a framework for researchers to understand and facilitate “program adoption, implementation, and sustainability” (Nordstrum, et al., 2017). Its goal is to understand the contextual and social mechanisms that lead to increased dissemination and adoption of evidence in practice and, ultimately, inform future programmatic and policy decisions (Bauer & Kirschner, 2020). A key benefit to implementation science is that it maintains a clear focus on program effectiveness and sustainability (Moir, 2018).

Moir (2018) explains that “implementation is not a straightforward process.” Instead, it requires rigorous enactment, analysis, and reflection through iterative stages across time, which include pre-implementation, implementation, and continuous progress monitoring (Dewitt, 2022). Moir (2018) asserts that the entire implementation process could take years. Successful pre-implementation requires a robust and comprehensive analysis of factors that promote (facilitators) or inhibit (barriers) the implementation process and its outcomes (Bauer & Kirschner, 2020). Similarly, pre-implementation work involves understanding what programs already exist and need to be replaced through the process of de-implementation (Dewitt, 2022). It has become increasingly clear in education, and especially in reading education,

that de-implementation is perhaps one of the most important phases of implementation. While the value of de-implementation extends across education, it is particularly timely for leaders to leverage in reading education.

### The role of de-implementation in educational practice

De-implementation is the process of “reducing or stopping the use or delivery of services or practices that are ineffective, unproven, harmful, overused, or inappropriate” (Prusaczyk et al., 2020). In the context of reading education, advocates for the Science of Reading would concur with and even applaud this definition as they call into question existing methodologies that have long been deemed as “ineffective, unproven...or inappropriate.” In fact, methods that are touted in popular curriculum resources, like three-cueing, have long been overused and are harmful to countless generations of children being taught to read (Hanford, 2018, 2019, 2022). Reading Recovery, another example that has been originally touted as effective and informed by research, has long been criticized by researchers who have found this program to be ineffective, unproven, and harmful to various student populations they studied (See Jay Russell’s article, “Requiem for Reading Recovery,” on p.25 of this issue.). With these practices on top of mind, there are certainly other instructional practices in reading that may require further examination. Furthermore, existing reading initiatives may also appear promising but are not applicable, feasible, or scalable to sustain effectiveness in practice.

In addressing ineffective programs, de-implementation should be viewed as both a process and a driven outcome-based practice that requires rigor and intentionality in its steps and methods (Prusaczyk et al., 2020). Dewitt (2022) identifies two specific types of de-implementation: formal and informal. Informal processes may relate to certain routines such as those related to efficiency, whereas formal processes require more considerable care and deliberation. Further, de-implementation practices may involve reducing (partially or fully), replacing, or substituting existing programs (Dewitt, 2022; Wang et al., 2018). Using these practices as a framework, leaders in reading education can guide their decisions to qualify decisions for de-implementation in three R’s: What can be reconsidered, reshaped, and removed for the goals of program reform, scalability, and sustainability?

### Leveraging the process of de-implementation for program reform, scalability, and sustainability

The three R’s of de-implementation—reconsidering, reshaping, and removing—pertain to an analysis and ultimately a qualification of an educational program or practice’s value (i.e., determining whether a program qualifies as low value). What determines a

decision whether to reconsider and reshape a practice or to entirely remove it? At the simplest level, judgment of instructional practice would be based on research to support whether it is proven and effective for children. However, evaluating the merit in de-implementation requires more intentionality and rigor, which Prusaczyk and colleagues (2020) address in their guiding framework on de-implementation. These factors can guide leaders as they engage with de-implementation in the context of reading education (Proctor et al., 2011; Prusaczyk et al., 2020):

- |                   |                  |
|-------------------|------------------|
| ■ Acceptability   | ■ Fidelity       |
| ■ Adoption        | ■ Cost           |
| ■ Appropriateness | ■ Penetration    |
| ■ Feasibility     | ■ Sustainability |

The first three steps of this framework pertain to acceptability, adoption, and appropriateness. Acceptability refers to the way the current program is perceived by the community stakeholders. In reading, for example, acceptability may relate to attitudes toward reading instruction or how children learn. According to Prusaczyk and colleagues (2020), adoption (de-adoption) offers an explanation about why a practice or program is no longer used. This step is critical because it requires a comprehensive examination of data within the system in which the program is serving. For instance, data may not support the current practices, therefore validating de-adoption. Data also informs appropriateness or identifying programs that are no longer relevant to the community (Prusaczyk et al., 2020). Leaders should approach data collection and analysis through an ecological, systems lens.

While acceptability, adoption, and appropriateness address factors related to mindsets toward de-implementation, Prusaczyk and colleagues (2020) explain factors that relate to systems, including feasibility, fidelity, cost, penetration, and sustainability. Understanding how these factors influence de-implementation requires an intentional examination of resources available, similar to research that informs issues of scalability. For example, Levin (2013) outlines factors that impact scaling educational innovations that can also apply to how de-implementation is enacted, which include cost, human capacity, tools, infrastructure (i.e. resources), political support, and the factors related to community stakeholders external to the school. Penetration, feasibility, and sustainability specifically pertain to the ways in which the school organization maintains consistency, coherence, and commitment to the de-implementation process (Prusaczyk et al., 2020). Penetration and fidelity refer to the extent to which the program has changed or is no longer used with a specific focus on the community stakeholders and processes.

Sustainability indicates the duration of time in which the de-implementation process is maintained. Understanding and examining these factors requires follow-through in data collection and analysis and continuous communication and buy-in from the stakeholders impacted by the de-implementation process.

### De-implementation: What Happens Next?

In education, reform exists in a paradox: While reform is necessary and fundamental for progress and equity, it is also extremely challenging. This paradox has been evident over the last several years as cities and states have committed to reforming reading education practices to better serve their students. In these instances, they have recognized that the existing reading curriculums and

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instructional methodologies were not aligned with evidence, were ineffective, and were ultimately harming many of the students being taught to read. Mississippi, for example, modeled a process of implementation and de-implementation as they cultivated community buy-in, maintained commitment to the Science of Reading and developing their teachers, and navigated challenges and barriers (Listen to Episode 40 of LEAD on READ with Mississippi State Literacy Director Kristen Wynn.). Other city and state governments are engaging in similar processes, such as New York City, as it has engaged with a literacy advisory board and examined how best to train its teachers.

With change in reading education moving across the nation, it's important to recognize why reprioritization is key in the process of implementation and de-implementation. Reeves (2022) asserts that proposing too many initiatives would set up organizations for failure. It is impossible to add new initiatives without discontinuing others, and in failing to do so, leaders risk subjecting their communities to lack of clarity, reduced agency and collective responsibility, and burn out (Reeves, 2022). As leaders engage in the processes of implementation and de-implementation, they must consider the following:

- Build a strategy for consistent communication that is transparent in clarity of goals and organizational ideology. In this step, leaders would be able to clearly communicate why and how methods supported by the Science of Reading support their students' reading goals.
- Adopt consistent and coherent language. This step is key for leaders to establish coherence, a fundamental part of professional development and curriculum implementation, as Jamie Williamson explores in his article "Building a Structure for Literacy Part III: Crafting Coherency in Professional Development" on page 10 of this issue.
- Invest in sustained training during the pre-implementation and de-implementation stages to cultivate clarity and build collective buy-in, responsibility, and efficacy toward better outcomes for students. Training should be maintained throughout the implementation process.
- Approach data collection and analysis through a comprehensive and equitable approach and by asking the right questions. This means inviting more stakeholders into the process to capture the story of experiences, outcomes, and processes. Data should explain whom programs are serving and whom they are not serving. Keeping a narrow lens on data may also result in unintended consequences that ultimately don't serve the community the school is serving and could risk harming students in vulnerable populations. Terry and colleagues (2022) establish a comprehensive ecological framework for understanding reading difficulties, where they examine community factors that influence a child's social and academic development (For an in-depth analysis, see Annie Stutzman's article, "Symbiotic Schooling" on page 28 of this issue.).
- Maintain a commitment to actively consume research. This would include identifying evidence that serves large populations, examining the conditions in which interventions benefit study participants (i.e., contextual and social factors), and understanding barriers and facilitators that inhibit or facilitate programs and interventions from being effective and sustainable.

These practices and behaviors can be integrated with certain mindsets geared toward the de-implementation and implementation processes. Leaders should first engage in a mindset of learning and curiosity. Dewitt (2022) explains that de-implementation involves significant unlearning and relearning. A mindset of growth will also support leaders and community members in balancing commitment and tenacity with flexibility

and humility. Finally, a mindset of collaboration and community cultivates a sense of collective efficacy and responsibility with the understanding that no one can do this work alone.

Implementation and de-implementation hold promise for both research and education when understood and enacted within an intentional and comprehensive approach. In engaging with this

work, it's fundamental to recognize that implementation and de-implementation are not polarities and do not exist on a metaphorical balancing scale. These processes are not linear but are rather iterative. For those of us who choose to engage in this work, it is both challenging and essential to support the academic gains of the students and livelihoods of the communities we serve.

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**ON READ**



SCAN ME



## Inside the Institute

# Requiem for Reading Recovery

By John J. Russell, EdD, *Special Projects Advisor at The Windward Institute and Associate Director of the Haskins Global Literacy Hub*



**R**eading Recovery (RR) is a short-term, school-based literacy intervention for first-grade students who experience difficulty learning to read. Developed by New Zealand researcher Marie Clay, Reading Recovery uses specially trained teachers to work with students individually for 30-minute lessons each school day for 12 to 20 weeks. The Reading Recovery Council, a not-for-profit association of Reading Recovery professionals and advocates, claims that RR is effective and grounded in research.

Why are so many reading researchers and educators deeply troubled by what they state are persistent misleading assertions about Reading Recovery?

In 2002 the Reading Recovery Council made its position clear, posting, “In the national debate about scientifically based research and accountability, Reading Recovery is a surprising target because no program is more accountable and has a stronger scientific base than Reading Recovery.” These claims have been supported by a number of researchers. The Reading Recovery Council cites research (2002) in peer-reviewed journals that the Council argues documents Reading Recovery’s effectiveness (Center, et al., 1995; Iversen & Tunmer, 1993; Pinnell, 1997; Pinnell et al., 1994; Sylva & Hurry, 1996; Wasik & Slavin, 1993). Further support comes from The Institute of Education Sciences (IES), the statistics, research, and evaluation arm of the U.S. Department of Education. Included in the What Works Clearinghouse of the IES is the following statement: “Reading Recovery was found to have positive effects on general reading achievement and potentially positive effects on alphabets, reading fluency, and comprehension for beginning readers” (Author’s note: The inclusion of “potentially” should not be ignored.).

Given this level of support, it is not surprising that Reading Recovery quickly spread across schools in the United States. Since 1984, when RR was first introduced, at least 2.4 million students

have participated in the program (Hanford & Peak, 2022). According to the Reading Recovery website, in 2002 Reading Recovery was in approximately 20% of public elementary schools; it is currently in 2,000 schools in 41 states. This level of adoption required that thousands of teachers receive the specialized training deemed necessary to deliver the program. In order to accommodate this demand for specially trained teachers, more than 20 universities across the United States established RR training programs; included among them are The Ohio State University, University of Connecticut, Georgia State University, and Lesley University. These partnerships with well-regarded universities further bolster the perception that RR is an effective research-based program.

However, these positive reviews of RR have been countered by an ever-increasing number of reports that are critical of RR and cast doubts on the claims that RR is effective and research based. Why are so many reading researchers and educators deeply troubled by what they state are persistent misleading assertions about Reading Recovery?

### The theoretical basis for Reading Recovery is not supported by reading research.

The Reading Recovery Council alleges that RR is built on the five essential components of reading instruction—phonemic awareness, phonics, vocabulary, comprehension, and fluency (Reading Recovery Council, 2002). RR lessons include reading and re-reading books containing predictable text, cutting up and rearranging sentences, identifying letters, and introducing new books. Students are taught to guess words, rely on pictures to understand text, and use a similar word in place of the actual word written in the text. Marie Clay (1998) specifically states that beginning readers “need to use their knowledge of how the world works; the possible meanings of the text; the sentence structure; the importance of order of ideas, or words, or of letters; the size of words or letters; special features of sound, shape, and layout; and special knowledge from past literary experiences **before** [emphasis added] they resort to left-to-right sounding out of chunks or letter clusters or, in the last resort, single letters.” The use of these instructional strategies to teach struggling readers has been widely discredited (Vellutino, 1991; Moats, 2000; Moats, 2007; Tunmer et al., 2013; Spear-Swerling, 2018). For example, research has shown that predicting words from context is a highly ineffective learning strategy that is preferred by poor readers, not proficient ones (Chapman & Tunmer, 2002; Hanford & Peak, 2019).

Significantly, RR does not consistently incorporate explicit, systematic instruction in phonemic awareness and the use of letter–sound relations in its lessons. According to Chapman and Tunmer (2018), “Such instruction is essential for most students who struggle with literacy learning during their early years of schooling and especially important for students who experience the most difficulty with learning to read.”

### Reading Recovery does not result in sustained reading achievement.

Examining schools in New Zealand by comparing the performance of students that received Reading Recovery to a control group, Center et al. (1995) found that on an evaluation administered at 15 weeks, the students in the RR group were superior to control students on all tests measuring reading achievement but not on two out of three tests which measured metalinguistic skills, which are defined simply as the ability to think about and reflect upon language (Gillon, 2004) and, in more detail by the American Speech-Language-Hearing Association (ASHA), as phonological awareness, morphological awareness, syntactic awareness, semantic

May discovered that children who received RR had scores on state reading tests in third and fourth grade that were below struggling readers who had not received the program.

awareness, and pragmatic awareness. Further, an evaluation at 30 weeks revealed that there were no longer any differences between the RR and control children on seven out of eight measures. Surprisingly, 12 months after discontinuation, about 35% of RR students had benefited directly from the program, and about 35% had not been “recovered.” Center et al. maintain that the remaining 30% would probably have improved without such an intensive intervention, since a similar percentage of control and comparison students had reached average reading levels by this stage.

More troubling, Chapman, Tunmer, and Prochnow (2001) found that children selected for placement in RR and successfully discontinued from the program were on average six months behind their same-age peers at the end of the program and 12 months below their same-age peers on standardized measures of reading performance one year after they had left RR. The RR children who were deemed no longer in need of the program performed no better

following their exit from the program than a group of poor readers who did not receive RR. Moreover, the RR children’s performance on a number of measures showed no acceleration effects during or after the RR program. Similarly, and even more disturbing, Chapman et al., (2009) and Nicholas and Parkhill (2013) found that over 40% of children who were successful in Reading Recovery lost their gains within two to four years and read at levels significantly below average.

In a large study of Reading Recovery in the United States, May and his colleagues (2011) found evidence of large positive gains in first grade, but whether the initial gains lasted and translated into better performance on state reading tests remained a question. In a follow-up study (2022), May discovered that children who received RR had scores on state reading tests in third and fourth grade that were below struggling readers who had not received the program, confirming the previous finding that Center et al. had documented in 1995 in New Zealand.

### The research supporting the effectiveness of Reading Recovery is flawed.

The research that Reading Recovery advocates cite as evidence of its effectiveness has been the subject of continuing criticism. Scientists who have conducted careful reviews of the evidence base for Reading Recovery have frequently come to disturbing conclusions. In 1987, Shanahan reviewed Marie Clay’s *The Early Detection of Reading Difficulty* and concluded that Clay’s research was fundamentally flawed in that it had been “designed in such a way that it is impossible to know whether or not the program was successful.” Following Shanahan’s review, Hiebert conducted a re-evaluation (Hiebert, 1994) of Reading Recovery research studies carried out in the United States, highlighting shortcomings in many of the evaluative studies frequently cited by Reading Recovery advocates. Similarly to Shanahan (1987), he concludes, “the impact of this program clearly requires further investigation” (Hiebert, 1994).

Among the many subsequent studies that followed Hiebert’s recommendation for further evaluation, two in particular are worth noting. Center et al. (1995) criticized Clay’s studies for what they deemed to be “significant design flaws including a) no matched group of poor readers or a proper control group, b) inappropriate use of multiple t-tests for analyzing gain scores, c) inclusion of only those RR students who were considered successful rather than all RR students, d) failure to account for spurious regression-towards-the-mean effects, e) using only performance measures devised by Clay rather than independent standardized tests, and f) intervention and comparison groups not equivalent at baseline.” Then in 2016, Chapman and Tunmer reported that “(a) many of the lowest achieving students were excluded from participation in Reading Recovery; (b) the control group received a range of different experiences; (c) the successful completion rate of students in the

program was modest; and (d) no data supported the claim that Reading Recovery leads to sustained literacy learning gains.”

Shanahan revisited his earlier review (1987) and summed up his finding and those of other researchers by simply stating, “The flaws in Clay’s data misleadingly made the program appear more successful than it had been” (Shanahan, 2022). One specific flaw is cited by Tunmer et al. (2015). They report that up to 30% of Reading Recovery students do not complete the program but are “referred on” (removed from the program) instead for further assessment. Typically, these are children who are the lowest achieving students and are unlikely to respond to the Reading Recovery program. In most evaluations of Reading Recovery, these students are not included in the reported results, which, as Shanahan had previously noted, makes the program seem more successful than it has actually been. In an open letter entitled *Experts Say Reading Recovery Is Not Effective, Leaves Too Many Children Behind*, 30 international reading researchers expressed parallel concerns about Reading Recovery stating, “While research distributed by the developers of Reading Recovery indicates a positive effect of the program, analyses by independent researchers have found serious problems with these conclusions. Studies conducted by researchers associated with Reading Recovery typically exclude 25–40% of the poorest performing students from the data analysis” (Wrightslaw, 2022).

## RIP Reading Recovery?

There are serious deficiencies in the Reading Recovery program; most notable among them:

- The program is grounded in the widely discredited whole language philosophy, not the Science of Reading (Hanford & Peak, 2022). For example, Reading Recovery teaches phonics and phonemic awareness, but the instruction is not sufficiently explicit.
- The assessments used in the program were developed by Reading Recovery in-house researchers rather than the norm-referenced tests that are commonly used in reading intervention research (Wrightslaw, 2022), casting serious doubts on the claims by RR proponents about the effectiveness of the program (Shanahan, 2022).
- The poorest readers instructed with Reading Recovery showed very little improvement (Elbaum et al., 2000), and students who do complete the Reading Recovery sequence in first grade lose much of their gains (Hiebert, 1994; May et al., 2022).

For many of the same reasons stated in this article, the more than 30 researchers who were signatures to the open letter published in Wrightslaw conclude with what may in fact be the death knell for this controversial program: “Reading Recovery leaves too many students behind.”



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## Turning the Tide

# Symbiotic Schooling



By Annie Stutzman, MS, *Advisor for The Windward Institute*

Symbiotic relationships have various outcomes. In commensalism one group benefits, while the other remains neither helped nor harmed. Parasitism, the bleakest symbiotic relationship, leaves one group wounded or worse, and, in contrast, mutualism leaves all groups involved benefiting from the relationship. While a school's mission is to provide a safe and nurturing place for children to access educational opportunities, focus should also include creating similar circles for the people holding up these spaces, namely teachers and students' families.

Communities have to approach the educational system with a macro-view lens. Just as Emily Solari's directive to push multiple levers simultaneously at the teacher-training level to address the United States reading crisis (Solari, 2020), the various circles within schools must link together with the support of administration and dedicate themselves to advocating for and building upon the

foundational needs of not just the students but themselves, the teachers, and the families. It is essential that the plight of literacy rates in the United States be a forefront concern, and one way we can approach this civil rights issue is by involving all partners. We must strive for mutualism in school communities in order to alleviate effects of educator burnout, severely struggling students, and frustrated families.

Through access to resources, assistance through scaffolded support systems and continual assessment, reflection, and communication, the three school stakeholders—teachers, parents/guardians, and students—will be enabled to progress with the benefit of the 3 A framework as a structured, sensitive, holistic ecosystem.

## Access

Access and equity are key foundational pieces to building trust and safety within a school community. When there are expectations for children to meet certain standards, there is accountability for teachers and parents/guardians. If these educational stakeholders have not historically had ingress to spaces that support them, expectations for students must be adjusted accordingly. However, if school communities are truly dedicated to creating collaborative spaces for each other, reciprocal inroads to resources need to be present and accessible.

**Teachers:** The ideal system will provide educators with preservice training embedded in the Science of Reading with strong focus on language acquisition, social-emotional learning skills, and other ecological factors that may impact student outcomes.

The reality is that schools are in a state of teacher triage. After decades of inadequate teacher preparation at the university level, compounded by a lack of ongoing professional development (PD), followed by the COVID-19 pandemic, educators, at no fault of their own, are grasping to maintain coherent and cohesive day-to-day learning experiences with their students. It is requisite that the people largely responsible for children's growth be underpinned with access to

- applicable PD opportunities, including
  - training in culturally responsive teaching and anti-oppressive language.
  - language and literacy instruction based on Science of Reading research.
- agency in discussions surrounding PD choices for their school or district.
- exposure, understanding, and practice of literacy screening measures.

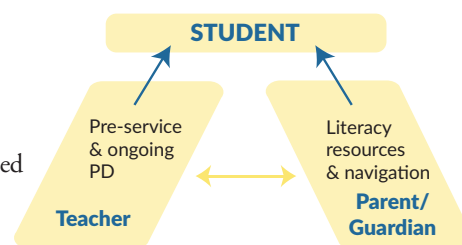
**Parents/Guardians:** While resources can be difficult to gather and filter for teachers, this is a compounded issue for parents/guardians. In addition to working one or multiple jobs outside of parenting, they are expected to research and curate on topics in which they might not have background knowledge. Reciprocal relationships between schools and families will deliver outcomes where parents/guardians are equipped with the knowledge to help their child enter school with a stronger language foundation and feel more confident in being the best advocates for them.

Children's literacy foundations are established as early as infancy and grow throughout early childhood when the brain is at its greatest plasticity levels (Hutton et al., 2020).

It is requisite that the people largely responsible for children's growth outside of school be provided with access to

- comprehensive and comprehensible resources;
- educational events with experts in the field;
- convenient skill-building workshops at low to no-cost;
- affinity groups with other families.

## ACCESS



**Students:** Learning for a child begins long before they enter a classroom. Language exposure begins on Day 1, and children need ongoing and specific language discovery and repetition to develop the skills they will later need to learn to read. Parents/guardians need to dedicate time to fostering environments that include

- robust language exposure through conversation and games;
- informed interaction with caregivers and books from infancy onward;
- intentional read-alouds;
- a wide variety of reading materials.



## Assistance

A scaffold can only work effectively if it is cemented in a strong foundation. To organize cooperative communities like schools to sustainably improve outcomes, prioritization is put on systems rooted in trust and shared commitment that hear the needs of each group and cultivate constructive communication amongst them.

**Teachers:** Assistance is interlocked with access. Teachers cannot be expected to be solely responsible for seeking out and paying for professional development out of pocket, especially as the profession continues to be one of the most overworked and underpaid fields. Equitable access to resources includes financial assistance and resource pooling. Administrator assistance must include

- involvement in dialogue around professional opportunities;
- participation in ongoing skill-building;
- leadership of disbursement of funds and time for colleagues;
- structured follow-up with skill sharing within the community.

**Parents/Guardians:** The expansion of educational offerings for families is progress, while equity remains a necessity. When creating areas of access to assistance the following must be considered:

- Welcoming spaces with DEIB values
- Community building to create trust
- Curated and specific seminars
- Equitable time and cost for offerings

A scaffold can only  
work effectively if it  
is cemented in a  
strong foundation.

**Students:** Each day children and adolescents arrive at school, informed by their life experiences, navigating a life outside of the walls of the classroom, negotiating emotions, and carrying the weight of adversity. Schools are obligated to create safe spaces to learn and develop and

- guard students from physical harm and threat;
- implement bullying protocols;
- foster social-emotional skillsets where children are empowered;
- facilitate culturally responsive teaching and anti-oppressive language.

## Assessment

The third piece of this framework is continual assessment, which includes reflection and clear communication. Effective assessment demands transparency and trust. These values expand through rigor and dedication of all parties. With clear expectations and support comes advancement, which allows continual extension of a vision.

**Teachers:** Evaluative observations of teachers are commonly viewed as stressful and ineffective. To change that narrative and to fortify a collective mission of a school, fruitful teacher assessment programs include

- trust and confidence in safe spaces;
- constructive feedback rather than judgment;
- clarity;
- reflection and action informed by assessment;
- mentors to guide progress.

**Parents/Guardians:** Parents and guardians of children are typically viewed as the group receiving the assessments, in the form of report cards, Individualized Education Plans (IEPs), or parent/teacher conferences. To successfully mold and maintain a mutualistic community, all voices must be heard. For parents/guardians, this includes

- trust and confidence in safe spaces;
- clarity;
- reflection and action input from school and parents;
- mentors to facilitate navigating educational systems;
- priority in parent advocacy.

**Students:** Teachers and students alike receive value from efficacious assessment strategies. Students thrive when assessment practices include

- trust and confidence in safe spaces;
- clarity on areas of improvement;
- an emphasis on strengths;
- effective feedback;
- support with objectives in areas in need of improvement.

Thoughtfully building frameworks and relationships takes time, dedication, and empathy. Prioritizing equity and mutualism is a foundational piece to the plan. This work is extremely crucial for marginalized groups and is vital to the educational ecosystem. Economist Hendrith Vanlon Smith noted, “Humans as a species will need to embed the concept of symbiosis into our global society such that in all of our activities—we are voluntarily benefitting from and providing benefit to a multitude of other life forms.”

The rewards are seen as teachers, parents/guardians, and students build agency for themselves. Once empowered, people can achieve things once not thought possible, including access to essential education. A school is a permaculture. It is a living organism and full of diversity. It is through the mutualistic symbiotic relationships that educational communities will not just maintain or sustain but thrive.

## News Around Windward

# Manhattanville College Introduces Dyslexia Certificate

Beginning in fall 2023, Manhattanville College will offer a post-graduate certificate program for educators, designed in collaboration with Sandra Schwarz, director of Windward Teacher Training Program and faculty development, and Renee O'Rourke, managing director of The Rose Institute for Learning and Literacy. The online Dyslexia and Science of Reading Advanced Certificate will empower general and special education teachers with a deeper understanding of the research and evidence supporting the Science of Reading. In addition to providing the research basis of the Science of Reading, the program will offer, through coursework and a practicum, extensive experience in designing and implementing evidence-based literacy intervention strategies. The curriculum uses the characteristics of language-based learning disabilities to inform literacy instruction that is explicit, structured, and sequential.

The course of study includes a two-semester practicum and will equip educators with the skills to identify children at risk for dyslexia and other language-based learning disabilities and remediate these students' skill deficits.



The program is five semesters, requiring a commitment of two years of study. The first academic year and one summer session will include the foundations, assessment, and methods courses, while the second academic year will include the supervised practicum. Upon completion, participants will be able to

- understand variations in the processing and development of the various elements of language and literacy;
- identify current theory and practice in the assessment of reading, language development, and literacy;
- identify the key elements of multisensory, explicit, structured literacy instruction;
- directly and explicitly teach students how to write sentences and expository paragraphs;
- apply strategies to implement the reading-writing connection;
- create lesson plans that apply their understanding of diagnostic, prescriptive teaching, using an explicit, structured literacy approach.

# Windward Participates in Citywide Literacy Advisory Council

The New York City Public Schools Literacy Collaborative is the Department of Education's office where core curriculum guidance, academic intervention service support, and K-12 coaching come together to form a coherent vision and set of resources for NYC schools. During the 2022-23 school year, the Literacy Collaborative is attempting to build coherence and alignment throughout grades K-12 by establishing literacy expectations as informed and in partnership with the Literacy Advisory Council. The Department of Education has enlisted a diverse group of stakeholders to join the Literacy Advisory Council to help shape the direction of literacy in NYC. The council, which includes local community members, experts in literacy, public school staff, students, and parents, meets monthly to help inform and guide the rollout of citywide literacy initiatives. The Windward School is well represented on the Council by alumni, alumni parents, current parents, and faculty, including Robert Carroll, Ruth Genn, Debbie Meyer, Molly Ness, Resha Conroy, Tiffany Hogan, and Jay Russell.

The Department of Education has set the following goals for the members of the Literacy Advisory Council:

- Connect with other advisors to coordinate efforts related to literacy
- Collect information on student and family experiences
- Generate recommendations for improving literacy
- Build awareness of new literacy initiatives
- Advise on the direction of the DOE's literacy initiatives
- Support the design of a long-term vision for literacy in New York City

The overarching goal of this literacy initiative is to support all New York City district- and school-level stakeholders with the necessary curricular, instructional, supplemental, and assessment resources to increase student outcomes. The following are priorities for all schools:

- Implement, with fidelity, a high-quality curriculum for all students
- Develop a school wide assessment plan that incorporates screening, secondary diagnostics, and progress monitoring
- Incorporate evidence and research-based interventions to meet unique student needs

## News Around Windward

# Dr. Russell Reflects on New York Assembly Roundtable on Pre-Service Instruction in Reading

On November 2, 2022, I participated in a roundtable discussion that focused on the pre-service training in reading instruction that teachers receive at colleges and universities in New York State. Sponsored by Assemblymembers Joanne Simon and Deborah Glick, chair of the Assembly Committee on Higher Education, the meeting brought together assemblymembers, representatives of the New York State Department of Education, and educators, including professors from New York State colleges and universities that offer pre-service training for teachers. The goal of this meeting was to begin a process for achieving real change in the way New York's Schools of Education prepare their students for the teaching of reading in our schools so that these future teachers leave well versed in the Science of Reading and are able to put it into practice.

The discussion began with Assemblymembers Simon and Glick outlining the dismal performance of New York State students on tests of reading proficiency, stating that year after year, the National Assessment of Educational Progress (NAEP) results show that only 38% of New York's children are reading proficiently by fourth grade or, in more striking terms, 62% are not reading adequately. There was vigorous discussion of the reasons for this abysmal performance, but the culprit that received the most attention was the way students in New York State schools are being taught—or not being taught—to read.

During the discussion, I introduced the research conducted by The National Center on Teacher Quality (NCTQ). For many years, NCTQ has been evaluating teacher education programs across the country in respect to how well their programs prepare their undergraduate and graduate education students to teach beginning readers. NCTQ assesses education programs on how well they cover the five pillars of reading and the Science of Reading in their

preparation of teachers. Their 2020 assessment shows some overall progress in the way schools of education are exposing their students to the reading science.

A few years ago, only one program (Keuka College) in NYS received an A rating. In 2020, eight of them did. That's progress. But it is nowhere near enough to address the magnitude and pervasiveness of the problem. While there was disagreement, many attending this meeting expressed their belief that too many of our widely respected schools of education are either not addressing or insufficiently addressing the Science of Reading in preparing our state's future teachers. I related to the group the extraordinary steps that The Windward School takes to close the knowledge gap that so many teachers have as a result of inadequate preparation in their undergraduate programs.

I left this meeting grateful to Assemblymembers Simon and Glick for reintroducing this critical issue, but knowing full well that, at best, this meeting was a small first step in what will be a long and arduous struggle to change the way teachers are educated. Even in the face of overwhelming evidence of the lackluster preparation of teachers and its dire effect on students, colleges and universities have been notoriously slow to change their pre-service programs, and many, but certainly not all, state education departments, school districts, and individual schools have had inadequate responses to the poor quality of teacher preparation. It is somewhat encouraging to see New York take a small step forward in addressing this long-standing problem.



## Manuscript Submissions for *The Beacon* Now Open!

*The Beacon* is a biannual journal publication, published by The Windward Institute, that contains research papers and thought pieces that align with our mission to increase childhood literacy rates by disrupting the educational status quo. We invite educators and practitioners to contribute to future publications with their insight on how we can close the knowledge gap between proven research and current teaching practices.

Submissions may be sent to [wi@thewindwardschool.org](mailto:wi@thewindwardschool.org).





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# The Beacon

**The Windward Institute  
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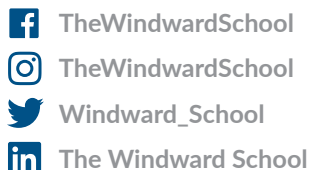
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