

CLD Corner—Oh-My-Gs: A Speech-Language Pathologist’s Look into Specific Learning Disabilities Among Culturally and Linguistically Diverse Individuals



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Speech-language pathologists (SLPs) work in a variety of settings in which they have the opportunity to collaborate on interprofessional teams. Additionally, more than half of SLPs are employed in educational settings where they will need to familiarize themselves with unfamiliar terms and procedures (e.g., Individualized Education Plans, Full and Individual Evaluations, timelines, etc.; ASHA, 2019).

School-based SLPs may hear terms such as intellectual disabilities (ID) as well as specific learning disabilities (SLD), which may be diagnosed by a licensed specialist in school psychology (LSSP) or an educational diagnostician. These professionals will often use terms like cross-battery, XBA, X-BASS, cognitive abilities, C-LIM, crystallized intelligence, and, last but not least, the “G”s. This may become overwhelming for a school-based professional who is just starting their clinical fellowship (CF) year or who may be transitioning from a medical/private practice setting. So, what are these mysterious “G”s that educational diagnosticians and LSSPs always talk about, and how are the “G”s related to cross-battery and SLDs among culturally and linguistically diverse individuals?

Cross-Battery Assessment and Cognitive Abilities

Cross-battery assessment, also known as XBA, is one of the many assessment approaches used to diagnose SLD. XBA is a method for assessing cognitive and academic abilities as well as neuropsychological processes that are based on the Cattell-Horn-Carol theory (CHC; Kilroy & Mehta, 2017). It is through the CHC that cognitive abilities, also called Global or General abilities, emerge as the most recognized abilities of the model. Such cognitive abilities are classified as broad and narrow abilities (Flanagan & Dixon, 2014). Carroll (1993) defined broad abilities as “basic constitutional and longstanding characteristics of individuals that can govern or influence a great variety of behaviors in a given domain” (p.634). It is these broad abilities that most school-based SLPs have heard of and which diagnosticians and LSSPs refer to during an evaluation. There are a total of 16 broad abilities within CHC, and seven of the broad abilities are most relevant to SLPs: Fluid Reasoning (Gf), Crystallized Knowledge (Gc), Short-Term Memory (Gsm), Visual Processing (Gv), Auditory Processing (Ga), Long-Term Retrieval (Glr), and Processing Speed (Gs) (Kilroy & Mehta, 2017). The definitions of the aforementioned broad abilities are presented in Table 1.

Table 1. Definition of CHC Broad Abilities

Broad Abilities	Definition
Fluid Reasoning (Gf)	The ability to solve new problems without using previously learned information (Schneider & McGrew, 2012).
Crystallized Knowledge (Gc)	“The depth and breath and breadth of knowledge and skills that are valued by one’s culture” (Schneider & McGrew, 2012, p.122). Additionally, Kilroy and Mehta (2017) indicate language abilities (i.e., declarative, procedural, and cultural knowledge) are described by crystallized knowledge.
Short-Term Memory (Gsm)	The ability to immediately store and retrieve information within a few seconds, also known as working memory (Kilroy & Mehta, 2017).

Long-Term Retrieval (Glr)	The ability to store and retrieve information over periods of time (i.e., minutes, hours, days, years; Schneider & McGrew, 2012; Kilroy & Mehta, 2017).
Visual Processing (Gv)	The ability to analyze and synthesize visual stimuli in order to solve problems (i.e., manipulation of visual shapes; Schneider & McGrew, 2012; Kilroy & Mehta, 2017).
Auditory Processing (Ga)	The ability to detect and process nonverbal auditory information such as auditory sounds and acoustic signal patterns (Schneider & McGrew, 2012; Kilroy & Mehta, 2017).
Processing Speed (Gs)	"The ability to perform simple repetitive cognitive tasks quickly and fluently" (Schneider & McGrew, 2012, p.119).

Note: CHC broad abilities definitions were derived from Schneider and McGrew (2012) and Kilroy and Mehta (2017).

Broad abilities, like Gc, are composed by a multitude of narrow abilities of which more than 70 narrow abilities have been identified (Flanagan & Dixon, 2014; Kilroy & Mehta, 2017). Carrol (1993) specified narrow abilities "represent greater specialization of abilities, often in quite specific ways that reflect the effects of experience and learning, or the adoption of particular strategies of performance" (p.634). In the case of Gc, such broad ability consists of a total of six narrow abilities: General Verbal Information (K0), Language Development (LD), Lexical Knowledge (VL), Listening Ability (LS), Communication Ability (CM), and Grammatical Sensitivity (MY). According to Flanagan et al. (2013), many of the SLP's standardized assessments, like the *Clinical Evaluation of Language Fundamentals—Fifth Edition (CELF-5)*, may be used to calculate Gc as well as complete narrow ability testing for other broad abilities like Glr, Gsm, and Ga. This is why Kilroy and Mehta (2017) indicated Gc is the "SLP's territory!" Therefore, an SLP should be involved in planning for an SLD assessment along with the LSSP or educational diagnostician in order to increase efficiency during a multidisciplinary SLD evaluation.

SLD Evaluations Among Culturally and Linguistically Diverse Individuals

Evaluating an individual from a culturally and linguistically diverse (CLD) background requires much consideration in order to make a determination for SLD eligibility criteria. Criselda Alvarado (2011) stated, "[An] evaluation professional must have some basic fundamental knowledge regarding students who are culturally and linguistically diverse in order to understand the referral, determine the appropriate language and form of testing, select adequate tests, interpret the results in light of other information, and participate effectively in the decision-making process for the student." Similar to SLPs, as previously reviewed in the [October 2019 CLD Corner article](#) of the *Communicologist*, an evaluator should take into consideration the different types of education services rendered to CLD populations (i.e., dual-language programs, English as a Second Language [ESL], etc.), typical second language acquisition (e.g., [translanguaging](#), native language loss, etc.), and the impact of low socioeconomic status on language learning as it relates to testing for SLDs. Additionally, the evaluator should consider oral language proficiency both in English and in the individual's native language during the planning of an assessment (Ibarra & Hughes, 2019) as well as understand that,

in some contexts, a child may demonstrate mixed dominance as related to their educational and linguistic experience.

The need to establish the validity of test scores also arises when evaluators are required to take into consideration the aforementioned information when planning an SLD assessment. Flanagan et al. (2013) indicated the question of difference versus disorder, which represents validity concerns because the evaluator needs to determine if different factors can significantly affect test performance. Failure to establish validity of test scores will make the evaluation indefensible, inequitable, or discriminatory at worst. Flanagan et al. (2013) developed the Culture-Language Test Classifications (C-LTC) and the Culture-Language Interpretive Matrix (C-LIM) within the Cross-Battery Assessment in order to mitigate concerns over test validity. However, it should be noted that both the C-LTC and C-LIM are not tied to any particular approach (e.g., XBA), for "its application involves investigation of threats to validity that emanate from cultural and linguistic variables and not a given set of principles or theoretical framework" (p.311).

The C-LTC was developed as a guide to identify batteries/assessments that would yield the most valid results when measuring the full range of cognitive abilities of the CHC model. The classification system attempts to identify assessments with the lowest levels of cultural load and linguistic demand with the idea that such assessments would be the best choices for a CLD evaluation and would generate valid scores. Additionally, the C-LTC's development allows for tests that are high in cultural loading and linguistic demand, yet the evaluator is advised to interpret scores with caution because test scores may be low for CLD populations (Flanagan et al., 2013). Therefore, the C-LTC follows the idea that an individual will score closer to the mean with tests of low cultural load and linguistic demand; however, a decline in performance is expected as cultural load and linguistic demand increases.

The C-LIM, a software program within the XBA, evolved afterwards as a way to provide an evidence-based method for examining and establishing test score validity, all while aiding practitioners in answering the question of difference versus disorder. The C-LIM follows the same principle as the C-LTC by plotting a test's standard scores and organizing such data from least cultural load and linguistic demand to most cultural load and linguistic demand. If a negative slope is established within the graph, the plotted information may be interpreted to possibly be influenced by linguistic and cultural variables, and such data may not be representative of a disorder (Flanagan et al., 2013). The evaluator may proceed to make a determination for SLD after establishing the collected data is not influenced by cultural and linguistic variables.

Putting XBA into Practice

In order to further understand an SLD evaluation process using XBA, the first author interviewed three bilingual educational diagnosticians from the Grand Prairie Independent School District (i.e., Carmen De La Garza, MEd; Junida Howard, MS; and Mayra Morales-Valdez, MEd, MA). According to the information provided during the interview, school districts use different approaches when determining eligibility criteria for SLD (e.g., Pattern of Strengths and Weaknesses Model or Response to Intervention Model). If the evaluator chooses the Pattern of Strengths and Weaknesses Model, a formal assessment is required to determine an individual's cognitive processing abilities (i.e., the Gs) while using XBA or other similar methods. During the assessment process, XBA allows evaluators to analyze data and determine if an individual's cognitive abilities have a pattern of strengths and weaknesses. De La Garza said, "An individual with SLD usually presents with three to four strengths and two to three weaknesses related to cognitive abilities." Furthermore, Morales-Valdez specified suspected weaknesses have to align with their respective cognitive abilities; therefore, "someone who is being evaluated for basic reading difficulties would expect G_a , the ability tied to phonics, to be lower than G_f , which is related more to critical thinking and mathematical abilities."

Howard and De La Garza reported standard scores of 90 or higher may be considered as strengths for a student, and standard scores below an 85 are considered to be a weakness. Standard scores

between 85 and 89 are a gray area because such scores are considered to be on the lower end of average. As a result, an evaluator must use professional expertise in order to determine if a score within this area is a strength or a weakness. Nevertheless, all three educational diagnosticians indicated a student without a pattern of strengths and weaknesses may not meet eligibility criteria for SLD under the Pattern of Strengths and Weaknesses Model.

The evaluators also are required to assess the student's academic achievement abilities, which must align with the child's overall pattern of strengths and weaknesses. In addition, Morales indicated evaluators must consider the student's profile, especially if the student is bilingual. Evaluators always have to rule out any cultural and linguistic variables that might impact a student's academic performance (e.g., classroom setting, ESL, classroom accommodations, length of time instruction has been provided for each language, etc.). The aforementioned cultural and linguistic variables also should be considered when interpreting a student's cognitive abilities. Howard and De La Garza consistently use the C-LIM to aid in the interpretation of data for CLD populations. De La Garza said, "In a good SLD referral, you rarely get the C-LIM's negative slope, and I only get such slope once every year or every other year." Additionally, the educational diagnosticians recommended the C-LIM to be used for every bilingual individual as best practice when considering eligibility criteria for SLD.

Educational diagnosticians and LSSPs take into consideration multiple sources of information when conducting SLD evaluations for individuals from CLD backgrounds. SLPs should take into consideration cultural loading and linguistic demand during any CLD evaluation, especially when selecting standardized assessments for an evaluation. Additionally, SLPs should plan and collaborate in the collection and interpretation of data with educational diagnosticians and/or LSSPs when conducting multidisciplinary assessments. An SLP's basic understanding of the different cognitive abilities, the way they are tested, and their interpretation also may aid the SLP in being a more proactive member of the multidisciplinary assessment team, especially for individuals from CLD backgrounds with suspected SLDs. In turn, the results of an SLD evaluation may inform eligibility and goals for students who may benefit from the SLP's services.

Resources

XBA for SLPs: <http://www.livebinders.com/play/play?id=1401009>

For intervention strategies based on the Gs, please follow these instructions:

1. Click on the link for XBA for SLPs.
2. Click on *3rd Edition Tools* tab at the top of the web page.
3. Click on *Rapid Reference 3.8* tab, below the *3rd Edition Tools* tab.

The Cattell-Horn-Carroll Model of Intelligence

https://www.researchgate.net/publication/270585122_The_Cattell-Horn-Carroll_model_of_intelligence

The Human Cognitive Abilities: A Survey of Factor Analytic Studies

https://books.google.com/books?hl=en&lr=&id=jp9dt4_0_cIC&oi=fnd&pg=PR5&ots=dCEXScMqS2&sig=EHxzv5dS0MtDTwrKkX7MWZlepm0#v=onepage&q&f=false

Book: *Essentials of Cross-Battery Assessment, 3rd Edition*

References

Alvarado, C. (2011). Best practices in the special education evaluation of students who are culturally and linguistically diverse. Pearland, TX: Education & Evaluation Consultants.

American Speech-Language-Hearing Association. (2019). *Highlights and Trends: Member and Affiliate Counts, Year-End 2018*. <https://www.asha.org/uploadedFiles/2018-Member-Counts.pdf>

Carroll, J. B. (1993). *Human cognitive abilities: a survey of factor-analytic studies*. Cambridge: Cambridge Univ. Press.

Flanagan, D. P., & Dixon, S. G. (2014, January 22). Wiley Online Library. *Wiley Online Library*. <https://onlinelibrary.wiley.com/doi/full/10.1002/9781118660584.e5e0431>

Flanagan, D. P., Ortiz, S. O., & Alfonso, V. C. (2013). *Essentials of Cross-Battery Assessment*(3rd ed.). Hoboken, NJ: Wiley.

Ibarra, D., & Hughes, A. (2019, September). The Other View: Multicultural Evaluations Among Other Professionals. *Communicologist*. <https://www.txsha.org/blog/cld-corner-the-other-view-multicultural-evaluations-among-other-professions>

Kilroy, K., & Mehta J. (2017). XBA Then and Now, 3rdEdition [PowerPoint slides]. <http://www.livebinders.com/play/play?id=1401009>

Schneider, W. J., & McGrew, K. S. (2012). The Cattell-Horn-Carroll Model of Intelligence. In D. P. Flanagan, & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (3rd ed., pp. 99– 144). New York, NY: Guilford Press.

*The CLD Corner was created in an effort to provide information and respond to questions on cultural and linguistic diversity (CLD). Questions are answered by members of the TSHA Committee on Cultural and Linguistic Diversity. Members for the 2019-2020 year include **Andrea Hughes**, MS, CCC-SLP (co-chair); **Irmgard R. Payne**, MS, CCC-SLP (co-chair); **Mary Bauman-Forkner**, MS, CCC-SLP; **Isabel Garcia-Fullana**, MA, CCC-SLP; **Daniel Ibarra**, MS, CCC-SLP; **Amy Leal Truong**, BS (graduate student member); **Mirza J. Lugo-Neris**, PhD, CCC-SLP; **Maria Resendiz**, PhD, CCC-SLP; **Diana Vega Torres**, BS (graduate student member); **Chaya Woolcock**, MS, CCC-SLP; and **Adanna Burrell**, MS, CCC-SLP. Please submit your questions to TSHACL D@gmail.com and look for responses from the CLD Committee on TSHA's website and in the Communicologist.*
