DETERMINING ADVERSE EDUCATIONAL AND SOCIAL IMPACT: EVIDENCE BASED SOLUTIONS TO DECISION MAKING

ADRIANA LAVI, PHD, CCC-SLP

Disclosures

Adriana Lavi, PhD, CCC-SLP

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Author of *Clinical Assessment of Pragmatics (CAPs) test*

Author of *VideoLearningSquad.com* and *VideoAssessmentTools.com*

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Learner objectives

1. Discuss evidence-based ways to determine adverse educational and social impact

2. Discuss impact-related components of a legally defensible and evidence-based assessment/report

3. List educational and social communication areas that were found to be directly affected by difficulties in language comprehension and expression

4. Get access to report templates

5. Get access to impact rating scales

Access to resources

1. Report templates
2. Sample goals
3. Presentation slides
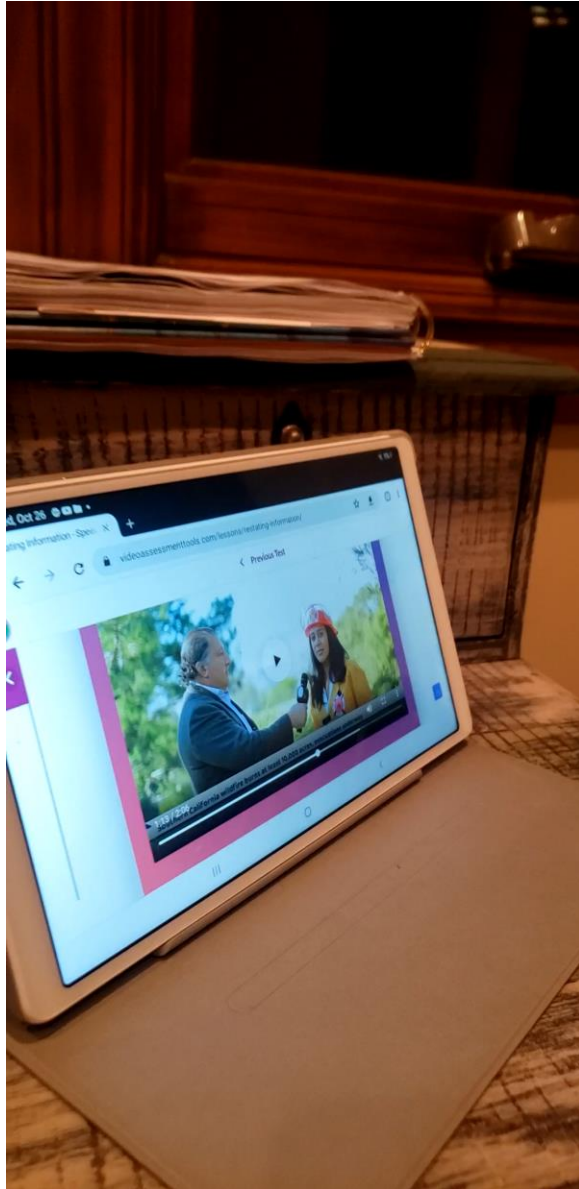4. Impact related rating scales
5. Online teacher/parent questionnaires

https://VideoAssessmentTools.com/access

CASE STUDY 1

- Male student, age: 8, 2nd grade

- CASL scores: range from SS=81 to SS=96

- Language Video Assessment Tool:

Restating Information SS=79, Following Directions SS=81,

Listening Comprehension SS= 92, Morphology and Syntax SS=94

- Report card: all areas including social-emotional and language arts reported as "2/approaching standard"

CASE STUDY 1

CASE STUDY 1 – WORK SAMPLES

CASE STUDY 1 – WORK SAMPLES

CASE STUDY 2

- Male student, Age: 9, 3rd grade

- CASL score range: SS=84 to SS=92

- Language Video Assessment Tool:

Restating Information: SS=69, Following Directions: SS=92

Listening Comprehension: SS=71, Morphology and Syntax: SS=84

CASE STUDY 2

CASE STUDY 2 – WORK SAMPLES

Happy 9th Birhday
I Hope you have
a grater B-Day

The statue of Liberty is an important symbol. she symbolizes freedom, independence, and freindship The has 7 POints and the stacou isgreen.
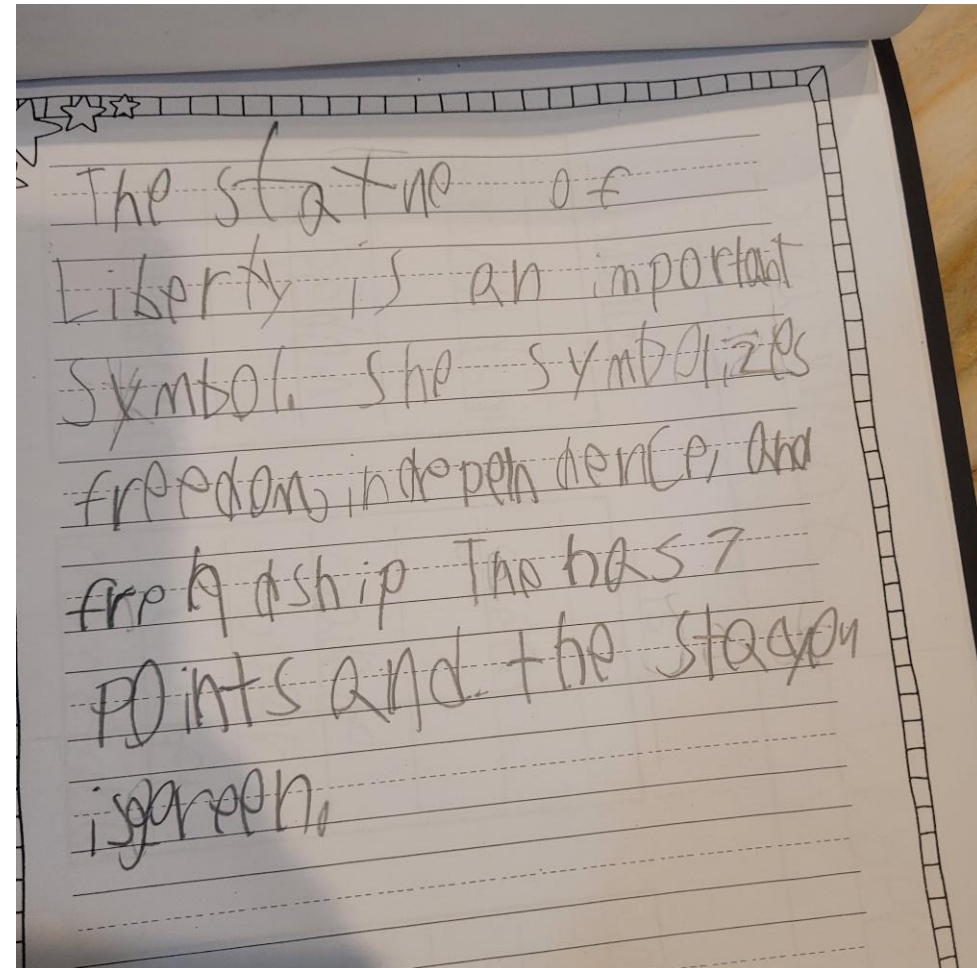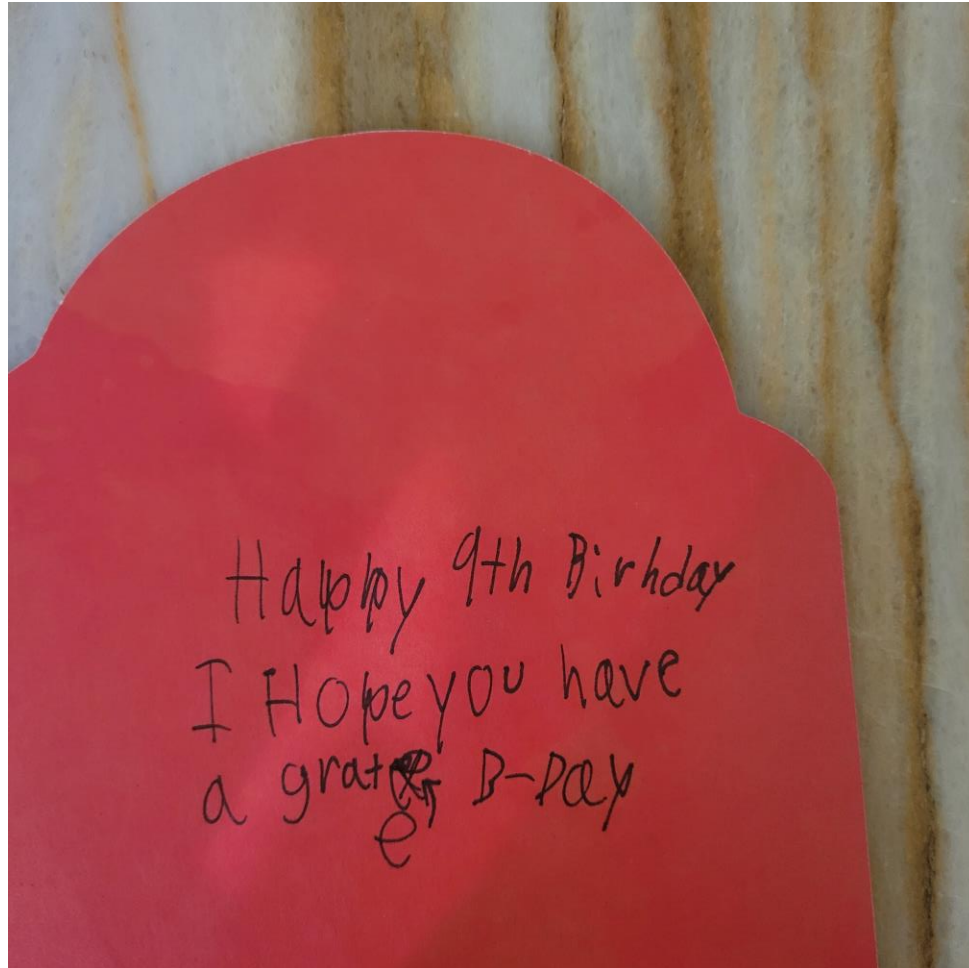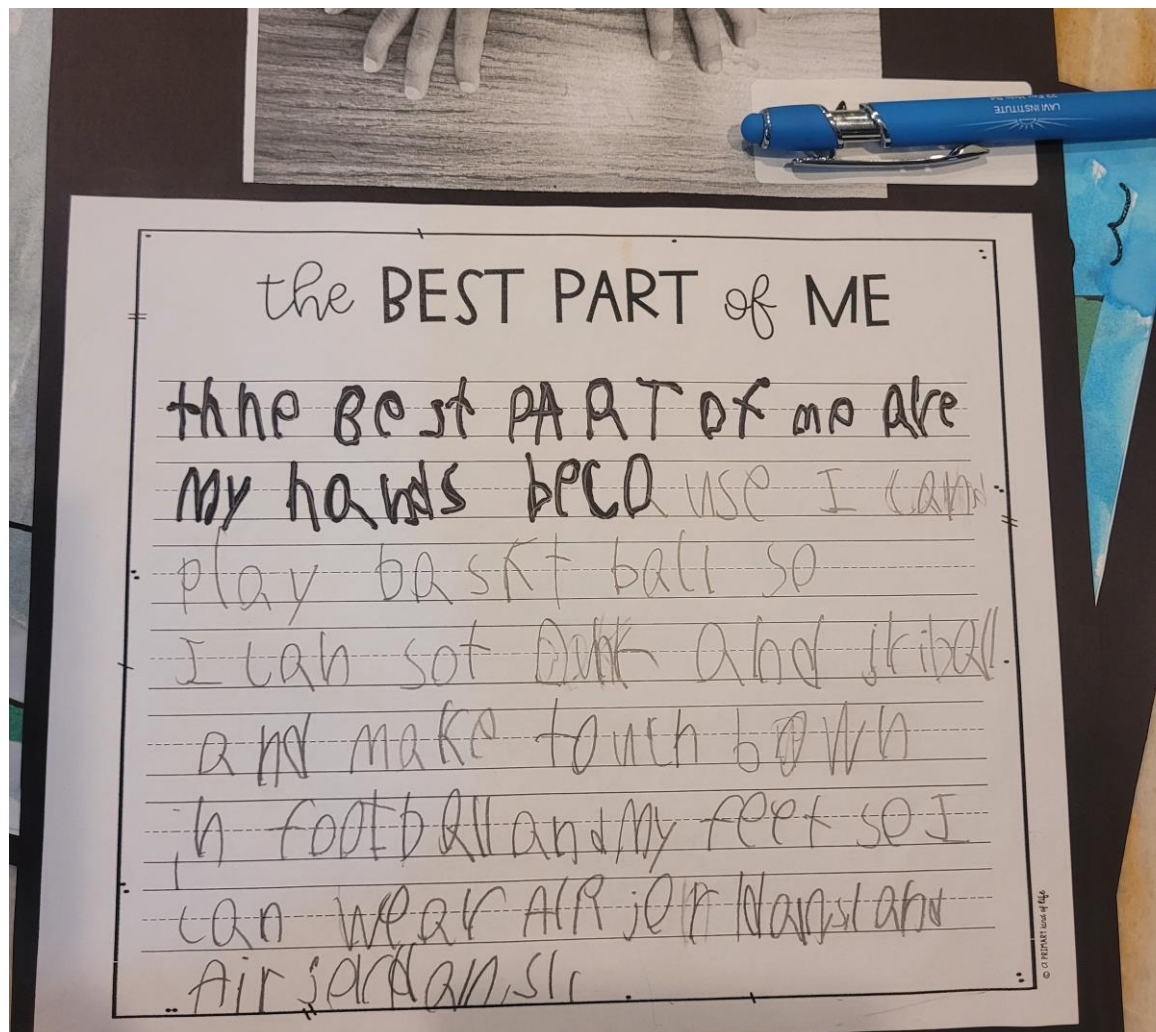
Why is the determination of educational and social IMPACT during the assessment process needed?

WHY ANALYZE IMPACT?

- To comply with the law

- To conduct and develop evidence-based and *legally defensible* assessment/reports

- To comply with LRE (least restrictive environment)

FEDERAL LAW (20 USC §1414(B)) REQUIRES SCHOOL DISTRICTS TO DO THE FOLLOWING:

1. Use a variety of assessment tools and strategies to obtain relevant, functional and developmental information and academic instruction;

2. Include information provided by the parent that may assist in determining whether the child is a child with a disability and the content of the child's IEP;

3. Include information related to enabling the child to be involved in and progress in the general curriculum, or, for preschool children, to participate in appropriate activities;

4. Not use any single procedure as the sole criterion for determining whether a child is a child with a disability or determining an appropriate educational program for the child, and to use technically sound instruments that may assess the relative contribution of cognitive and behavioral factors, in addition to physical or developmental factors.

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- Three prongs for eligibility:

- (1) Have an impairment, that

- (2) results in an education impact, that

- (3) requires specially designed instruction (34 CFR S300.8)

- IDEA Definition for SLI:

34 C.F.R. §300.7 Child with a disability. (c) Definitions of disability terms. (11) Speech or language impairment means a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, that *adversely affects* a child's educational performance.

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- IDEA does not allow the use of any one measure or assessment as the sole criterion in determining if a child has a disability or in determining an appropriate education program (U.S. Department of Education, 2006. CFR 300.304 b. 2).

- Thus, it is required that IEP teams use a variety of both formal and informal assessment tools (U. S. Department of Education, 2006; 34 CFR §300.304 b).

- For example, school-based SLPs can conduct classroom observations, checklists, play-based assessments, language samples, standardized and norm reference tests, narrative assessments, and speech intelligibility measures.

- IDEA (2004) states that when assessing a student for a speech or language impairment, we need to determine **whether or not the impairment will negatively impact the child's educational performance**.

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

Neither federal nor state law defines the term "adversely affect educational performance."

So, a review of the court cases interpreting this phrase is necessary to understand how it has been applied

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- Courts have interpreted the phrase to mean that education is adversely affected if, without certain services, the child's condition would prevent her from performing academic and nonacademic tasks and/or from being educated with non-disabled peers. [*Yankton School District v. Schramm*, 93 F.3d 1369 (8th Cir. 1996).]

- In California, the administrative hearing office has found poor grades to be a primary indicator of an adverse effect on educational performance. [*Lodi Unified Sch. Dist.*, SN 371-00; *Capistrano Unified Sch. Dist.*, SN 686-99, 33 IDELR 51; *Ventura Unified Sch. Dist.*, SN 1943-99A; *Murrieta Valley Unified Sch. Dist.*, SN 180-95, 23 IDELR 997.]

- Poor grades and falling behind academically are also examples of adverse effect on educational performance. [*Enterprise Elem. Sch. Dist.*, SN 1055-89.] In addition, a student's condition, which caused declining grades and conduct at school, resulted in an adverse effect on educational performance. [*Sierra Sands Unified Sch. Dist.*, SN 1367-97, 30 IDELR 306.]

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- Although grades and, standardized test scores may be one measure of educational performance, the law and the courts take a broader view.

- Although some students test well when taking standardized tests, the law does not require poor standardized test scores in order to find an adverse effect on educational performance. The courts have established that a child's educational needs include academic, social, health, emotional, communicative, physical, and vocational needs. [*Seattle School Dist. No. 1 v. B.S.,* 82 F.3d 1493, 1500 (9th Cir. 1996).]

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- Federal special education law also distinguishes between "educational" performance and "academic" performance and establishes that "educational" performance is a broad concept.

- Congress and the California Legislature used the broader term "educational performance" in eligibility definitions. In addition to grades and standardized tests scores, schools must consider how a child's emotional, health or other conditions adversely affect her non-academic performance in social, behavioral and other domains as well.

INDIVIDUALS WITH DISABILITIES EDUCATION ACT (IDEA, 2004)

- For example, a response to ASHA's request "The extent of a child's mastery of the basic skill of effective oral communication is clearly includable within the standard of 'educational performance' set by the regulations – that is, academic failure is not a prerequisite for services. It remains the Department's position that the term 'educational performance' is not limited to academic performance. Services cannot be denied as a matter of policy because the adverse effect on educational performance is not reflected in grades or academic achievement."

- 1. Articulation errors drawing negative and undue attention to the child.

- 2. The negative social stigma as the bright child sounds less mature and may appear less intelligent than peers.

- 3. Embarrassment and potential fear of class participation due to articulation errors, and possibly lack of verbal interaction/participation in class, even when intelligible.

- 4. Reduced confidence in reading aloud in class or in small group settings due to articulation errors.

- 5. The potential of being bullied or shunned by peers because of sounding "different" than peers.

COMMON MISCONCEPTIONS/MISUNDERSTANDINGS

- **use of 2 standardized tests for eligibility purposes** because IDEA says to not use single measures! - THE IDEA SAYS NOTHING ABOUT USING MULTIPLE TESTS or using 2 of the same types of tools/strategies, THE IDEA SAYS TO USE A <u>VARIETY</u> OF TOOLS/STRATEGIES!

- use of "severity rating" as a criterion for eligibility - THE IDEA SAYS NOTHING ABOUT SEVERITY as it relates to eligibility

THIS IS WHAT THE LAW ACTUALLY SAYS:

- (b)(2)(A) use a variety of assessment tools and strategies….

- (b)(2)(B) not use a single measure or assessment as a single criterion…

- (b)(2)(C) use technically sound instruments that may assess…

- (b)(3)(A)(i) …not to be discriminatory…

- (b)(3)(A)(ii) .. in the language and form most likely to yield accurate information…

- (b)(3)(A)(iii) … are valid and reliable;

- (b)(3)(A)(v) are administered in accordance with any instruction by producer…

- (b)(3)(D)assessment tools and strategies that provide relevant information that directly assists persons in determining the educational needs…

(20 U.S.C. §1414(b))

ADDITIONAL PROCEDURE: REQUIREMENTS

- A) review existing evaluation data on the child, including—

- (ii) current classroom-based, local, or State assessments, and classroom-based observations; and

- (iii) observations by teachers and related services providers; and..

- (20 U.S.C. §1414(c)(1))

How can we analyze the impact of a speech and language disorder in an objective and fair way?

HOW CAN WE JUDGE THE IMPACT OF A SPEECH AND LANGUAGE DISORDER IN AN OBJECTIVE AND FAIR WAY?

Language/Speech Samples, Narrative Analysis

Report Cards, Work Samples, State Testing

Parent & Teacher Input

Curriculum based measures

Clinical Impressions/ Observations

WORK SAMPLES: ACADEMIC MATERIALS, ASSIGNMENTS

- Extremely helpful and important in determining impact

Analysis of school performance includes reviewing educational records, collecting evidence of academic performance (including documents from class assignments, independent and group work, homework, class tests, and portfolios of class performance), and completing observations across a variety of educational contexts (classes, playground, extra-curricular activities, lunch, etc.). These observations provide insight into the student's speech language performance during real communication tasks. (**Virginia Department of Education, 2011**)

WORK SAMPLES: ACADEMIC MATERIALS, ASSIGNMENTS

- Classwork that demonstrates limited ability when compared to the performance of grade level peers on the <u>same</u> measure

STANDARDIZED TESTS

- Researchers are suggesting that norm-referenced measures should have at least 80% accuracy in discriminating language abilities (**Spaulding, Plante, & Farinella, 2006**).

- Speech-language pathologists should review assessment instruments and consider the <u>diagnostic accuracy, sensitivity, and specificity</u> prior to use in educational evaluations (**Spaulding et al., 2006**).

- "Standardized speech-language tests measure decontextualized communication skills using formalized procedures. Administered outside the normal contexts in which the child communicates, they capture neither the complexities nor the subtle nuances of the communication process," (**Connecticut State Department of Education, 2008**, p. 23).

Misunderstandings related to standardized tools

- **normative group characteristics**

the makeup of "normative" groups influences how tests function. If Test A includes people with disabilities in the "normative" group based on the rationale that it better represents the full population, but Test B excludes people with the target disorder from the normative group, Test B will be more sensitive to the disorder, whereas Test A will be more likely to find the child with the disorder to be a member of the "normative group."

Misunderstandings related to standardized tools

- **diagnostic accuracy is conveyed by evidence of sensitivity and specificity for specific cut scores on validated tests; not arbitrary rules**

because tests standardized on different normative groups cannot be compared directly, neither should system policies dictate such things as that a child must score 1.25 SD below the mean to meet criteria for eligibility. Rather, each test should publish the cut scores and core tests that yield the best balance between sensitivity (fewest false negatives) and specificity (fewest false positives) and these are the values that should be used when interpreting that test.

IMPORTANCE OF OBSERVATIONS AND RATIONALE FOR A RATING SCALE

- Review case studies, case by case and how they analyze impact

- This work sample – addresses educational need, it helps generate goals (measurable goals), can be linked to the curriculum…

Link to the curriculum – school work compared to the curricular standards

Common core writing standard, 4th grade…

IMPORTANCE OF OBSERVATIONS AND RATIONALE FOR A RATING SCALE

- A speech and language evaluation should include systematic observations and a contextualized analysis that involves multiple observations across various environments and situations (Westby et al., 2003).

- According to IDEA (2004), such types of informal assessment must be used in conjunction with standardized assessments.

- Section. 300.532(b), 300.533 (a) (1) (I, ii, iii); 300.535(a)(1) of IDEA states that, "assessors must use a variety of different tools and strategies to gather relevant functional and developmental information about a child, including information provided by the parent, teacher, and information obtained from classroom-based assessments and observation."

- By using both formal and informal assessments, clinicians are able to capture a larger picture of a student's speech and language abilities.

THE IMPACT MODEL (Lavi, 2020)

It is designed to analyze the real-life authentic observations of clinicians, parents, and teachers.

Developed based on current literature and examination of real-world challenges faced by individuals with speech and language impairments.

Uses a contextualized, whole language approach to see the impact and the outcome of a speech and/or language impairment on education and social interactions.

RESEARCH AND DEVELOPMENT OF THE IMPACT RATING SCALES

- We began by conducting a thorough research review for each scale's focus (i.e., Social Communication, Articulation and Phonology, Language Functioning).

- Next, we analyzed the most predictive areas in education and social interactions that are affected by poor articulation and phonology, oral expression and spoken language comprehension, and social communication, respectively.

- Additionally, we asked teachers and parents to complete surveys to provide their input on the potential impact of deficits in these areas.

RESEARCH AND DEVELOPMENT OF THE IMPACT RATING SCALES

- Based on our research review, analysis, and input from teachers and parents, we developed and compiled a list of questions.

- A pilot study was then conducted with over 100 students for each of our rating scales.

  - Items were reviewed for content quality, clarity and lack of ambiguity, and sensitivity to cultural issues.

  - Once the pilot studies were validated, some questions were eliminated and supplemental questions were added.

  - Then, a final list of questions was prepared and finalized for each rating scale.

  - The scales were then normed in the second phase of the standardization project.

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- By observing a child's language via informal observation, examinees (i.e., clinician, teacher, and parent) can observe how the child understands language and uses language (e.g., express needs and wants, make requests, converse with peers/friends, etc.), as well as the potential impact a language disorder may have on a child's academic and social life.

- This information can help determine what areas the child has deficits in and how deficits in these areas may impact the child in both the classroom and in the home environment.

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Spoken Language Comprehension

Oral Expression

Language Processing and Integration

Language & Literacy

Social Language Skills

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Spoken Language Comprehension

- The spoken language comprehension rating scale items look at how well an individual understands spoken language. For example, rating scale items look at a child's ability to understand grade level stories, vocabulary, narratives, and his/her ability to answer questions regarding a given story. Additional test items in this area look at an individual's ability to follow along with a conversation, lecture, or discussion, and the ability to recognize when something he/she hears does not make sense.

- *Sample Spoken Language Comprehension Item:* After listening to a lesson, discussion, or story, is the student able to answer who, what, where, and when questions? For example, is the student able to recall the characters, setting, time, place, and what was happening in the story?

Spoken Language Comprehension

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Oral Expression

- The *oral expression* rating scale items look at how well an individual is able to use spoken language. For example, test items investigate if the individual is able to appropriately ask and answer questions, initiate conversations, use narrative storytelling, grade level vocabulary, correct word order, and grammar. Additional test items in this area look at an individual's ability to add comments and questions to a conversation, maintain the topic, form thoughts and ideas, problem solve, negotiate, and use critical thinking skills.

- *Sample Oral Expression Item:* Does the student experience difficulty asking or answering questions in class? For example, does he/she have trouble responding to teacher or peer comments during classroom activities?

Oral Expression

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Language Processing and Integration

- The *language processing and integration* rating scale items look at how an individual follows multi-step instructions, understands figurative language, analogies, and inferences, and sequences details or events. Additionally, rating scale items look at whether an individual's ability to comprehend and use spoken language impacts his/her reading abilities.

- *Sample Language Processing and Integration Item:* Does the student have a difficult time making inferences/implied meaning from given information? For example, does the student have a difficult time "reading between the lines," making connections, or drawing conclusions?

Language Processing and Integration

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Language and Literacy

- The *language and literacy* rating scale items look at an individual's ability to comprehend and understand what he/she is reading, to distinguish between the main idea and supporting details, and to use his/her own experiences to predict what might happen in grade-level stories. Additionally, literacy rating scale items look at an individual's writing abilities.

- *Sample Language Processing and Integration Item:* Does the student demonstrate an understanding of grade level stories and literature? For example, is the student able to follow along with stories that are read in class and is he/she able to comprehend what is going on in the story?

Literacy

IMPACT LANGUAGE FUNCTIONING RATING SCALE

Social Interactions

- The *social interactions* rating scale items look at how spoken language comprehension and use may impact an individual's social interactions. For example, rating scale items may look at whether an individual is aware of his/her language deficits and how he/she expresses their feelings towards their language disorder. Additionally, rating scale items investigate an individual's confidence regarding his/her communication and how this impacts their participation in conversations and activities with peers, friends, and family.

- *Sample Language Processing and Integration Item:* Does the student's ability to understand and use language make it difficult for him/her to participate fully in school related clubs or activities? For example, does the student's language skills hold them back from joining drama club or yearbook club?

Social Language Skills

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- *Language impairment* involves difficulty in the understanding and/or use of spoken, written, and/or other symbol systems. The disorder may involve: "(1) the form of language (phonology, morphology, syntax); (2) the content of language (semantics); and/or (3) the function of language in communication (pragmatics) in any combination" (ASHA, 2016).

- Spoken language comprehension and oral expression, refers to the understanding and the use of spoken language across various contexts and social situations.

- Approximately 7% of children have deficits in language comprehension or language use and these difficulties can persist into the school-age years and interfere with communication, academics, and social interactions (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997).

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Previous research has suggested that language disorders can be detrimental to a child's development and children whose language falls behind their peers are at an increased risk of academic failure (Durkin, Conti-Ramsden, & Simkin, 2012; Johnson, Beitchman, & Brownlie, 2010), behavioral and psychiatric problems (Conti-Ramsden, Mok, Pickles, & Durkin, 2013, Snowling & Hulme, 2006), unemployment, economic disadvantage, (Parsons, Schoon, Rush, & Law, 2011), and social impairment (Clegg, Hollis, Mawhood, & Rutter, 2005).

- Additionally, longitudinal studies have revealed that language impairments that persist into school age remain in adolescence (Conti-Ramsden & Durkin 2007) and adulthood (Johnson, Beitchman, & Brownlie, 1999; Clegg, Hollis, Mawhood, & Rutter, 2005), often with accompanying literacy deficits (Clegg, Hollis, Mawhood, & Rutter, 2005, Snowling & Hulme, 2000).

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Listening comprehension is a high-order skill that involves both language and cognitive abilities (Florit, Roch, & Levorato, 2013; Kim & Phillips, 2014; Lepola, Lynch, Laakkonen, Silven, & Niemi, 2012). Specifically, listening comprehension refers to one's ability to comprehend spoken language (e.g., conversations, stories/narratives) by extracting and constructing meaning.

- Research has showed that listening comprehension is critical to reading comprehension (Foorman, Koon, Petscher, Mitchell, & Truckenmiller, 2015; Kim, 2015; Kim, Wagner, & Lopez, 2012; Kim & Wagner, 2015). When children present with reading comprehension deficiencies, there is a heavy focus on word recognition difficulties, including dyslexia and learning disabilities. Difficulties with word recognition are linked to weakness in the phonological domain of language and are often identified early on in the pre-school years (Catts, Fey, Zhang, & Tomblin, 2001).

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- On the other hand, some children demonstrate reading comprehension difficulties despite adequate word reading abilities (Catts, Adlof, & Ellis Weismer, 2006; Nation, Clarke Marshall, & Durand, 2004).

- This group of individuals is known as poor comprehenders.

  - Poor comprehenders are able to read text accurately and fluently at age-appropriate levels, however, they have difficulty understanding what they are reading (Cain & Oakhill, 2007; Nation, 2005).

  - For example, when reading, poor comprehenders have weaknesses in the areas of semantics, syntax (Catts, Adlof, & Ellis Weismer, 2006; Nation & Snowling, 1998; Nation, Snowling, & Clarke, 2007) and more complex parts of language such as idioms, inferencing, comprehension monitoring, and knowledge of text structure (Oakhill, 1984; Cain & Towse, 2008; Cain, Oakhill, & Bryant, 2004; Oakhill & Yuill, 1996).

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Additionally, when we consider narrative comprehension, children with language disorders are less likely to provide correct answers to literal or inferential questions about stories that have been read to them (Gillam, Fargo, & Robertson, 2009; Laing & Kamhi, 2002).

- Since reading comprehension takes time to develop, it is difficult to demonstrate reading comprehension deficits in children before they are able to read accurately and fluently. Thus, these students' reading comprehension deficits may go unnoticed until later grades.

- As such, it is critical that language deficits are identified as early on in development as possible.

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- There is also a strong relationship between oral language abilities and reading ability (Hulme & Snowling, 2013).

- Nation, Clarke, Marshall, and Durand (2004) investigated poor compehenders' spoken language skills.

  - The results of this study found that these students were less skilled than those in the typically developing group on semantic tasks (e.g., vocabulary and word knowledge), morphosyntax (e.g., past tense inflection, sentence comprehension) and aspects of language use (e.g., understanding figurative language).

- Research also suggests that students with expressive language difficulties are four to fives times more likely than their peers to present with reading difficulties (Catts, Fey, Zhang, & Tomblin, 2001).

  - For example, Zielinkski, Bench, and Madsen (1997) explored expressive language delays in preschoolers and found that these children were more likely to have difficulties with reading performance.

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Poll and Miller (2013) also reported that when children are 8 years old, expressive language delays could be a significant risk factor for poor oral language and reading comprehension.

- Lee (2011) discovered that expressive language development predicts comprehension of reading passages in both third and fifth grade students.

- Vocabulary can also play an important role early on in development as was demonstrated in Duff, Reen, Plunkett, and Nation's (2015) study that found infant vocabulary between 16 and 24 months is predictive of reading comprehension early on in school instruction years.

- Additionally, Pysridou, Eklund, Poikkeus, and Torppa's study (2018) found that expressive language ability at age 2–2.5 years old is associated with reading comprehension in ages 8–16 years old.

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Listening comprehension and oral language abilities can also be important when we consider writing development (Kim, Al Otaiba, Wanzek, & Gatlin, 2015; Hulme & Snowling, 2013).

- Children with language impairments have been found to show grammatical errors (Gillam & Johnston, 1992; Scott & Windsor, 2000; Windsor, Scott, & Street, 2000) and spelling errors in their written texts.

- The spelling errors are similar to those found in children with dyslexia (Puranik, Lombardino, & Altmann, 2007), however, an individual's ability to create and think of new ideas appears to be specific to difficulties within the language system (Bishop & Clarkson, 2003; Puranik, Lombardino, & Altmann, 2007).

THEORETICAL & CONTEXTUAL BACKGROUND

IMPACT LANGUAGE FUNCTIONING RATING SCALE

- Numerous studies have explored the difficulties that school-age children with language impairment have with telling stories. For example, when compared to typically developing children, children with language deficits tend to compose stories that contain fewer words and utterances (Moyano & McGillivray, 1988 [as cited in Hughes, McGillivray, & Schmidek, 1997]), fewer story grammar components (Paul, 1996), reduced sentence complexity (Gillam & Johnston, 1992), fewer complete cohesive ties (Liles, 1985), increased grammatical errors (Liles, Duffy, Merritt, & Purcell, 1995; Norbury & Bishop, 2003), and poorer overall story quality (Gillam, McFadden, & van Kleeck, 1995; McFadden & Gillam, 1996).

PSYCHOMETRIC PROPERTIES

- When selecting an assessment for an evaluation, it is important to consider whether it is truly a *good* assessment tool.

- A good assessment is one that produces results that will benefit the individual being tested or society as a whole (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, and NCME], 2014).

- There are a few ways we can examine whether a test is considered a good and strong assessment. We can take a look at the standardization, normative information, and the psychometric properties of each test.

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Normative Sample

- Previous research has suggested that the inclusion of children with disabilities in a normative sample can have a negative impact on a test's ability to differentiate between children with disorders and children who are typically developing (Peña, Spaulding, & Plante, 2006). Thus, normative data for the *IMPACT Rating Scales* was based solely on typically developing children to allow for high sensitivity and specificity.

- Since the purpose of the *IMPACT Rating Scales* is to help to identify speech and language disorders and the impact of these disorders, it was critical to exclude students from the normative sample who had diagnoses that are known to influence each area of speech and language (Peña, Spaulding, & Plante, 2006).

- For example, students who had previously been diagnosed with a specific language impairment or learning disability were not included in the normative sample for the *IMPACT Rating Scales*. Further, students were excluded from the normative sample if they were diagnosed with autism spectrum disorder, intellectual disability, hearing loss, neurological disorders, or genetic syndromes.

Normative Sample

Table 4.1			
Representation of the Sample, by Age Group			
Age Group	Age	N	%
1	5-0 to 5-11	84	8
2	6-0 to 6-11	97	9
3	7-0 to 7-11	112	10.5
4	8-0 to 8-11	116	11
5	9-0 to 9-11	102	9.5
6	10-0 to 10-11	85	8
7	11-0 to 11-11	95	9
8	12-0 to 12-11	96	9
9	13-0 to 13-11	86	8
10	14-0 to 14-11	85	8
11	15-0 to 21-0	106	10
Total Sample		1064	100%

1064 typically developing examinees across 11 age groups (in 17 states (Arizona, California, Colorado, Nevada, Idaho, Illinois, Iowa, Kansas, Ohio, Minnesota, Florida, New York, Pennsylvania, Florida, South Carolina, Texas, Washington).

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Sensitivity and Specificity

- Strong sensitivity and specificity (i.e., 80% or stronger) is needed to support the use of a test in its identification of the presence of a disorder or impairment.

- Sensitivity measures how well the assessment will accurately identify those who truly have a speech sound disorder (Dollaghan, 2007).

- Specificity measures the degree to which the assessment will accurately identify those who do not have a speech sound disorder, or how well the test will identify those who are "typically developing" (Dollaghan, 2007).

Normative Sample

Table 5.1 IMPACT Language Functioning Rating Scale sensitivity, specificity and likelihood ratios

Age group	Cut score	Sensitivity	Specificity	Positive likelihood ratio	Negative likelihood ratio
5:0–5:11	76	83	79	3.48	.14
6:0–6:11	77	81	80	3.92	.09
7:0–7:11	78	84	79	4.34	.11
8:0–8:11	78	80	83	5.13	.21
9:0–9:11	77	82	80	3.32	.12
10:0–10:11	77	83	81	5.17	.17
11:0–11:11	76	82	84	4.16	.09
12:0–12:11	77	88	91	5.11	.08
13:0–13:11	78	91	88	5.13	.18
14:0–14:11	78	86	91	4.33	.19
15:0–15:11	78	82	79	5.87	.21
16:0–21:0	77	86	88	6.21	.13

Age groups 16:0–21:0 are reported together as there were no age-related changes detected after the age of 16.

Scaled Score Means (and Standard Deviations) of Subtests for Two Clinical Groups and a Demographically Matched Typically Developing Group, (N= 212)

	SLC Impairment group (n=67)	EL Impairment group (n=41)	TD group (n=71)	p-value*
Clinician [a,b,c]	.82	.79	.81	.87
Teacher [a,b,c]	.91	.84	.83	.68
Parent [a,b,c]	.84	.81	.78	.73

Abbreviation: SLC, Spoken language comprehension; EL, Expressive Language; and TD, Typically Developing

*Kruskal-Wallis Analysis of Variance test

[a] significant difference between ASD and TD groups

[b] significant difference between SCD and TD groups

[c] significant difference between SCD and ASD groups

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Content Validity

- The validity of a test determines how well the test measures what it purports to measure. Validity can take various forms, both theoretical and empirical. This can often compare the instrument with other measures or criteria, which are known to be valid (Zumbo, 2014). Expert opinion was elicited for all of the IMPACT Rating Scales.

- For example, 29 speech language pathologists (SLPs) reviewed the *IMPACT Articulation and Phonology Rating Scale*.

  - All SLPs were licensed in the state of California, held the Clinical Certificate of Competence from the American Speech-Language-Hearing Association, and had at least 5 years of experience in assessment of children with speech sound disorders.

  - Each of these experts was presented with a comprehensive overview of the rating scale descriptions, as well as rules for standardized administration and scoring.

  - They all reviewed 6 full-length administrations.

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Content Validity cont'd

- Following this, they were asked 30 questions related to the content of the rating scale and whether they believed the assessment tool to be an adequate measure of speech sound disorders. For instance, their opinion was solicited regarding whether the questions and the raters' responses properly evaluated the impact of speech sound disorders on educational performance and social interaction. The reviewers rated each rating scale on a decimal scale.

- All reviewers agreed that the *IMPACT Articulation and Phonology Rating Scale* is a valid informal observational measure to evaluate speech skills and to determine the impact on educational performance and social interaction, in students who are between the ages of 5 and 21 years old.

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Criterion Validity

- Criterion validity measures how well one measure predicts an outcome for another measure.

- In assessing criterion validity, the *IMPACT Articulation and Phonology Rating Scale* was correlated to other measures of articulation and phonology: *Arizona Articulation and Phonology Scale - Fourth Edition* (Arizona-4; Fudala & Stegall, 2017) and the *Diagnostic Evaluation of Articulation and Phonology* (DEAP; Dodd, Holm, Crosbie, & Ozanne, 2003).

- Time between test administrations ranged from the same day to 5 days.

- The concurrent validity was assessed using Pearson's correlation among all measures. Correlation coefficients of ≥0.7 are recommended for same-construct instruments while moderate correlations of ≥ 0.4 to ≤0.70 are acceptable. The level of significance was set at p≤0.05. When assessing validity, the *IMPACT Articulation and Phonology Rating Scale* was substantially correlated with the *DEAP* and the *Arizona-4*: 0.87, and 0.83 respectively, p<0.001.

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

Response Bias

- Research has also suggested that we consider the potential impact of biases when evaluating an assessment tool.

- Responses to questionnaires, tests, and scales, may be biased for a variety of reasons. For example, response bias may occur consciously or unconsciously and when it does occur, the reliability and validity of our measure will be compromised.

- The *IMPACT Rating Scales* use balanced set of questions in order to protect against response biases.

- A balanced scale is a test or questionnaire that includes some items that are positively keyed and some items that are negatively keys.

PSYCHOMETRIC PROPERTIES OF THE IMPACT RATING SCALES

- Here is an example taken from the *IMPACT Social Communication Rating Scale*. Items on this scale are rated on a 4-point scale ("never," "sometimes," "often," and "typically"). Now, imagine if we asked a teacher to answer the following two items regarding one of their students:

  1. Appears confident and comfortable when socializing with peers.

  2. Does not appear overly anxious and fidgety around group of peers.

- Both of these items are positively keyed because a positive response indicates a stronger level of social language skills. To minimize the potential effects of acquiescence bias ("yea-saying and nay-saying" when an individual consistently agrees or disagrees [Danner & Rammstedt, 2016]), the test creator may revise one of these items to be negatively keyed. For example:

  1. Appears confident and comfortable when socializing with peers.

  2. Appears overly anxious and fidgety around group of peers.

- Now, the first item is keyed positively and the second item is keyed negatively. The revised scale, which represents a balanced scale, helps control acquiescence bias by including one item that is positively keyed and one that is negatively keyed.

- To read more about the psychometric properties of each *IMPACT Rating Scale*, please review the technical manual for each scale.

CONTACT

- Email: adriana@laviinstitute.com