

The Vermont State *Board* of Education has made a significant improvement in State special education rules. This change will improve outcomes and reduce costs *if* properly implemented. However, a recent action by the Vermont *Agency* of Education (AOE) threatens that effort by continuing to allow non-scientific, non-research-based assessments that fail to comply with the new rules.

What the New Rules Require

The Board repealed the long-discredited discrepancy model that had failed to identify children suffering from a specific learning disability (SLD) in early grades when remediation is most effective. A model based on a child's response to scientific, research-based intervention (RtI) for identifying a child with a SLD was kept. The Board also added an option for a model based on other alternative research-based procedures.

The new rules will help in the earlier identification of children with specific learning disabilities (SLDs). Specifically, the Vermont State Board of Education updated Vermont's [special education rule 2362.2.5](#) for the identification of children with a SLD. The new rules took effect on July 1, 2023.

Research shows that early identification will reduce costs and improve outcomes for Vermont children with SLDs.

How AOE Immediately Fails to Comply with State Special Education Regulations

The Agency of Education (AOE) almost immediately moved to undermine the science-based requirements when it published non-scientific guidelines for identifying children with SLDs entitled *Specific Learning Disabilities: Guidelines for Determining Eligibility* ([Vermont Agency of Education, February 2022](#)).

In the document under the heading "Common Language—Key Concepts," Patterns of Strengths and Weaknesses (PSW) is defined as a process that uses data to determine why a student is performing poorly, and analyzes these findings for a pattern that will rule out or confirm the presence of SLD.

PSW methodologies fail to comply with the State regulations because they are not an "alternative research-based procedure" for the identification of SLDs.

What are "Alternative Research-Based Procedures?"

The U.S. Department of Education's (USDOE's) review of "Alternative Research-Based Procedures" notes,

"The Department does not support the use of identification procedures that are not based on scientific research. Models or procedures that claim to assist in identifying a child with an [sic] SLD, but which are not based on sound scientific research, are not appropriate and should not be adopted by LEAs or States."

[\(Federal Register, Vol. 71, No. 156, Monday, August 14, 2006, Rules and Regulations, p. 46648\).](#)

The USDOE's definition of scientifically based research:

“(a) Means research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs; and

(b) Includes research that

- (1) Employs systematic, empirical methods that draw on observation or experiment;
- (2) Involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
- (3) Relies on measurements or observational methods that provide reliable and valid data across evaluators and observers, across multiple measurements and observations, and across studies by the same or different investigators;
- (4) Is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls;
- (5) Ensures that experimental studies are presented in sufficient detail and clarity to allow for replication or, at a minimum, offer the opportunity to build systematically on their findings; and
- (6) Has been accepted by a peer reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review.”

[\(Federal Register, Vol. 71, No. 156, Monday, August 14, 2006, Rules and Regulations, p. 46576\).](#)

In particular, the USDOE states,

“Section 300.304(b)(3) follows the specific language in section 614(b)(2)(C) of the Act and requires that the evaluation of a child use technically sound instruments [. . .] “Technically sound instruments” generally refers to assessments that have been shown through research to be *valid and reliable*.”
[\(Federal Register, Vol. 71, No. 156, Monday, August 14, 2006, Rules and Regulations, p. 46642\)](#) (emphasis added).

What Is the Evidence that These Guidelines Are Non-Compliant?

Research shows a lack of empirical evidence to show that PSW methodologies are valid and reliable for identifying children with SLD (Phipps and Beaujean, 2016). Empirical evidence demonstrates that PSW is not reliable even between different PSW variants. PSW also leads to the under-identification of children with SLD.

In a comprehensive review of the assumptions and evidence supporting the most commonly used PSW method in the United States for identifying SLD: Dual Discrepancy/Consistency (DD/C) method, Beaujean *et al.* (2018) conclude,

“[. . .] it is difficult to imagine any set of scientific criteria under which DD/C would currently be found acceptable given: (a) its untenable assumptions, (b) the lack of experimental studies supporting its use, and (c) the experimental literature not supporting its use,” and

“Consequently, DD/C likely does not qualify at this time as an “other alternative research-based procedure” for identifying SLD via IDEA [Individuals with Disabilities Education Act].”

Miciak *et al.* (2014) investigated the reliability and validity of two other PSW methods: the concordance/discordance method (C/DM) and cross battery assessment (XBA) method. Both PSW methods identified a low percentage of students (range from 17.3% to 47.5%). Agreement between the classification decisions between the two PSW methods was poor. They conclude,

“Comparisons of groups that met and did not meet LD [Learning Disabilities] identification criteria on external academic variables were largely null, raising questions of external validity. This study found low agreement and little evidence of validity for LD identification decisions based on PSW methods.”

Kranzler *et al.* (2016) conducted a classification agreement analysis to examine the accuracy of the XBA PSW method using the Woodcock-Johnson III Tests of Cognitive Abilities and Achievement with 300 students in each of three age groups. The mean sensitivity and positive predictive value of XBA were 21% and 34%. They state,

“These findings mean that a diagnosis of SLD using the XBA PSW method has at best a chance of about 50% that the individual truly has SLD when the assessment outcome is positive.”

They were only able to identify on average 2.5% of students as SLD (much lower than the 5% SLD prevalence rate in schools). Kranzler *et al.* (2016) also note,

“[. . .] high levels of sensitivity are far more important for use in the schools than high levels of specificity, because failure to identify and provide intervention services to children and adolescents who are at risk (i.e., a false negative decision) is more detrimental than the provision of interventions services to those who are

not truly in need (i.e., a false positive decision). The sensitivity levels of the XBA PSW method [21%] are far below the minimum recommended level of 70% in classification agreement analyses”.

They conclude,

“Our results do not substantiate the use of the XBA PSW method to SLD identification. We found that this method is reliable and accurate at indicating that SLD is not present when it is truly not, *but not very reliable and inaccurate at indicating that SLD is present when it truly is present* (emphasis added).”

In a systematic review, McGill and Buse (2016) found,

“[. . .] there is insufficient scientific evidence to indicate (a) a preferred PSW model, (b) a robust methodology for documenting a cognitive weakness, and (c) that use of PSW procedures results in more consistent and defensible evaluative judgments when compared to existing diagnostic procedures (Dombrowski and Gischlar 2014; McGill et al. 2015). We believe that such evidence should be provided before adoption of the [PSW] model is considered or endorsed.”

They summarized their finding in evaluating the psychometric properties of lower-order cognitive test scores (e.g., factor and cluster scores) used in all PSW methods with,

“[. . .] these measurement concerns pose significant threats to the validity of the PSW model and must be overcome in order for these procedures to be used successfully in clinical practice because diagnostic decisions based on data obtained from measures that have questionable psychometric properties likely will be flawed.”

The U.S. Department of Education’s commentary on IDEA regulations states,

“The Department [U.S. Department of Education] does not believe that an assessment of psychological or cognitive processing should be required in determining whether a child has an SLD. There is no current evidence that such assessments are necessary or sufficient for identifying SLD. [. . .] In many cases, though, assessments of cognitive processes simply add to the testing burden and do not contribute to interventions.” ([Federal Register, Vol. 71, No. 156, Monday, August 14, 2006, Rules and Regulations, p. 46651](#)).

The evidence further shows that cognitive assessments do not contribute to improved teaching interventions. In a meta-analysis of the efficacy of academic interventions derived from neuropsychological assessments compared to direct measures of academic skills, Burns *et al.* (2016) found such a small effect ($g=0.17$) that they concluded, “[. . .] the current and previous data indicate that measures of cognitive abilities have little to no utility in screening or planning interventions for reading or mathematics.”

With school psychologists already overloaded with [mental health issues](#) and school districts are trying to control costs, why would the Agency of Education promote an identification procedure that is expensive, burdensome, not reliable and not validated, and thus does not comply with Vermont's new special education rules?

Conclusion

PSW fails to meet the criteria for an alternate research-based procedure. Thus, PSW does not comply with Vermont's new special education rules. Since the PSW methodologies fail to qualify as an alternative research-based procedure, the Agency of Education should not permit PSW to be used as a tool to identify children with SLDs.

To improve its education, Vermont needs to abandon non-scientific methods and rely on best practices.

The best practice for the identification of SLD children is a model based on whether the student responds to scientific, research-based intervention (RtI) (Miciak and Fletcher, 2020).

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