

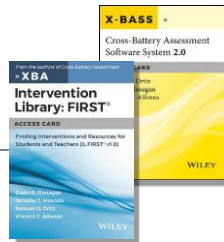
Evidence-based Assessment of English Learners:

Contemporary PSW evaluation for SLD with X-BASS, C-LIM, and the Ortiz PVAT.

Texas Educational
Diagnostician's Association

Waco, TX
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Test Score Validity and Defensible Interpretation Requires "True Peer" Comparison

Example of Potential Construct Invalidity:

"Assemble these blocks together in the correct manner so they appear identical to this illustration."



A test designed to measure visual processing (Gv) in ELs must avoid over-reliance on language ability (Gc) or else measurement of visual processing may be confounded with language ability.

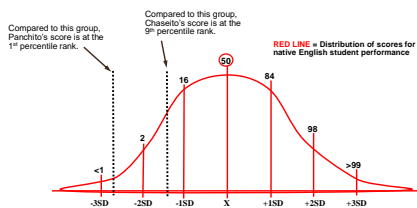
Example of Potential Interpretive Invalidity:

"After putting a blue block on top of a purple one, put the green block on the blue one."



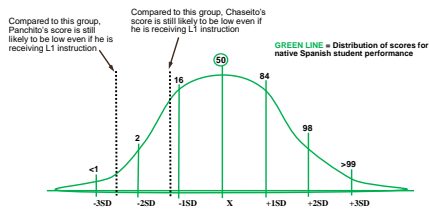
A test designed to measure English language ability (Gc) is valid for EL's ability *in English*, but poor performance cannot be ascribed to a potential disability unless developmental differences in English have been controlled.

Diagnostic Question: Does Chaseito's or Panchito's rate of progress suggest cultural/linguistic difference or possible disorder?



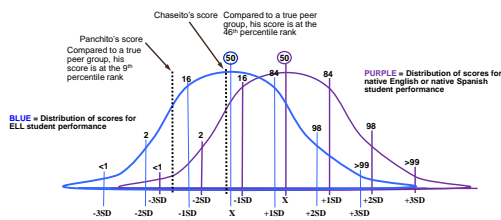
For the purposes of determining whether a disability exists, use of a monolingual English speaking comparison group is discriminatory and makes it appear incorrectly that both students might have some type of disability.

Diagnostic Question: Does Chaseito's or Panchito's rate of progress suggest cultural/linguistic difference or possible disorder?



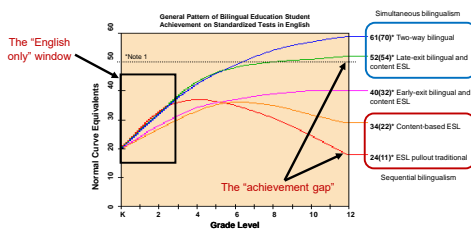
Similarly, use of a monolingual, native-language speaking group remains discriminatory because neither student is monolingual anymore (even when receiving native language instruction) and it continues to make it appear incorrectly that both Chaseito and Panchito have some type of disability.

Diagnostic Question: Does Chaseito's or Panchito's rate of progress suggest cultural/linguistic difference or possible disorder?



Whether conducted through RTI/MTSS or testing, only use of a "true peer" comparison group provides the basis for making non-discriminatory diagnostic decisions as long as there is control for developmental language differences between English learners and English speakers and among English learners and other English learners.

Academic Test Score Validity Requires "True Peer" Comparison



*Note 1: Average performance of native-English speakers making one year's progress in each grade. Scores in parentheses are percentile ranks converted from NCEs.

Adapted from: Thomas, W. & Collier, V. (1985). *Language Minority Student Achievement and Program Effectiveness*. Washington DC: National Clearinghouse for Bilingual Education.

Test Score Validity and Defensible Interpretation Requires “True Peer” Comparison

For native English speakers, growth of language-related abilities are tied closely to age because the process of learning a language begins at birth and is fostered by formal schooling. Thus, age-based norms effectively control for variation in development and provide an appropriate basis for comparison. However, this is not true for English learners who may begin learning English at various points after birth and who may receive vastly different types of formal education from each other.

Development Varies by Exposure to English – Not relative dominance

“It is unlikely that a second-grade English learner at the early intermediate phase of language development is going to have the same achievement profile as the native English-speaking classmate sitting next to her. The norms established to measure fluency, for instance, are not able to account for the language development differences between the two girls. A second analysis of the student’s progress compared to linguistically similar students is warranted.” (p. 40)

- Fisher & Frey, 2012

Processes and Procedures for Addressing Test Score Validity

In what manner exactly, is evidence-based, nondiscriminatory assessment conducted and to what extent is there any research to support the use of any of the following methods as being capable of establishing sufficient test score validity?

- **Modified Methods of Evaluation**
 - Working around the language by modifying/altering the assessment
- **Nonverbal Methods of Evaluation**
 - Avoiding the language by evaluating areas unrelated to language
- **Dominant Language Evaluation**
 - Choosing a language based simply on relative proficiency

Current Approaches Fail to Establish Test Score Validity

Evaluation Issues and Methods	Meets target representation of language development	Measures a wider range of school-relevant abilities	Does not require the assessment to be language-based	Adheres to the test’s developmental protocol	Substantial research base to language performance	Sufficient to identify or diagnose disability	Accounts for variation in language development	Meets study to joint schools and state data and summative	Provides extensive data regarding development
Modified or Altered Assessment	✗	✓	✓	✗	✗	✗	✗	✗	✗
Language Reduced Assessment	✗	✗	✓	✓	✗	✗	✗	✗	✗
Dominant Language Assessment in L1: native only	✗	✓	✗	✓	✗	✗	✗	✗	✗
Dominant Language Assessment in L2: English only	✗	✓	✓	✓	✓	✗	✗	✗	✗

All approaches are limited in some manner when addressing test score validity and none are sufficient to diagnose a disability, account for variation in bilingual development, represent a form or manner that automatically yields reliable and valid results, and do not provide extensive data regarding cognitive and school-based learning and development.

The validity of an interpretation regarding disability requires an unbiased standard for comparison.

Whatever method or approach may be employed in evaluation of ELs, the fundamental obstacle to nondiscriminatory interpretation rests on the degree to which the examiner is able to defend claims of **test score (construct and interpretive) validity** that is being used to support diagnostic conclusions. This idea is captured by and commonly referred to as a question of:

"DIFFERENCE vs. DISORDER?"

Simply absolving oneself from responsibility of establishing test score validity, for example via wording such as, "all scores should be interpreted with extreme caution" does not in any way provide a defensible argument regarding the validity of obtained test results and does not permit valid diagnostic inferences or conclusions to be drawn from them.

Test score validity must be evaluated or established via use of a "true peer" comparison standard and the only manner in which to accomplish this task is with evidence and data.

The Culture-Language Interpretive Matrix (C-LIM)

Addressing test score validity for ELLs

Translation of Research into Practice

1. The use of various traditional methods for evaluating ELLs, including testing in the dominant language, modified testing, nonverbal testing, or testing in the native language do not ensure valid results and provide no mechanism for determining whether results are valid, let alone what they might mean or signify.
2. The pattern of ELL test performance, when tests are administered in English, has been established by research and is predictable and based on the examinee's degree of English language proficiency and acculturative experiences/opportunities as compared to native English speakers.
3. The use of research on ELL test performance, when tests are administered in English, provides the only current method for applying evidence to determine the extent to which obtained results are **likely valid (a minimal or only contributory influence of cultural and linguistic factors)**, **possibly valid (minimal or contributory influence of cultural and linguistic factors but which requires additional evidence from native language evaluation)**, or **likely invalid (a primary influence of cultural and linguistic factors)**.
4. The principles of ELL test performance as established by research are the foundations upon which the C-LIM is based and serve as a de facto norm sample for the purposes of comparing test results of individual ELLs to the performance of a group of average ELLs with a specific focus on the attenuating influence of cultural and linguistic factors.

The Culture-Language Interpretive Matrix (C-LIM)

GENERAL RULES AND GUIDANCE FOR EVALUATION OF TEST SCORE VALIDITY

There are two basic criteria that, when both are met, provide evidence to suggest that test performance reflects the primary influence of cultural and linguistic factors and not actual ability, or lack thereof. These criteria are:

1. There exists a general, overall pattern of decline in the scores from left to right and diagonally across the matrix where performance is highest on the less linguistically demanding/culturally loaded tests (low/low cells) and performance is lowest on the more linguistically demanding/culturally loaded tests (high/high cells); and,
2. The magnitude of the aggregate test scores across the matrix for all cells fall within or above the expected range of difference (shaded area around the line) determined to be most representative of the examinee's background and development relative to the sample on whom the test was normed.

Results are
INVALID
only if both
conditions
are met.

When both criteria are observed, it may be concluded that the test scores are likely to have been influenced primarily by the presence of cultural/linguistic variables and therefore are not likely to be valid and should not be interpreted. If either criterion is not met, the results can be assumed to be **VALID**.

Research Foundations of the C-LIM

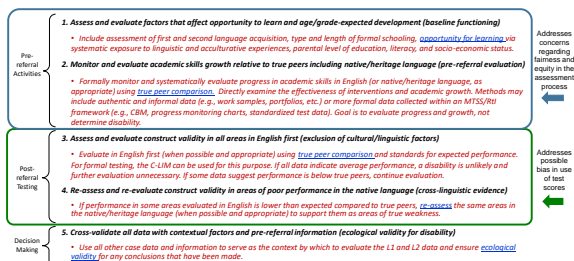
Additional Issues in Evaluation of Test Score Patterns

Evaluation of test score validity, particularly in cases where results are "possibly valid," includes considerations such as:

1. Is the Tiered graph consistent with the main Culture-Language graph or the other secondary (language-only/culture-only) graphs?
2. Is there any variability in the scores that form the aggregate in a particular cell that may be masking low performance?
3. Is the pattern of scores consistent with a developmental explanation of the examinee's educational program and experiences?
4. Is the pattern of scores consistent with a developmental explanation of the examinee's linguistic/cultural learning experiences?

Evaluation of results using all graphs, including secondary ones, identification of score variability in relation to CHC domains or task characteristics, and evaluation of educational, cultural, and linguistic developmental experiences assists in determining the most likely cause of score patterns and overall test score validity.

A Best Practice Framework for Comprehensive Evaluation of ELs



Practical Considerations for Addressing Test Score Validity in Evaluation of ELs

1. The usual purpose of testing is to identify deficits in ability (i.e., low scores)
2. Validity is more of a concern for low scores than average/higher scores because:
 - Test performances in the average range are NOT likely a chance finding and strongly suggests average ability (i.e., no deficits in ability)
 - Test performances that are below average MAY be a chance finding because of experiential or developmental differences and thus do not automatically confirm below average ability (i.e., possible deficits in ability)
3. Therefore, testing in one language only (English or native language) means that:
 - It can be determined that a student DOES NOT have a disability (i.e., if all scores are average or higher, they are very likely to be valid)
 - It CANNOT be determined if the student has a disability (i.e., low scores must be validated as true indicators of deficit ability)
4. Testing in both languages (English and native language) is necessary to determine disability
 - Testing requires confirmation that deficits are not language-specific and exist in both languages (although low performance in both can result from other factors)
5. All low test scores, whether in English or the native language, must be validated
 - Low scores from testing in English can be validated via research underlying the C-LIM
 - Low scores from testing in the native language cannot be validated with research

Translating Research into Practice

Evaluation Issues and Methods	Non-English speaking populations	Non-English speaking populations	Non-English speaking populations	Adherence to the test manual protocol	Substantial cultural differences	Sufficiently different program ability	Accounts for cultural differences	Most likely to be used in clinical practice	Provides evidence data regarding effectiveness
Modified or Clinical Assessment	✗	✓	✓	✗	✗	✗	✗	✗	✗
Reduced-language Assessment	✗	✗	✓	✓	✗	✗	✗	✗	✗
Dominant Monolingual Assessment in L1: native only	✗	✓	✗	✓	✗	✗	✗	✗	✗
Dominant Monolingual Assessment in L2: English only	✗	✓	✓	✓	✗	✗	✗	✗	✗
Multilingual Assessment in L1 + L2	✓	✓	✓	✓	✓	✓	✓	✓	✓

Multilingual Assessment combined with the C-LIM resolves all validity issues, and by applying research on EL test performance, they can be used to define and establish a "true peer" reference group for disability-based evaluations.

X-BASS v2.3 New Features: PSW Quick Analysis

Start/Data Record Management

PSW Quick Analysis

To enter or update existing data, click the blue "Start Data Record" button. To enter new data, click the blue "Start New Record" button. To update existing data, click the blue "Update Existing Record" button. To delete existing data, click the blue "Delete Existing Record" button.

PSW Quick Analysis - Data Entry

To enter or update existing data, click the blue "Start Data Record" button. To enter new data, click the blue "Start New Record" button. To update existing data, click the blue "Update Existing Record" button. To delete existing data, click the blue "Delete Existing Record" button.

The PSW Quick Analysis provides a streamlined way to evaluate SLD using only 8 scores (7 cognitive and 1 academic). Although the analysis is exactly the same as in the full PSW Analyzer, this option provides a simpler interface with minimal results that may be easier to present and explain to others. It is safe enough for beginners but useful for advanced users too.

To enter or update existing data, click the blue "Start Data Record" button. To enter new data, click the blue "Start New Record" button. To update existing data, click the blue "Update Existing Record" button. To delete existing data, click the blue "Delete Existing Record" button.

X-BASS v2.3 New Features: PSW Quick Analysis

PSW Quick Analysis - Data Entry

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To enter or update existing data, click the blue "Start Data Record" button. To enter new data, click the blue "Start New Record" button. To update existing data, click the blue "Update Existing Record" button. To delete existing data, click the blue "Delete Existing Record" button.

The PSW Quick Analysis is ideal for new users and offers a simplified interface and results output for easy interpretation.

Other cognitive processes may also be entered for analysis.

COGNITIVE PROCESSING DOMAINS

ACADEMIC SKILLS DOMAINS

X-BASS v2.3 New Features: PSW Quick Analysis

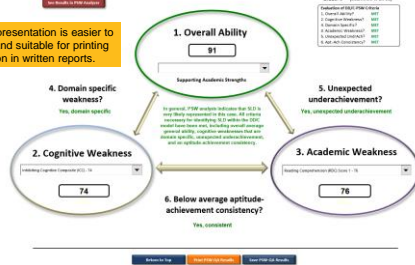
Only one score each of the seven cognitive areas and one score in any of the academic areas (8 scores total) is sufficient to conduct PSW Quick Analysis.

PSW Quick Analysis can include "other cognitive" and neuropsych processing domains.

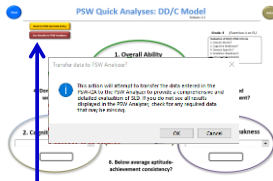
X-BASS v2.3 New Features: PSW Quick Analysis

PSW Quick Analyses: DD/C Model

The simplified presentation is easier to comprehend and suitable for printing and inclusion in written reports.

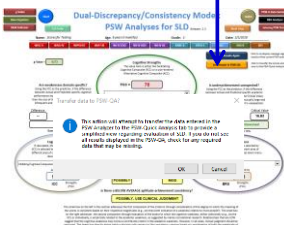


X-BASS v2.3 New Features: Two-way PSW data/results transfer



If you use the PSW-QA first, you can click the brown button and have the results transferred to and displayed in the full PSW Analyzer.

If you use the PSW Analyzer first, you can click the yellow button and have the results transferred to and displayed in the PSW Quick Analyzer.



X-BASS v2.3 New Features: Test List-QR has new tests/batteries and auto display of subtests

Updated the Test Database with several new tests including: APST, CVLT-3, DTLA-5, EFT-E-NU, EVT-3, MPVPT-4, PPVT-5, PAT-2-NU, TAPS-4, TVPS-4, TOLD-P-5, TNL-2, WORD-3-E, YGAT-2, WISC-V Spanish, and WRAT-5. There are now 148 tests/batteries and 1,175 subtests classified in X-BASS.

X-BASS v2.3 New Features: Auto loading of subtests from Test List-QR to XBA Analyzer

This button will automatically send the selected/listed subtests over to their respective domains in the XBA Analyzer according to their primary CHC broad ability classifications.

X-BASS v2.3 New Features: Enhanced Cohesion Statements

Former brief cohesion statements.

New enhanced cohesion statements on all cognitive test tabs, not just WISC-V.

X-BASS v2.3 New Features: Selectable/modifiable "other ability" domain

XBA Analyzer

PSW-A Data Summary

PSW Analyzer

Data Organizer

Strength & Weakness Indicator

Selecting the name of an other ability domain from the drop down menu will carry the domain name over to all other functions associated with the PSW Analyzer to allow it to be used for SLD identification just as with any other ability domain.

X-BASS v2.3 New Features: Separation of Gr into GI and Gr

LEARNING EFFICIENCY (GI)

LONG-TERM STORAGE AND RETRIEVAL (GR)

RETRIEVAL FLUENCY (GI)

LEARNING EFFICIENCY (GR)

RETRIEVAL FLUENCY (GR)

GI (learning efficiency) and Gr (retrieval fluency) scores can be transferred to either the GI and Gr domains in the "neuropsych/other cognitive" section or into the broad Gr domain, or both.

X-BASS v2.3 New Features: Exclusionary Factors Form Tab

Exclusionary Factors

Evaluation and Consideration of Exclusionary Factors for SLD Identification

Simply check off the appropriate boxes, enter any additional information, including notes, and click the Print Form button to print out a completed form that examines and considers all possible exclusionary factors that must be ruled out to diagnose SLD.

X-BASS v2.3 New Features: Cognitive-Achievement Relations Tab

Cognitive Functioning	Academic Achievement	Relationship
Reading	Reading Achievement	Reading Achievement is strongly related to Reading Comprehension, which is a key component of Reading Achievement. Reading Comprehension is a complex skill that involves understanding and interpreting written language. It is a key component of Reading Achievement, which is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language.
Writing	Writing Achievement	Writing Achievement is strongly related to Writing Fluency, which is a key component of Writing Achievement. Writing Fluency is a complex skill that involves understanding and interpreting written language. It is a key component of Writing Achievement, which is a complex skill that involves understanding and interpreting written language. Writing Achievement is a complex skill that involves understanding and interpreting written language. Writing Achievement is a complex skill that involves understanding and interpreting written language.
Mathematics	Mathematics Achievement	Mathematics Achievement is strongly related to Mathematics Problem Solving, which is a key component of Mathematics Achievement. Mathematics Problem Solving is a complex skill that involves understanding and interpreting written language. It is a key component of Mathematics Achievement, which is a complex skill that involves understanding and interpreting written language. Mathematics Achievement is a complex skill that involves understanding and interpreting written language. Mathematics Achievement is a complex skill that involves understanding and interpreting written language.

This new tab contains a table that provides information regarding the relationship between an academic area (and subskill) to specific areas of cognitive functioning. An explanation of the possible etiology is also provided.

X-BASS v2.3 New Features: Manifestations of Cognitive Weaknesses Tab

Cognitive Functioning	Academic Achievement	Relationship
Reading	Reading Achievement	Reading Achievement is strongly related to Reading Comprehension, which is a key component of Reading Achievement. Reading Comprehension is a complex skill that involves understanding and interpreting written language. It is a key component of Reading Achievement, which is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language.
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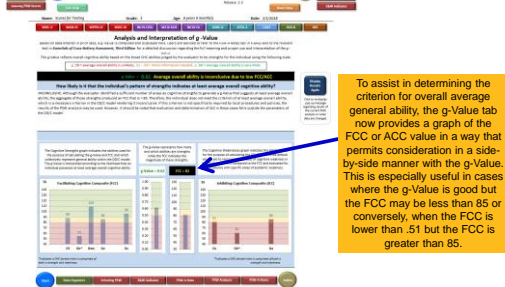
This new tab contains a table that provides a definition of academically-related cognitive abilities as well as their general and specific manifestations in terms of academic functioning and skills acquisition. The table can be quickly navigated by selecting the cognitive domain from the drop down menu at the top.

X-BASS v2.3 New Features: Minimizing Effects of Cognitive Weaknesses Tab

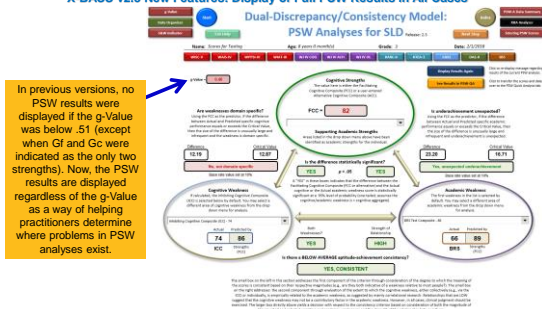
Cognitive Functioning	Academic Achievement	Relationship
Reading	Reading Achievement	Reading Achievement is strongly related to Reading Comprehension, which is a key component of Reading Achievement. Reading Comprehension is a complex skill that involves understanding and interpreting written language. It is a key component of Reading Achievement, which is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language. Reading Achievement is a complex skill that involves understanding and interpreting written language.
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This new tab contains a table that provides information regarding instructional, environmental, and other strategies for minimizing the effects of cognitive weaknesses which may be helpful in determining appropriate avenues for intervention. The table can be quickly navigated by selecting the cognitive domain from the drop down menu at the top.

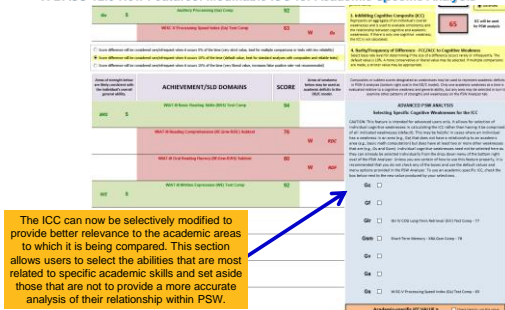
X-BASS v2.3 New Features: Graphing of the FCC on the g-Value Tab



X-BASS v2.3 New Features: Display of Full PSW Results in All Cases



X-BASS v2.3 New Features: Modifiable ICC for Academic Specific Analysis



X-BASS v2.3 New Features: Modifiable ICC for Academic Specific Analysis

In this case, G1r and Gsm may be related to Reading Comprehension, which means that Gs is attenuating the ICC despite not being related to problems in reading comprehension.

By not checking Gs, the ICC is recalculated using only G1r and Gsm as weaknesses resulting in a new value (SS=74) that represents the effect of memory without the influence of speed.

X-BASS v2.3 New Features: Modifiable ICC for Academic Specific Analysis

By checking this box, the new "Academic-specific ICC" value (SS=74) is used in place of the original ICC (SS=63) that was calculated using all weaknesses.

In this way, PSW analysis can be conducted in a more precise manner that examines the relationship of the ICC to both the FCC and academic weakness without the influence of unrelated abilities.

X-BASS v2.3 New Features: Buttons to Auto-Zoom (enlarge and reset) Display

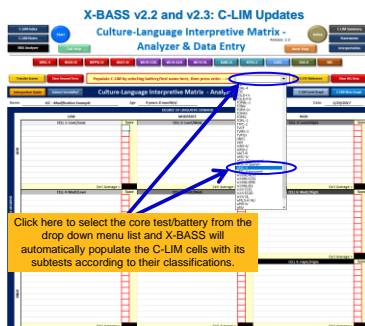
These buttons will zoom all tabs in X-BASS making it easier to read. The reset button will return all tabs to 100%, which is the default and standard view.

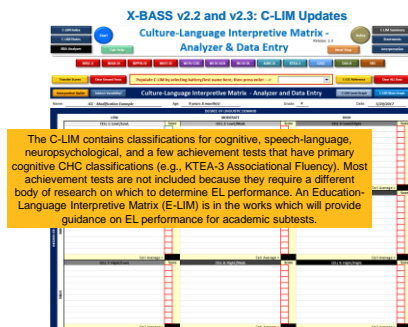
NOTE: THIS SOFTWARE MUST BE VIEWED IN A MINIMUM 1024X768 RESOLUTION AND MUST MEET THE FOLLOWING REQUIREMENTS:

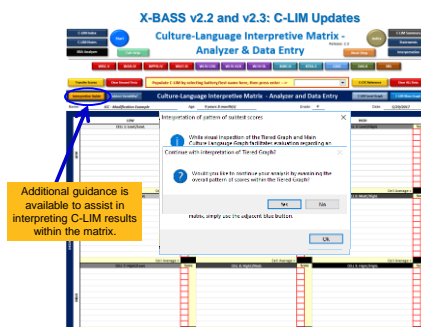
MINIMUM SYSTEM REQUIREMENTS: Windows 7 or later, Intel Core i3 or equivalent processor, 4GB RAM, 100GB free space, and a 1024X768 resolution monitor.

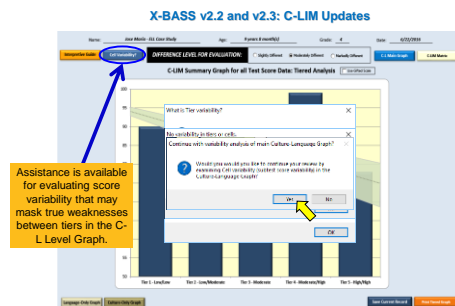
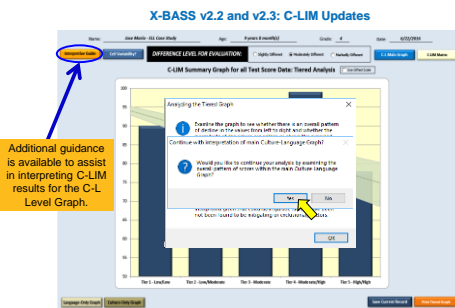
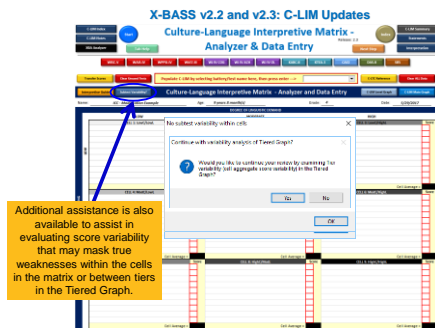
For best results, adjust your monitor to the same width as the file above.

NOTE: A BASS also offers an online edition on our website. BASS is not a commercial program. Users of this software are responsible for following all applicable laws and regulations and for protecting their data and information. All trademarks are the property of their respective owners. All trademarks are the property of their respective owners.

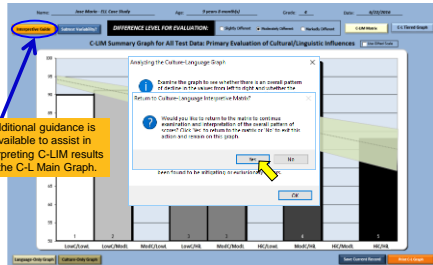




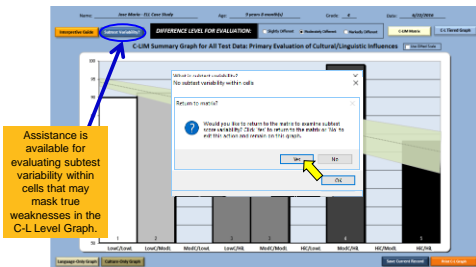




X-BASS v2.2 and v2.3: C-LIM Updates



X-BASS v2.2 and v2.3: C-LIM Updates



X-BASS v2.2 and v2.3: C-LIM Updates

Statement 1. Evaluations of Suspected Learning Disability - Invalid Results

The following sample validity statement is appropriate for cases where there is an overall declining pattern and the magnitude of the scores are generally within the selected range of difference. In such cases, the effect of culture and language is primary. The results are NOT likely to be valid, and performance suggests average functioning.

Simplified Statement:

Because the student is not a native English speaker, it is necessary to establish the validity of test scores to ensure that they are true estimates of their ability and not the result of limited English proficiency.

The student's test data were entered into the Culture Language Interpretive Matrix which permitted evaluation of the extent to which the scores were primarily affected by cultural or linguistic factors. A review of the pattern of test scores indicated that performance was consistent with what would be expected of other individuals with similar cultural and linguistic backgrounds. This means that the scores cannot be interpreted as fair estimates of the student's abilities.

However, because the scores were compared to other individuals from research studies who were of average ability and who had not been identified as having a disability, it suggests that the student's performance is also average (possibly higher) and that it is not likely that a learning disability is present in this case. This means that although the student is having difficulties in the classroom, the problems are most likely attributable to, and primarily the result of, the normal process of second language and acculturation knowledge acquisition.

Detailed Statement:

Because the student is not a native English speaker, it is necessary to establish the validity of the results obtained from testing to ensure that they are accurate estimates of ability or knowledge and not the manifestation of cultural or linguistic differences. Knowledge and English language proficiency was carried out via the Culture Language Interpretive Matrix which permitted evaluation of the extent to which the scores were primarily affected by cultural or linguistic factors. A careful review of the student's test data, as entered into the C-LIM, indicated that performance was consistent with what would be expected of other individuals with similar cultural and linguistic backgrounds. This result, declining performance rather than lack of actual ability. Accordingly, the test results evaluate the student's performance in comparison to other individuals with comparable linguistic development and educational attainment within the average range of performance for possibly higher and more academically gifted students observed in classroom performance that prompted this evaluation are most likely attributable primarily to the normal process of second language and acculturation knowledge acquisition.

In summary, the observed pattern of the student's test results is consistent with performance that is typical of culturally and linguistically diverse individuals of similar backgrounds who are not disabled and possess average general ability or higher. Therefore, it can be reasonably concluded that the test data evaluated with the C-LIM are likely to be invalid due to the presence of interacting cultural and linguistic influences and suggest that the student's test performance can not be used to support the presence of any type of learning disability.

New, simplified validity statements for use with the C-LIM are provided alongside the previous detailed statements. These may be more helpful in explaining procedures, results, and interpretation within written reports in comparison to the more detailed and technical versions.

A Guided Case Study Example of Evaluation of an English Learner for Specific Learning Disability

Evaluation of Maria Ayala
 Tests Used: WISC-V, WIAT-III, and WJ IV
 DOE: 5/29/2017
 DOB: 9/6/2007
 Grade: 4

Multilingual Assessment of ELs: Step by Step

Step 1. Test first in English (L2) and evaluate construct validity in all areas in English (exclusion of cultural/linguistic factors)

- If all scores indicate normative strengths (SS \approx 90 or higher) when tested in English (L2), scores are valid to the extent that a disability is not likely, thus no further testing is necessary.
- If some scores are normative weaknesses (SS $<$ 90) evaluate test score validity in a research-based manner, e.g., via the C-LIM.
- If C-LIM indicates primary influence of language/culture, test scores are likely invalid and indicate average ability in all areas and a disability is not likely, thus no further testing is necessary.
- If C-LIM indicates contributory or minimal influence of language/culture, test scores are likely to be valid and the evaluation should continue.

Step 2. Re-evaluate areas of weakness in native language (L2) to provide additional supporting evidence of validity (cross-linguistic confirmation)

- If data indicate an area is a strength (i.e., average), then original L2 score is invalid, use the L1 score.
- If data indicate an area is still a weakness, then original L2 score is valid, use the L2 score.

Step 3. Further cross-validate L1 and L2 test scores with contextual factors and pre-referral data and academic concerns (ecological validity for disability)

- Use all other case data and information to serve as the context by which to evaluate the test scores and ensure ecological validity to conclusions

SLD Identification with an English Learner: A Case Study

1: Enter all available subtest scores in C-LIM Analyzer to determine validity

2: When likely/possibly valid, transfer data and enter remaining composite scores

3: Use XBA to conduct follow up testing where indicated and as necessary

4: Enter follow up tests and re-evaluate pattern with C-LIM Summary

5: If still likely/possibly valid, evaluate follow up testing results via XBA Analyzer

6: Transfer cohesive composites (and academic subtests) to Data Organizer

7: Identify deficits for native language re-evaluation and compare to original scores

8: Select best scores for PSW Analysis and designate each as strength or weakness

9: Evaluate scores and results from PSW-A Data Summary and PSW Analyzer

10: Use additional data and information to support interpretations and conclusions

C-LIM
 procedure for
 evaluating
 construct
 validity

XBA-specific
 procedures for
 enhancing
 theoretical and
 psychometric
 validity

Procedures
 for Step 1

SLD Identification with an English Learner: A Case Study

WISC-V/WJ IV/WIAT-III XBA DATA FOR Maria Ayala
DOE: 5/29/2017 DOB: 9/6/2007 Grade: 4

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-V

<u>Verbal Comprehension Index</u>	<u>76</u>	<u>Fluid Reasoning Index</u>	<u>82</u>	<u>Visual-Spatial Index</u>	<u>95</u>
Similarities	5	Matrix Reasoning	7	Block Design	9
Vocabulary	6	Figure Weights	7	Visual Puzzles	9
<u>Working Memory Index</u>	<u>79</u>	<u>Processing Speed Index</u>	<u>94</u>		
Digit Span	5	Coding	9		
Picture Span	7	Symbol Search	8		

WECHSLER INDIVIDUAL ACHIEVEMENT TEST-III

Basic Reading	94	Reading Comprehension	76	Written Expression	92
Word Reading	92	Reading Comprehension	76	Spelling	100
Pseudoword Decoding	98	Oral Reading Fluency	80	Sentence Composition	86
				Essay Composition	93

WOODCOCK JOHNSON-IV TESTS OF COGNITIVE ABILITY

<i>Auditory Processing</i>	91	<i>LT Storage/Retrieval</i>	77
Phonological Processing	99	Story Recall	79
Nonword Repetition	84	Visual-Auditory Learning	75

[illegible][illegible]

[illegible]

SLD Identification with an English Learner: A Case Study

Culture-Language Interpretive Matrix - Index

Student Information: Name: [Redacted], DOB: [Redacted], Grade: 1, School: [Redacted], District: [Redacted], State: [Redacted]

Test Results: [Redacted]

STEP 1. DETERMINE DIFFERENCE

REMARKS (added or omitted rows): [Redacted]

STEP 2. ENTER SCORES IN CLIN ANALYZER

STEP 3. EVALUATION AND INTERPRETATION

NOTE ON USE OF NATIVE LANGUAGE TESTS (or DIFT IDENTIFICATION)

For assistance in determining examinee's degree of "difference" regarding language development and acculturative acquisition, click this button.

The screenshot shows the C-LIM Analyzer interface. At the top is a title bar: "SLD Identification with an English Learner: A Case Study". Below it is a menu bar with "File", "Edit", "View", "Tools", and "Help". The main window has a title "Instructions for Use and Interpretation" and contains several sections of text. A blue arrow points from the bottom of the page to the "New Document" button in the "File" menu.

File Edit View Tools Help

New Document Open Recent... Open... Save... Save As... Print... Print Range... Print Setup... Close All... Exit

Instructions for Use and Interpretation

Because the program automatically saves the file, you do not need to save the file manually. However, you can save the file manually at any time by clicking the "Save" button in the "File" menu. To open a file, click the "Open" button in the "File" menu. To save a file, click the "Save" button in the "File" menu. To print a file, click the "Print" button in the "File" menu. To print a range of pages, click the "Print Range" button in the "File" menu. To set up the printer, click the "Print Setup" button in the "File" menu. To close all files, click the "Close All" button in the "File" menu. To exit the program, click the "Exit" button in the "File" menu.

Editing

To edit a file, click the "Edit" button in the "Edit" menu. To undo a change, click the "Undo" button in the "Edit" menu. To redo a change, click the "Redo" button in the "Edit" menu. To copy text, click the "Copy" button in the "Edit" menu. To paste text, click the "Paste" button in the "Edit" menu. To delete text, click the "Delete" button in the "Edit" menu. To find text, click the "Find" button in the "Edit" menu. To replace text, click the "Replace" button in the "Edit" menu. To go to a specific line, click the "Go to Line" button in the "Edit" menu.

View

To view a file, click the "View" button in the "View" menu. To toggle the display of line numbers, click the "Line Numbers" button in the "View" menu. To toggle the display of the ruler, click the "Ruler" button in the "View" menu. To toggle the display of the status bar, click the "Status Bar" button in the "View" menu. To toggle the display of the toolbar, click the "Toolbar" button in the "View" menu. To toggle the display of the menu bar, click the "Menu Bar" button in the "View" menu. To toggle the display of the title bar, click the "Title Bar" button in the "View" menu.

Tools

To use the tools, click the "Tools" button in the "Tools" menu. To use the "Find" tool, click the "Find" button in the "Tools" menu. To use the "Replace" tool, click the "Replace" button in the "Tools" menu. To use the "Go to Line" tool, click the "Go to Line" button in the "Tools" menu. To use the "Print" tool, click the "Print" button in the "Tools" menu. To use the "Print Range" tool, click the "Print Range" button in the "Tools" menu. To use the "Print Setup" tool, click the "Print Setup" button in the "Tools" menu. To use the "Close All" tool, click the "Close All" button in the "Tools" menu. To use the "Exit" tool, click the "Exit" button in the "Tools" menu.

Help

To get help, click the "Help" button in the "Help" menu. To view the instructions, click the "Instructions" button in the "Help" menu. To view the user manual, click the "User Manual" button in the "Help" menu. To view the FAQ, click the "FAQ" button in the "Help" menu. To view the contact information, click the "Contact" button in the "Help" menu.

Footer

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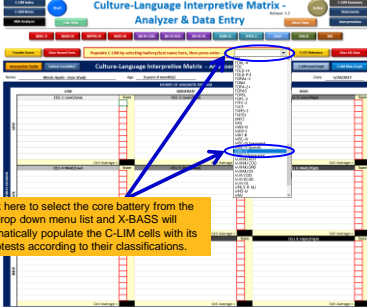
Author(s): [Name] [Address] [City] [State] [Zip] [Country]

Phone: [Phone Number] Fax: [Fax Number] Email: [Email Address]

Web: [Website Address]

SLD Identification with an English Learner: A Case Study

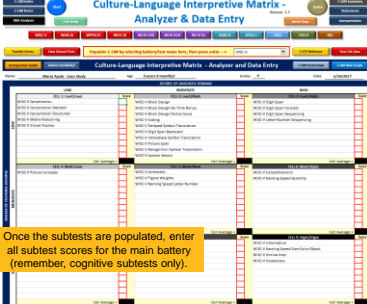
Culture-Language Interpretive Matrix - Analyzer & Data Entry



Click here to select the core battery from the drop down menu list and X-BASS will automatically populate the C-LIM cells with its subtests according to their classifications.

SLD Identification with an English Learner: A Case Study

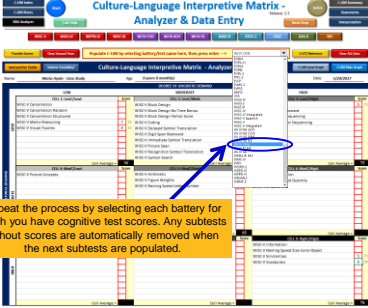
Culture-Language Interpretive Matrix - Analyzer & Data Entry



Once the subtests are populated, enter all subtest scores for the main battery (remember, cognitive subtests only).

SLD Identification with an English Learner: A Case Study

Culture-Language Interpretive Matrix - Analyzer & Data Entry



Repeat the process by selecting each battery for which you have cognitive test scores. Any subtests without scores are automatically removed when the next subtests are populated.

SLD Identification with an English Learner: A Case Study
Culture-Language Interpretive Matrix - Analyzer & Data Entry

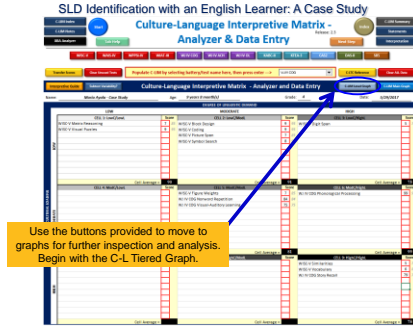
The supplemental scores from the WJ IV are now entered into the matrix also.

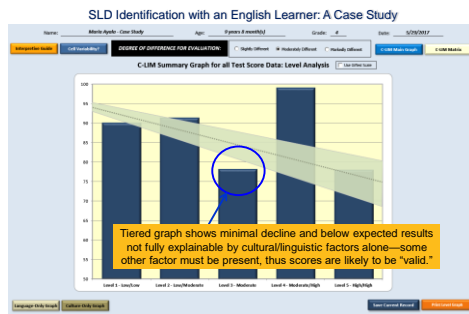
SLD Identification with an English Learner: A Case Study
Culture-Language Interpretive Matrix - Analyzer & Data Entry

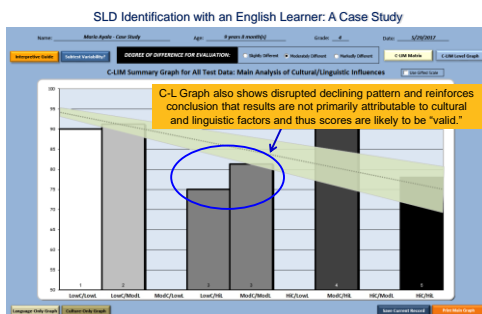
After all scores have been entered, click "Clear Unused Tests" button to eliminate visual clutter from subtests for which no score was entered.

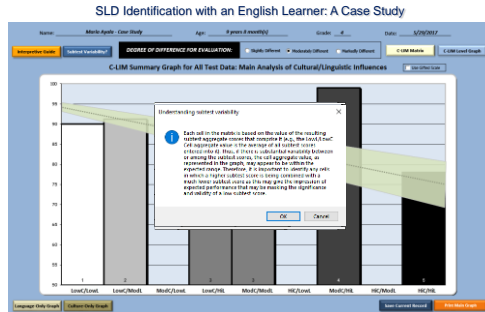
SLD Identification with an English Learner: A Case Study
Culture-Language Interpretive Matrix - Analyzer & Data Entry

C-LIM is used to interpret pattern of test scores with respect to whether they were primarily influenced by cultural/linguistic factors (likely invalid) or not (likely valid)



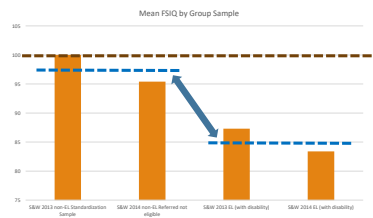




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Research Foundations for EL Evaluation

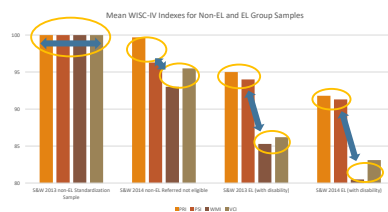
ELs and non-EL's perform differently: Broad ability level



Szyk, K. M., & Watkins, M. W. (2012). Diagnostic Utility of the Culture-Language Interpretive Matrix for the Wechsler Intelligence Scales for Children—Fourth Edition Among Referred Students. *School Psychology Review, 41*(4), 367-382.

Research Foundations for EL Evaluation

ELs and non-EL's perform differently: Index level

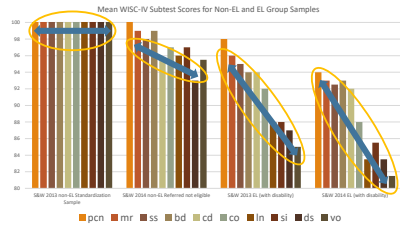


Szyk, K. M., & Watkins, M. W. (2012). Diagnostic Utility of the Culture-Language Interpretive Matrix for the Wechsler Intelligence Scales for Children—Fourth Edition Among Referred Students. *School Psychology Review, 41*(4), 267-282.

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Research Foundations for EL Evaluation

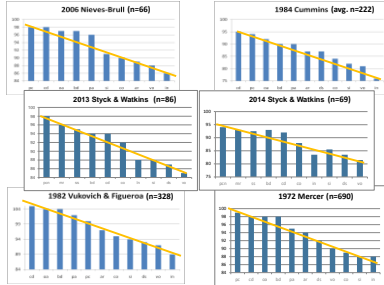
ELs and non-ELs perform differently: Subtest level



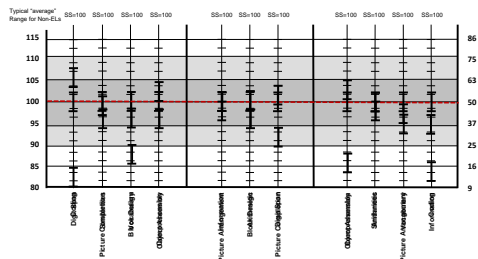
Stark, H. H. & Watkins, M. W. (2012). Disproportionality of the Culture Language Interpretive Matrix for the Wechsler Intelligence Scales for Children—Fourth Edition Among Referent Students. *School Psychology Review*, 41(2), 307-320.

Research Foundations for EL Evaluation: EL to ES

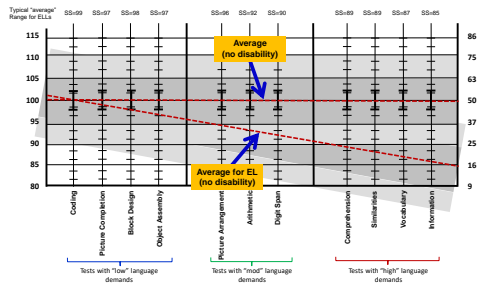
Comparison of overall "average" test performance at the subtest level: EL to ES



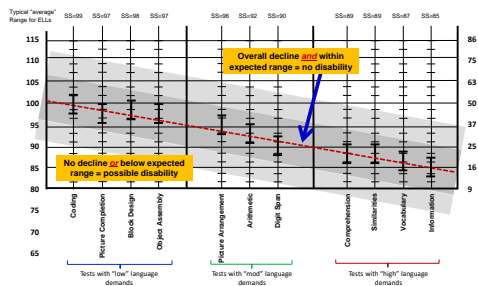
Fairness in Determining "Average" Performance: ES to ES



Fairness in Determining "Average" Performance: EL to ES



Fairness in Determining "Average" Performance: EL to ES



Interpretive Errors in C-LIM Studies: Styck & Watkins

		EL Sample (with disability)	Norm Sample (no disability)
Overall decline and within expected range = no disability	WISC-IV C-LIM Analysis	Invalid Scores (decline) N=9 (N=6, 7.0%) (N=3, 3.5%)	N = 100 (4.9%)
No decline or below expected range = possible disability		Valid Scores (no decline) N = 77 (89.5%)	N = 1,933 (95.1%)

The authors noted that "roughly 97% of (n = 83) of participants were identified as meeting criteria for an educational disability (86% as SLD)" (p. 371). Yet, only 9 ELL cases (10.5%) resulted in invalid scores (no disability). Thus, the C-LIM suggested invalid scores in 9 cases, 3 of which were likely correct (those without disabilities) so that the C-LIM was consistent with and supported the placement decision of the child by the district in 93% of the cases (89.5% + 3.5%). Moreover, the results of analyses with the WISC-IV normative sample show that declines relative to language are unusual, perhaps even indications of potential SLI in monolingual, native English speakers as described by Cormier et al. (2014).

To summarize, far from undermining the validity of the C-LIM, the Styck & Watkins studies provide strong and powerful support for the clinical utility and validity of the C-LIM when evaluating EL test performance.

*Table adapted from Styck, A. M. & Watkins, M. W. (2015). Diagnostic utility of the Culture Language Integration Matrix for the Wechsler Intelligence Scale for Children - Fourth Edition among bilingual students. School Psychology Review, 44(2), 867-882.

Research Foundations for EL Evaluation: EL to ES

The influence of language on subtest level performance in English speakers and English learners.

Table 3. Variance Explained by Exogenous Variables (Individual Test Performance) by Age Group.

Highest Language Demands	Individual test	Variance explained			
		7-10	11-14	15-18	
	Verbal Comprehension	.79 ^a	.86 ^a	.81 ^a	C-UM
	General Information	.71 ^a	.85 ^a	.80 ^a	Level 5
	Concept Formation	.63 ^a	.71 ^a	.63 ^a	
	Visual-Auditory Learning	.40 ^a	.37 ^a	.41 ^a	C-UM
	Delayed Recall-Visual-Auditory Learning	.39 ^a	.32 ^a	.32 ^a	Level 4
	Analysis Synthesis	.39 ^a	.44 ^a	.43 ^a	
	Sound Blending	.22 ^a	.32 ^a	.30 ^a	
	Auditory Working Memory	.22 ^a	.44 ^a	.32 ^a	
	Retrieval Fluency	.22 ^a	.22 ^a	.28 ^a	C-UM
	Memory for Words	.18 ^a	.32 ^a	.23 ^a	Level 3
	Numbers Reversed	.17 ^a	.26 ^a	.30 ^a	
	Pair Cancellation	.12 ^a	.11 ^a	.11 ^a	
	Rapid Picture Naming	.10 ^a	.07 ^a	.10 ^a	
	Incomplete Words	.13 ^a	.31 ^a	.22 ^a	
	Visual Matching	.12 ^a	.15 ^a	.10 ^a	C-UM
	Decision Speed	.12 ^a	.15 ^a	.19 ^a	Level 2
	Auditory Attention	.10 ^a	.20 ^a	.12 ^a	
	Spots Relations	.09 ^a	.16 ^a	.10 ^a	C-UM
	Planning	.05 ^a	.12 ^a	.11 ^a	Level 1
	Picture Recall	.02 ^a	.06 ^a	.09 ^a	

^aSource: Gordon, D.C., McGrew, K.S., & Birkhäuser, J. E. (2016). The Influence of Linguistic Demand and Cultural Loading on Cognitive Test Scores. *Journal of Psychological Assessment*, 33(7), 610-622.

Research Foundations for EL Evaluation: EL to ES

EL performance is moderated by level of English proficiency as compared to ES

	Subtest Name	Mercer 1972	Vukovich & Figueroa, 1982	Cummins 1982	Nieves-Bruil 2006	Grand Mean	C-UM Level
		Scale Score	Scale Score	Scale Score	Scale Score	Scale Score	
Tests with "high" language demands	Information	7.5	7.8	5.1	7.2	85	→ 5
	Vocabulary	8.0	8.3	6.1	7.5	87	→ 5
	Similarities	7.6	8.8	6.4	8.2	89	→ 4
	Comprehension	7.8	9.0	6.7	8.0	89	→ 4
Tests with "mod" language demands	Digit Span	8.3	8.5	7.3	*	90	→ 3
	Arithmetic	8.7	9.4	7.4	7.8	92	→ 3
	Picture Arrangement	9.0	10.3	8.0	9.2	96	→ 3
	Block Design	9.5	10.8	8.0	9.4	97	→ 2
Tests with "low" language demands	Object Assembly	9.6	10.7	8.4	9.3	98	→ 2
	Picture Completion	9.7	9.9	8.7	9.5	97	→ 1
	Coding	9.6	10.9	8.9	9.6	99	→ 1

*Data for this subtest were not reported in the study.

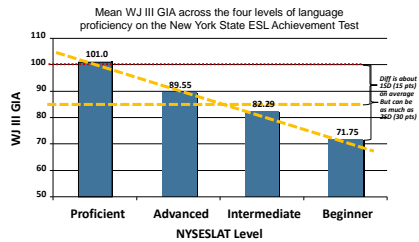
Fairness in Determining "Average" Performance: EL to ES

Matrix of WISC subtest means arranged by EL vs. ES test performance

DEGREE OF CULTURAL LOADING	DEGREE OF LINGUISTIC DEMAND		
	LOW	MODERATE	HIGH
LOW	Coding Object Assembly	Block Design	Digit Span
	Level 1 SS= 99	Level 2 SS= 97	Level 3 SS= 91
	Picture Completion	Arithmetic	Comprehension
MODERATE	Level 2 SS= 97	Level 3 SS= 91	Level 4 SS= 85
	Picture Arrangement		Information Similarities Vocabulary
HIGH	Level 3 SS= 91	Level 4 SS= 89	Level 5 SS= 85

Research Foundations for EL Evaluation: EL to EL

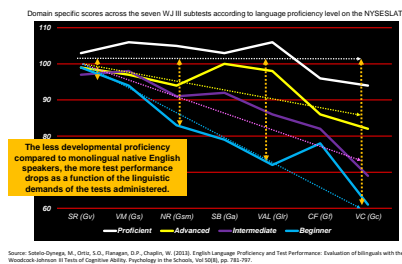
General ability level performance as compared to other English learners



Source: Sando-Owaga, M., Ortiz, L.O., Flanagan, D.P., Chaplin, W. (2015).

Research Foundations for EL Evaluation: EL to EL

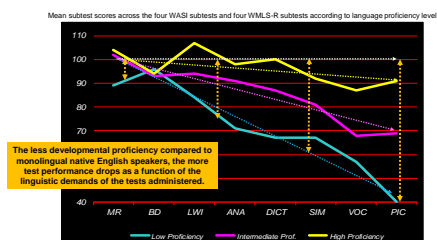
Subtest level performance as compared to other English learners



Source: Sando-Owaga, M., Ortiz, L.O., Flanagan, D.P., Chaplin, W. (2015). English Language Proficiency and Test Performance: Evaluation of bilinguals with the Woodcock Johnson III Tests of Cognitive Ability. Psychology in the Schools, Vol 32(8), pp. 785-795.

Research Foundations for EL Evaluation: EL to EL

Subtest level performance as compared to other English learners



Source: Dyck, A. M. (2006). The relation between language proficiency and IQ test performance. Unpublished manuscript, St. John's University, NY.

Summary of Research Foundations for EL Evaluation

1. COMPARED TO ENGLISH SPEAKERS (EL to ES): Test performance of ELs is moderated by the degree to which a given index or subtest relies on or requires age- or grade-expected English language development and the acquisition of incidental acculturative knowledge.

2. COMPARED TO ENGLISH LEARNERS (EL to EL): Test performance of ELs is further moderated by the degree to which an EL varies in terms of their own developmental English language proficiency and acculturative knowledge acquisition.

Proper interpretation of EL test performance thus requires a true peer group of other ELs that is based not on the language spoken by the individual but on comparison to other ELs with the same degree of English exposure and development.

With one exception, current test norm samples lack control for developmental differences in English language exposure. This means that interpretation of test scores at any level must be made within the context of research which provides the only empirically-derived, albeit, very rough, true peer standard or "norm group".

Use of research on the relative test performance of ELs based on language exposure (as reflected by the degree of "difference" the student displays relative to the norm samples of the tests being used) is the very foundation and sole purpose of the C-LIM.

SLD Identification with an English Learner: A Case Study

- 1: Enter all available subtest scores in C-LIM Analyzer to determine validity
- 2: When likely/possibly valid, transfer data and enter remaining composite scores
- 3: Use XBA to conduct follow up testing where indicated and as necessary
- 4: Enter follow up tests and re-evaluate pattern with C-LIM Summary
- 5: If still likely/possibly valid, evaluate follow up testing results via XBA Analyzer
- 6: Transfer cohesive composites (and academic subtests) to Data Organizer
- 7: Identify deficits for native language re-evaluation and compare to original scores
- 8: Select best scores for PSW Analysis and designate each as strength or weakness
- 9: Evaluate scores and results from PSW-A Data Summary and PSW Analyzer
- 10: Use additional data and information to support interpretations and conclusions

Prerequisite for Step 1

SLD Identification with an English Learner: A Case Study

Culture-Language Interpretive Matrix - Analyzer & Data Entry

Once your analysis is complete and test scores are deemed to be "valid," use this button (aka, the "Golden Ticket") to automatically transfer scores to their respective core test tabs (e.g., WISC-V, WJIV). Subtests from other batteries that have no core test tab will go to the appropriate CHC domains in the XBA Analyzer (e.g., CTOPP-2, CASL-2, etc.)

SLD Identification with an English Learner: A Case Study

WISC-V® Data Analysis
Age range: 6:00 - 16:00

Enter remaining test composite or index scores into appropriate cells.

SLD Identification with an English Learner: A Case Study

WISC-V® Data Analysis
Age range: 6:00 - 16:00

X-BASS provides automatic analysis of cohesion for all composites entered with new and enhanced interpretive statements.

SLD Identification with an English Learner: A Case Study

WJ IV® Cognitive Data Analysis
Age range: 5:00 - 19:00

Composites for any supplemental tests used in the evaluation must also be entered.

SLD Identification with an English Learner: A Case Study

WJ IV® Cognitive Data Analysis
(Age range: 2-20)

Client: Maria Ayala - Case Study
Date: 12/2/2017
Age: 9 years 10 months

Subtests checked for transfer to XBA Analyzer tab

Subtests checked for transfer to XBA Analyzer tab:

- WJ IV COG Nonword Repetition (Ga-NR)
- WJ IV COG Phonological Processing (Ga-PP)
- WJ IV COG Sound Blending (Ga-SB)

SLD Identification with an English Learner: A Case Study

WJ IV COG Nonword Repetition (Ga-NR)

Subtests checked for transfer to XBA Analyzer tab:

- WJ IV COG Nonword Repetition (Ga-NR)

The WJ IV COG Nonword Repetition subtest loads primarily on Gsm, not Ga. It can be combined with other WISC-V Gsm subtests to form an XBA composite or the WISC-V WMI can be used by itself if it has been determined to be cohesive.

WJ IV COG Phonological Processing (Ga-PP)

Subtests checked for transfer to XBA Analyzer tab:

- WJ IV COG Phonological Processing (Ga-PP)

The WJ IV COG Phonological Processing subtest loads primarily on Ga. Thus, it needs to be supplemented with another Ga subtest (e.g., WJ IV OL Sound Blending) to form a useable composite since the original composite was not cohesive.

SLD Identification with an English Learner: A Case Study

WISC-V/WJ IV/WIAT-III XBA DATA FOR Maria Ayala
DOE: 5/29/2017 DOB: 9/6/2007 Grade: 4

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-V

Verbal Comprehension Index	76	Fluid Reasoning Index	82	Visual-Spatial Index	95
Similarities	5	Matrix Reasoning	7	Block Design	9
Vocabulary	6	Figure Weights	7	Visual Puzzles	9
Working Memory Index	79	Processing Speed Index	84		
Digit Span	5	Coding	9		
Picture Span	7	Symbol Search	8		

WECHSLER INDIVIDUAL ACHIEVEMENT TEST-III

Basic Reading	94	Reading Comprehension	76	Written Expression	92
Word Reading	92	Reading Comprehension	76	Spelling	100
Pseudoword Decoding	98	Oral Reading Fluency	80	Sentence Composition	86
				Essay Composition	93

WOODCOCK JOHNSON-IV TESTS OF COGNITIVE ABILITY

Auditory Processing	91	IT Storage/Retrieval	77	Follow-Up Testing	88
Phonological Processing	99	Story Recall	79	WJ IV OL Sound Blending	88
Nonword Repetition	84	Visual-Auditory Learning	75		

SLD Identification with an English Learner: A Case Study

- 1: Enter all available subtest scores in C-LIM Analyzer to determine validity
- 2: When likely/possibly valid, transfer data and enter remaining composite scores
- 3: Use XBA to conduct follow up testing where indicated and as necessary
- 4: Enter follow up tests and re-evaluate pattern with C-LIM Summary
- 5: If still likely/possibly valid, evaluate follow up testing results via XBA Analyzer
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- 7: Identify deficits for native language re-evaluation and compare to original scores
- 8: Select best scores for PSW Analysis and designate each as strength or weakness
- 9: Evaluate scores and results from PSW-A Data Summary and PSW Analyzer
- 10: Use additional data and information to support interpretations and conclusions

Procedures for Step 1

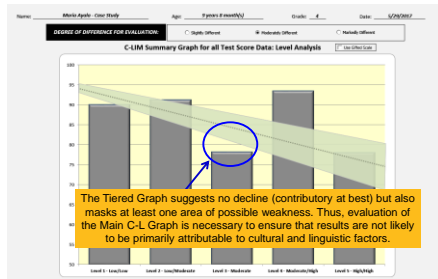
SLD Identification with an English Learner: A Case Study

Although supplemental tests can be entered on their respective core test tabs (if one is available for them), it is easier and quicker to simply enter them directly into the XBA Analyzer by selecting them from the appropriate drop down menus. In either case, they will automatically appear in the C-LIM Summary which permits re-examination of test score validity that now includes the additional scores.

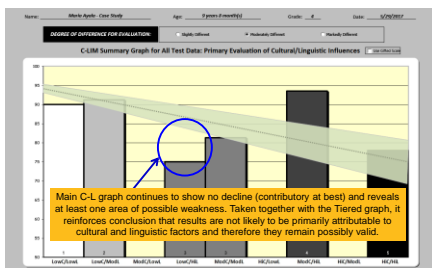
SLD Identification with an English Learner: A Case Study

Supplemental tests given for purposes of follow up are automatically included in the C-LIM Summary but NOT the C-LIM Analyzer, unless they are also entered there manually

SLD Identification with an English Learner: A Case Study



SLD Identification with an English Learner: A Case Study



SLD Identification with an English Learner: A Case Study

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Procedures for Step 1

SLD Identification with an English Learner: A Case Study

Data Organizer and Score Summary

Although both achievement composite and subtest scores may be transferred to the Data Organizer, use of individual achievement subtests rather than composites is often useful for specifying areas of academic difficulty and pinpointing skills for targeted intervention. This also helps avoid having to decide where a composite should be used, for example, the WIAT-III Reading Comprehension and Fluency composite can be used for RC or RF which is ambiguous. Using the subtests that make up this composite clarifies the domains for each score.

Data Organizer provides a summary of test-based composites, any derived XBA composites, and any specific achievement subtests from a test tab or the XBA Analyzer.

Multilingual Assessment of ELs: Step by Step

Step 1. Test first in English (L2) and evaluate construct validity in all areas in English (exclusion of cultural/linguistic factors)

- If all scores indicate normative strengths (SS \approx 90 or higher) when tested in English (L2), scores are valid to the extent that a disability is not likely, thus no further testing is necessary.
- If some scores are normative weaknesses (SS $<$ 90) evaluate test score validity in a research-based manner, e.g., via the C-LIM.
- If C-LIM indicates primary influence of language/culture, test scores are likely invalid and indicate average ability in all areas and a disability is not likely, thus no further testing is necessary.
- If C-LIM indicates contributory or minimal influence of language/culture, test scores are likely to be valid and the evaluation should continue.

Step 2. Re-evaluate areas of weakness in native language (L2) to provide additional supporting evidence of validity (cross-linguistic confirmation)

- If data indicate an area is a strength (i.e., average), then original L2 score is invalid, use the L1 score.
- If data indicate an area is still a weakness, then original L2 score is valid, use the L2 score.

Step 3. Further cross-validate L1 and L2 test scores with contextual factors and pre-referral data and academic concerns (ecological validity for disability)

- Use all other case data and information to serve as the context by which to evaluate the test scores and ensure ecological validity to conclusions

SLD Identification with an English Learner: A Case Study

- 1: Enter all available subtest scores in C-LIM Analyzer to determine validity
- 2: When likely/possibly valid, transfer data and enter remaining composite scores
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- 9: Evaluate scores and results from PSW-A Data Summary and PSW Analyzer
- 10: Use additional data and information to support interpretations and conclusions

Procedure for Step 2

[illegible][illegible]

SLD Identification with an English Learner: A Case Study

Interpretive Problems with Gc Scores with English Learners

Because Gc is, by definition, comprised of cultural knowledge and language development, the influence of these factors cannot be separated from tasks designed to measure them. Thus, unless exposure to English is a controlled variable in a test's norm sample and the sample includes many different languages, *Gc scores for ELLs always remain at risk for inequitable interpretation even when the overall pattern of scores within the C-LIM is determined to be valid.*

For example, a Gc score of 76 would be viewed as "deficient" relative to a norm sample comprised primarily of native English speakers. Moreover, testing in the native language doesn't solve this problem because current native language tests treat ELs as being all the same (they aren't), as if being behind in English is only temporary (it isn't), as if the country they come from is important (it's not), and as if five years of English learning makes them native English speakers (it doesn't).

Therefore, practitioners must find and rely on a "true peer" comparison group such as that which is formed within the High Culture/High Language cell of the C-LIM to help ensure that ELLs are not unfairly regarded as having either deficient Gc ability or significantly lower overall cognitive ability—conditions that may simultaneously decrease identification of SLD and increase suspicion of ID and speech impairment.

SLD Identification with an English Learner: A Case Study

Determining if and when to re-test Gc via the C-LIM

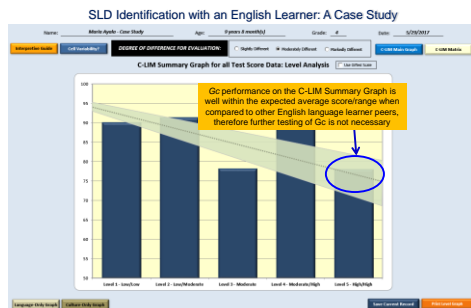
Re-evaluation of suspected areas of weakness is necessary to provide cross-linguistic confirmation of potential deficits in functioning. A disability cannot be identified in an English learner if the observed difficulties occur only in one language. Even then, deficits that are identified in both languages are not definitive evidence of dysfunction and evaluation of expectations for native language performance is as relevant for native language evaluation as it is for evaluation in English.

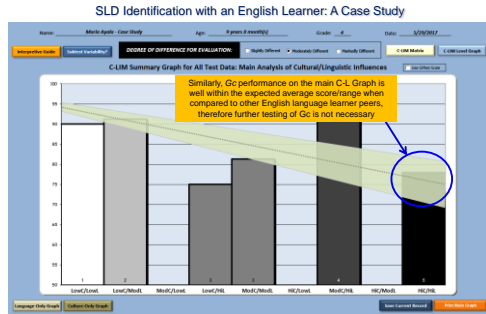
Because of the nature of Gc, it should be treated slightly differently when it comes to re-evaluation as compared to other cognitive abilities. The following guidelines from the best practice recommendations apply specifically to Gc:

- **Review results from testing in English and identify domains of suspected weakness or difficulty:*
 - a. *For Gc only, evaluate weakness according to high/high cell in C-LIM or in context of other data and information*
- **For Gc only:*
 - a. *If high/high cell in C-LIM is within/above expected range, consider Gc a strength and assume it is at least average (re-testing is not necessary)*
 - b. *If high/high cell in C-LIM is below expected range, re-testing of Gc in the native language is recommended*
- *For Gc only, scores obtained in the native language should only be interpreted relative to developmental and educational experiences of the examinee in the native language and only as compared to others with similar developmental experiences in the native language.*

It is important that the actual, obtained Gc score, regardless of magnitude, be reported when required, albeit with appropriate nondiscriminatory assignment of meaning, and that it be used for the purposes of instructional planning and educational intervention.

**If Gc is evaluated with the Dots Plot®, use the actual score obtained from the English Learner norms (NOT the English Speaker norms) to determine if it is an area of weakness. If the score indicates a weakness, it should then be further re-evaluated in the native language.*





SLD Identification with an English Learner: A Case Study

Interpretive Problems with Gc Scores with English Learners

Although the C-LIM helped determine that Gc is NOT an area of weakness, further evaluation and interpretation is complicated because of the low magnitude of the score (i.e., 55-76). Other corrections are necessary to prevent discriminatory decisions, particularly in evaluation of SLD or SL. However, use of the Ortiz PVAT provides a simple and more direct solution to all of these problems.

English	Native Lang.	Valid?	Interpretation?
- Gc 76	-	No	S
- Gf 82	-	?	?
- Gfr 77	-	?	?
- Gsm 78	-	?	?
- Gv 98	-	Yes	S
- Ga 92	-	Yes	S
- Gs 94	-	Yes	S

These are the seven major CHC broad abilities typically measured for evaluation of SLD, particularly within a Processing Strengths and Weaknesses (PSW) approach. The parentheses contain the corresponding five WISC-III subtests that are equivalent to the CHC broad abilities.

Since the aggregate score in the C-LIM for Tier 1 (i.e., the High/Low cut where all Gc tests are classified) was within the expected range corresponding to the selected degree of difference deemed most appropriate, it should be considered a strength (despite the fact that the magnitude is only 76 and that it isn't technically a valid measure of intrinsic language-related abilities).

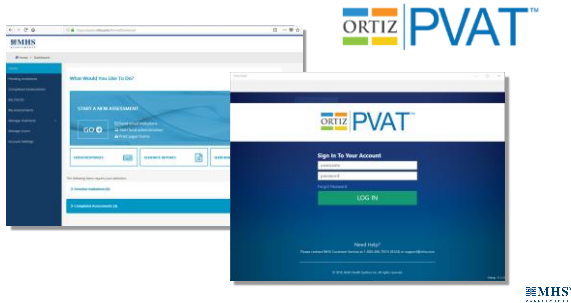
SLD Identification with an English Learner: A Case Study

Resolving Problems with Gc Scores for ELs: The Ortiz PVAT

Clearly, the preceding procedures necessary to address validity issues related to the measurement of Gc and language/culture-related abilities are complicated, somewhat cumbersome, and not very efficient. It may also leave the practitioner in the unenviable position of having to defend a very low score (55-76) as being technically invalid, but still considered to be an area of processing "strength."

This one issue, more than any other, best highlights the shortcomings of today's tests relative to their failure to provide a true peer comparison group for English learners that would alleviate all of the extra work and potential confusion. There simply is no substitute for being able to make fair and equitable interpretations than comparison to peers with similar developmental experiences.

That said, there is in fact an easier way to do all of this. In response to the many difficulties posed by these issues, a new test has been developed with dual-norm samples, including one specifically for English learners that yields valid Gc scores for English learners of any language background and level of English exposure—and that test is the Ortiz PVAT.



Fairness and English Learners:

Ensuring True Peer Comparability

Stratification Variables in Dual Standardization Norm Samples of the Ortiz PVAT

English Speakers (N = 1,530)

- Ages 2:6 to 22:11
- Gender: equal split
- Stratification:
 - Geographic region
 - Parental education level (PEL)
 - Race/ethnicity

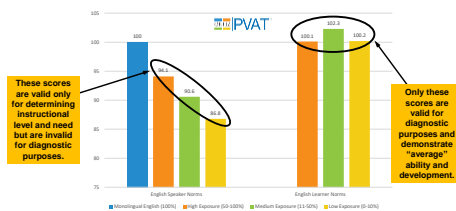
English Learners (N = 1,190)

- Ages 2:6 to 22:11
- Gender: equal split
- Stratification:
 - Geographic region
 - Parental education level (PEL)
 - Language spoken at home (53 different languages)
 - Proportion of lifetime exposure to English (i.e., opportunity to learn English):
 - 11 categories for length of exposure to English
 - 0-6 months up to 16+ years

Inclusion of these variables in the stratification of the EL Norm Sample is a completely unique feature of the Ortiz PVAT not found in any other test.

The Ortiz PVAT – Advances in fairness and testing

Developmental Language/Exposure-based Comparison Provides Validity and Fairness for ELs



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The Ortiz PVAT – Fairness for ALL Learners

Removal of all variance due to language results in no influence of race or ethnicity

Norm sample for native English speakers demonstrates negligible effect of race/ethnicity.

Form	Racial/Ethnic Group	N	M	SD	F (df)	p	Pairwise Comparisons (p < .01)	Partial η^2
Form A	Black	280	99.4	15.2	2.60 (3, 1523)	.051	ns	.005
	Hispanic	126	99.5	15.4				
	White	1,018	100.5	15.3				
	Other	106	96.3	15.3				
Form B	Black	280	99.6	15.1	2.47 (3, 1523)	.060	ns	.005
	Hispanic	126	99.7	15.3				
	White	1,018	100.6	15.2				
	Other	106	96.4	15.2				

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The Ortiz PVAT – Fairness for ALL English Learners

First language learned (L1) does not alter the sequence of learning English (L2)

English language acquisition is an invariant process, irrespective of the native language

Form	Language Spoken	N	M	SD	F (df)	p	Pairwise Comparisons (p < .01)	Partial η^2
Form A	Spanish & Spanish Creole	872	101.5	15.5	1.63 (3, 1183)	.181	ns	.004
	Indo-European Languages	161	99.4	15.7				
	Asian & Pacific Islander Languages	129	98.8	15.4				
	All Other Languages	28	99.9	15.4				
Form B	Spanish & Spanish Creole	872	101.7	15.5	1.52 (3, 1183)	.208	ns	.004
	Indo-European Languages	161	99.8	15.7				
	Asian & Pacific Islander Languages	129	99.0	15.4				
	All Other Languages	28	99.9	15.4				

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The Ortiz PVAT – Recommended Applications

Pre-school Screening and Evaluation – dual norms permit evaluation of basic language development (receptive vocabulary) in very young children (minimum age: 2 years, 6 months) in both native English speakers and English learners prior to the beginning of formal instruction.

Progress Monitoring of English Language Proficiency – many tests, for example those used to monitor compliance with Title III ELA requirements are not well designed for that purpose and give misleading results regarding progress and growth and no information relative to the acquisition of BICS vs. CALP.

Determination of Instructional Level – the Assessment Report indicates the linguistically appropriate level of instruction and the degree of intensity required to assist the student in making progress toward grade-level standards and expectations. Specific instructional strategies are also provided.

Progress monitoring of Reading and Writing Vocabulary – the Progress Report provides data for evaluating increases in receptive vocabulary that may reflect relative progress in response to specific interventions that are being employed.

Evaluation of Growth in General Language Ability – unlike tests that do not allow measurement of growth, a specific index documenting actual growth in English vocabulary/language acquisition across short and long intervals is provided.

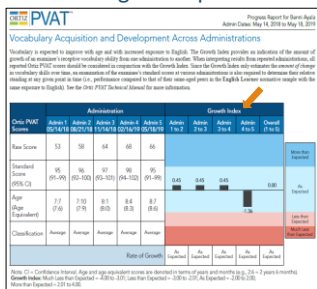
Development of Intervention/Treatment Strategies – performance is linked directly to specific and customized recommendations for language-based intervention and treatment strategies relative to true peers.

Diagnostic and Disability Evaluation – provides the only norm-referenced “true peer” comparison necessary for evaluating “difference vs. disorder” in general language-related disabilities/disorders related to vocabulary acquisition.

[illegible]

[illegible]

Progress Report from the Ortiz PVAT



The Growth Index provides an indication of actual change or true growth across two or more administrations.

It is useful for both progress monitoring purposes as well as for determining whether an individual's language acquisition is typical or not as compared to other English learners of the same age.

Performance Across Different Norm Sample Comparisons

How much of a difference does "true language peer" comparison make for diagnostic decisions?

Grade	Age	EL vs. EL		EL vs. ES	
		Ortiz PVAT	WJLT-III English	WJLT-III Spanish	WJLT-III Oral Language
4	9	97	64	40	EL = English Learner
3	8	87	69	43	ES = English speaker
4	10	105	63	40	SS = Spanish speaker
2	7	84	58	42	
1	6	98	45	104	
5	10	92	42	88	
K	5	71	45	40	
4	9	97	61	41	
4	9	95	55	42	
4	9	94	40	61	
2	7	92	65	48	
1	6	104	68	55	
5	9	84	40	73	
1	7	89	43	59	
Averages:		92	54	56	
Percentile Rank =		30th	0.1st	0.1st	
Potential False Positive Rate =		7-21%	100%	88%	

Without true peer comparison, false positive error rates for misidentification of ELs could be exceptionally high.

*Of the 3 scores in the true peer comparison, two are very close to being WJLT-III (SEM=2) and may not actually represent a disability.

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SLD Identification with an English Learner: A Case Study

WISC-VW/J IVW/JAT-III XBA DATA FOR Maria Ayala
DOE: 5/29/2017 DOB: 9/6/2007 Grade: 4

WECHSLER INTELLIGENCE SCALE FOR CHILDREN-V

Verbal Comprehension Index	76	Fluid Reasoning Index	82
Similarities	5	Matrix Reasoning	7
Vocabulary	6	Figure Weights	7
Working Memory Index	79	Processing Speed Index	84
Digit Span	5	Coding	9
Picture Span	7	Symbol Search	8

WECHSLER INDIVIDUAL ACHIEVEMENT TEST-III

Basic Reading	84	Reading Comprehension	76	Written Expression	82
Word Reading	92	Reading Comprehension	76	Spelling	100
Pseudoword Decoding	98	Oral Reading Fluency	80	Sentence Composition	86
				Essay Composition	93

WOODCOCK-JOHNSON-IV TESTS OF COGNITIVE ABILITY

Auditory Processing	81	LT Storage/Retrieval	77
Phonological Processing	99	Story Recall	79
Nonword Repetition	84	Visual-Auditory Learning	75

Although we are adding the Ortiz PVAT at this point in the evaluation, it would have been easiest to simply include it as a standard part of any battery particularly because it can be administered to any individual to generate a valid Gc score, and in the case of ELs, it will also address the Gc problem that will always exist and provide that information in an interpretive summary report.

Ortiz PVAT (EL Norms) 83

Nondiscriminatory Interpretation of Test Scores: A Case Study

Determining if and when to re-evaluate all other (non-Gc) abilities

Because cultural knowledge and language ability are not the primary focus in measurement of other abilities, the influence of cultural/linguistic factors can be determined via the C-LLM and scores below the expected range of performance may well be deemed to be the result of factors other than cultural knowledge or language ability. Thus, there is no limitation requiring comparison of performance to a true ELL peer group as there is with Gc. Thus, use of a test's norms and the attendant standard classification scheme is appropriate for determining areas of suspected weakness using tests administered in English for abilities other than Gc.

However, to establish validity for a low score obtained from testing in English with an ELL, native language evaluation is required. The following guidelines from the best practice recommendations apply to all abilities, including Gc—when Gc has been determined to be a weakness because it falls below the expected range of difference in the C-LLM.*

- Review results from testing in English and identify domains of suspected weakness or difficulty:
 - For all abilities, *except* Gc, evaluate weakness using standard classifications (e.g., $SS < 90$)
- Re-test all domains of suspected weakness, *including* Gc when it is not within the expected range of difference in the C-LLM* using native language tests
- Administer native language tests or conduct re-testing using one of the following methods:
 - Native language test administered in the native language (e.g., WI II/Bateria III or WISC-IV/WISC-IV Spanish)
 - Native language test administered via assistance of a trained interpreter
 - English language test translated and administered via assistance of a trained interpreter
- Administer tests in manner necessary to ensure full comprehension including use of any modifications and alterations necessary to reduce barriers to performance, while documenting approach to tasks, errors in responding, and behavior during testing, and analyze scores both *quantitatively* and *qualitatively* to confirm and validate areas of true weaknesses

*Gc, if Gc was evaluated with the Otis PIAT, the actual score when compared to the English Learner norms (NOT the English Speaker norms) indicates that it is likely an area of weakness.

SLD Identification with an English Learner: A Case Study

Procedures for Follow-up Evaluation in the Native Language

When providing cross-linguistic confirmation of areas of weakness that were found via scores derived from testing in English, it is helpful (but not actually necessary) to generate scores. Qualitative information and data (e.g., process or error analysis, dynamic assessment, task observations, etc.) are equally helpful and useful with respect to confirming areas of weakness.

It is also reasonable to use the exact same tests for follow up evaluation in the native language as were initially used in English language evaluation because, in this case, practice effects are diagnostically helpful in terms of discerning "learning ability" from "learning disability."

Evaluation in the native language can be accomplished in several different ways and will likely depend on the competency of the evaluator and the available resources. Completion of the task may include one or more of the following procedures:

1. Use of native language tests (if available) administered by a bilingual evaluator
 2. Use of native language tests (if available) administered by a trained translator
- In the absence of parallel or similar native language tests with which to evaluate the necessary domains, follow up evaluation will need to resort to other procedures for task completion, including:
3. Use of English language tests translated directly by a bilingual evaluator
 4. Use of English language tests administered via assistance of trained translator
 5. Use of developmental or dynamic assessment, informal tasks accompanied by careful observation, error analysis, and other probing with the assistance of a translator for communication.

A Recommended Best Practice Approach for Using Tests with ELs

DETERMINING STRENGTHS AND WEAKNESSES IN MULTILINGUAL EVALUATION

	Original score when tested in English	Follow up score when tested in native language	Most appropriate and valid score for use in PSW analysis		Rationale for Use as Strength or Weakness in PSW Analysis
			Original Score (in English)	Follow Up Score (in native lang)	
For ALL domains*	S	n/a	✓		Strength —scores in or above the average range (or even WNL) are sufficient to assure by chance and very likely to be valid thus re-evaluation in the native language is unnecessary
For ALL domains (and when Gc is below expected range in C-LIM)	W	S		✓	Strength —because a deficit cannot exist in one language only, the original score from testing in English is invalidated and should be replaced by the follow up average score which is likely to be valid
For ALL domains (and when Gc is below expected range in C-LIM)	W	W	✓		Weakness —low scores in both languages suggest a true deficit but additional, convergent and consistent ecological evidence is required to substantiate scores as deficits
For Gc Only (and when Gc is within the expected range in C-LIM)	S	n/a	✓		Strength —Gc can only be compared fairly to other ELs, thus its position within the expected range in the C-LIM should be considered to be average and native language testing may not be necessary unless there is reason to believe it may be informative

*Although this table uses "weaker or higher" (e.g., S/LgH) as a recommended cutoff for supporting the validity of test scores, use of a lower standard (e.g., S/LgH) may also represent a reasonable standard for practice since it is based on performance that can be categorized as being within normal limits.

SLD Identification with an English Learner: A Case Study

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Procedures for Step 2

SLD Identification with an English Learner: A Case Study

Determining which scores are valid and interpretable

Derivation of an Ortiz PVIAT score using the English learner norms eliminates the Gc problem completely. The Ortiz PVIAT score simply replaces any Gc/language-related verbal ability score because it was derived precisely on EL "true peers" and therefore inherently valid in terms of both meaning/classification and actual magnitude (e.g., 90 - 109 = average).

	English	Spanish	Valid?	Interpretation?
- Gc	76	-	76 - No	-
- Gf	(82)	91	91 - Yes	S
- Glr	77	(79)	77 - Yes	W
- Gsm	78	(72)	78 - Yes	W
- Gv	98	-	Yes	S
- Ga	92	-	Yes	S
- Gs	94	-	Yes	S
- Gc (Ortiz PVIAT)	93	-	Yes	S

Additional native language investigation of areas of weakness noted in scores derived from testing in English (with the acquisition of the score from the Ortiz PVIAT), resulted in an average of scores that invalidated the original Gc score, and two below average scores that simply cross-linguistically confirmed Gc and Gsm as areas of weakness as indicated by the test scores in English.

SLD Identification with an English Learner: A Case Study

[illegible]

For Gf, the native language score is selected for use since it invalidated the English language score.

For Gsm, we can choose either a two-subtest norm-based composite or a three-subtest XBA composite. Since three subtest composites are more reliable, it was selected here.

SLD Identification with an English Learner: A Case Study

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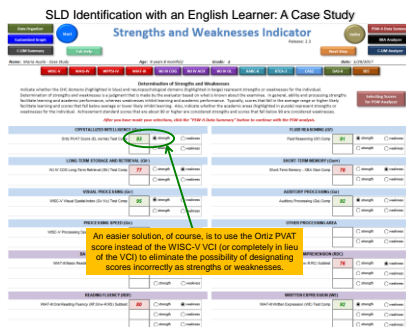
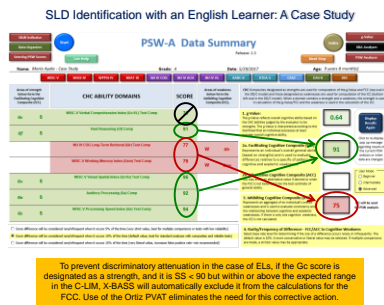
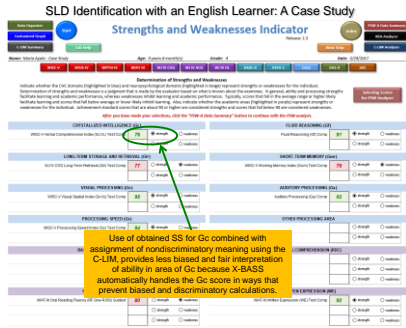
Use of individual achievement subtests rather than composites helps provide clarity and specificity regarding relationship between cognitive and academic weaknesses when conducting PSW Analysis.

Selected scores appear in yellow and a maximum of 3 academic scores can be selected including any combination of test composites, XBA composites, or subtest scores.

SLD Identification with an English Learner: A Case Study

[illegible]

Strengths and weaknesses **MUST** be designated by the user. X-BASS does **NOT** make this determination as the meaning of any given score requires more information than just its magnitude.



Multilingual Assessment of ELs: Step by Step

Step 1. Test first in English (L2) and evaluate construct validity in all areas in English (exclusion of cultural/linguistic factors)

- If all scores indicate normative strengths (SS \approx 90 or higher) when tested in English (L2), scores are valid to the extent that a disability is not likely, thus no further testing is necessary.
- If some scores are normative weaknesses (SS $<$ 90) evaluate test score validity in a research-based manner, e.g., via the C-LIM.
- If C-LIM indicates primary influence of language/culture, test scores are likely invalid and indicate average ability in all areas and a disability is not likely, thus no further testing is necessary.
- If C-LIM indicates contributory or minimal influence of language/culture, test scores are likely to be valid and the evaluation should continue.

Step 2. Re-evaluate areas of weakness in native language (L2) to provide additional supporting evidence of validity (cross-linguistic confirmation)

- If data indicate an area is a strength (i.e., average), then original L2 score is invalid, use the L1 score.
- If data indicate an area is still a weakness, then original L2 score is valid, use the L2 score.

Step 3. Further cross-validate L1 and L2 test scores with contextual factors and pre-referral data and academic concerns (ecological validity for disability)

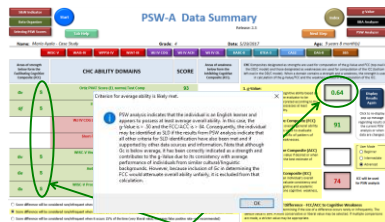
- Use all other case data and information to serve as the context by which to evaluate the test scores and ensure ecological validity to conclusions

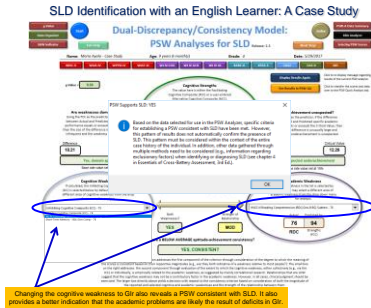
SLD Identification with an English Learner: A Case Study

- 1: Enter all available subtest scores in C-UM Analyzer to determine validity
- 2: When likely/possibly valid, transfer data and enter remaining composite scores
- 3: Use XBA to conduct follow up testing where indicated and as necessary
- 4: Enter follow up tests and re-evaluate pattern with C-LIM Summary
- 5: If still likely/possibly valid, evaluate follow up testing results via XBA Analyzer
- 6: Transfer cohesive composites (and academic subtests) to Data Organizer
- 7: Identify deficits for native language re-evaluation and compare to original scores
- 8: Select best scores for PSW Analysis and designate each as strength or weakness
- 9: Evaluate scores and results from PSW-A Data Summary and PSW Analyzer
- 10: Use additional data and information to support interpretations and conclusions

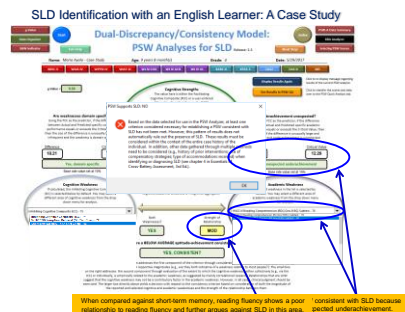
Procedures for Step 3

SLD Identification with an English Learner: A Case Study



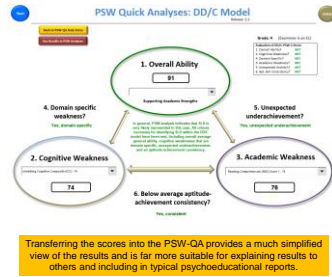


In this case, changing the cognitive weakness to Gam also results in a PSW consistent with SLD and provides additional information regarding the likely cause of the academic problems as having a basis, at least in part, to deficits in Gam.



When compared against short-term memory, reading fluency shows a poor relationship to reading fluency and further argues against SLD in this area, consistent with SLD because expected underachievement.

SLD Identification with an English Learner: A Case Study



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Procedures for Step 3

SLD Identification with an English Learner: A Case Study

The Importance of Converging Evidence in Establishing Validity

Validity is based on an accumulation of evidence. The evaluation approach described herein is designed to assist in generating test scores that may be interpreted as valid indicators of an individual's abilities. Embedded in the broader framework are two basic forms of evidence that bolster the validity of obtained test scores by using expectations of test performance that are grounded in research on individuals of comparable cultural and linguistic backgrounds and the extent to which their development differs from the individuals on whom the tests were normed. Validity is thus inferred by:

1. Test scores from evaluation in English that have been subjected to systematic analysis of the influence of cultural and linguistic variables where such factors have been found to be either minimal or contributory but not primary factors in test performance;
2. Test scores or qualitative data regarding evaluation of weak areas in the native language that either further confirm suspected areas of deficit as being true or dis-confirm suspected areas of deficit due to evidence of average or higher performance.

To these two forms of evidence, a third should be added to fully support conclusions and interpretation of the obtained test scores:

3. Ecological and contextual evidence regarding consistency of the test scores with ecological data and information on developmental influences (e.g., L1 and L2 exposure, language of instruction, socio-economic status, parental education level, etc.) and convergence of patterns of performance with other case data (e.g., progress monitoring data, pre-referral concerns, work samples, observations, school records, teacher/parent reports, grades, interviews, observations, etc.).

Only when all three forms of evidence are seen to converge can there be sufficient confidence in the use and interpretation of test scores obtained in an evaluation of English learners.

SLD Identification with an English Learner: A Case Study

Statement 2. Evaluations of Suspected Learning Disability - Valid Results

[illegible]

The statement above is the one most appropriate for this case where a) the evaluation focused on suspected SLD, and b) where it was determined that the obtained **test results were NOT influenced primarily by cultural and linguistic factors**, albeit they remained contributory. Thus, the test results (except for Gc) could be considered valid estimates of the abilities that were measured. In addition, native language testing was conducted to further support cognitive test score validity. This statement (and three others contained in X-BASS) have been placed in the public domain and may be freely copied, modified, and distributed for non-profit purposes without the need to secure permission.

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Simplified Validity Statement for **LIKELY** SLD and Determination of **VALID** Results

Because XXXX is not a native English speaker, it is necessary to establish the validity of test scores to ensure that they are true estimates of their ability and not the result of limited English proficiency.

XXXX's test data were entered into the Culture-Language Interpretive Matrix which permitted evaluation of the extent to which the scores were primarily affected by cultural or linguistic factors. A review of the pattern of test scores indicated that performance was not consistent with what would be expected of other individuals with similar cultural and linguistic backgrounds. This means that the scores may be interpreted as fair estimates of XXXX's abilities, with the exception of language which can only be determined to be an area of strength or weakness via comparison to other English learners which was accomplished by further use of the C-LIM.

The statement above is most appropriate for this case where a) the evaluation focused on suspected SLD; and b) where it was determined that the obtained test results were not influenced primarily by cultural and linguistic factors, albeit these factors may have remained contributory. Thus, the test results (except for Gc) could be considered valid estimates of the abilities that were measured. Native language testing should also have been conducted to further support cognitive test score validity. This statement has been placed in the public domain and may be freely copied, modified, and distributed for non-profit purposes without the need to secure permission.

SLD Identification with an English Learner: A Case Study

Simplified Validity Statement for UNLIKELY SLD and Determination of INVALID Results

Because XXXX is not a native English speaker, it is necessary to establish the validity of test scores to ensure that they are true estimates of their ability and not the result of limited English proficiency.

XXXX's test data were entered into the Culture-Language Interpretive Matrix which permitted evaluation of the extent to which the scores were primarily affected by cultural or linguistic factors. A review of the pattern of test scores indicated that performance was consistent with what would be expected of other individuals with similar cultural and linguistic backgrounds. This means that the scores cannot be interpreted as fair estimates of XXXX's abilities.

However, because the scores were compared to other individuals from research studies who were of average ability and who had not been identified as having a disability, it suggests that XXXX's performance is also average (possibly higher) and that it is not likely that a learning disability is present in this case. This means that although XXXX is having difficulties in the classroom, the problems are most likely to attributable to, and primarily the result of, the normal process of second language and acculturative knowledge acquisition.

Assessment and Related Resources

TESTS:

Ortiz Picture Vocabulary Acquisition Test (Ortiz PVAT)
<https://www.mhs.com/ortizpvat>

Ortiz PVAT Free 30-Day Trial and 2 Free Uses
<http://info.mhs.com/OrtizPVATFree>

BOOKS:

Ortiz, S. O., Flanagan, D. P. & Alfonso, V. C. (2015). *Cross-Battery Assessment Software System (X-BASS v2.0)*. New York: Wiley & Sons, Inc.

Ortiz, S. O., Flanagan, D. P. & Alfonso, V. C. (Winter 2019—coming soon). *Intervention Library: Finding interventions, resources and supports for students with learning difficulties (v. FIRST v1.0)*. New York: Wiley & Sons, Inc.

Flanagan, D. P., Ortiz, S.O. & Alfonso, V.C. (2013). *Essentials of Cross-Battery Assessment, Third Edition*. New York: Wiley & Sons, Inc.



ONLINE:

Competency-based XBA Certification Program
<https://www.schoolswaps.com/xba/>

CHC Cross-Battery Online
<http://www.crossbattery.com/>

Free C-UM Resources
<http://facpub.stjohns.edu/~ortiz/CUM/index.html>