Author: Goh, Poh Yee

Title: *Cognitive Assessment of Culturally and Linguistically Diverse Children*

The accompanying research report is submitted to the University of Wisconsin-Stout, Graduate School in partial completion of the requirements for the

Graduate Degree/ Major: MS School Psychology

Research Advisor: Christine R. Peterson, Ph.D.

Submission Term/Year: Fall, 2013

Number of Pages: 45


☐ I understand that this research report must be officially approved by the Graduate School and that an electronic copy of the approved version will be made available through the University Library website

☐ I attest that the research report is my original work (that any copyrightable materials have been used with the permission of the original authors), and as such, it is automatically protected by the laws, rules, and regulations of the U.S. Copyright Office.

☐ My research advisor has approved the content and quality of this paper.

STUDENT:

NAME Poh Yee Goh DATE: 12/18/2013

ADVISOR: (Committee Chair if MS Plan A or EdS Thesis or Field Project/Problem):

NAME Christine Peterson DATE: 12/18/2013

-------------------------------------------------------------------------------------------------------------------

This section to be completed by the Graduate School

This final research report has been approved by the Graduate School.

Director, Office of Graduate Studies:

DATE:
Goh, Poh Yee. *Cognitive Assessment of Culturally and Linguistically Diverse Children*

**Abstract**

This paper literature review and critical analysis examines the issue of cognitive assessment of culturally and linguistically diverse (CLD) children. Cognitive assessment can be complicated when assessing students who are culturally and linguistically diverse. The change in demographics of the United States schools over the past decades has brought many concerns and debates to current assessment practice. Some of the current challenges faced in schools are addressed, including disproportionate number of students into special education, lack of bilingual school psychologists, and lack of training among school psychologists. Given all these possible barriers faced in schools, school psychologists encounter with the heightened challenge of developing best practice of culturally competent assessments. Several legal cases and ethical standards are addressed that suggest school psychologists should always be responsible in conducting nondiscriminatory assessment to CLD individuals. Suggested best practices are also discussed including the CHC cross-battery assessment, nonverbal assessment, and testing in CLD student’s native language. Future directions and recommendations for school psychologists are also addressed.
Acknowledgements

First, I would like to thank my thesis advisor, Dr. Christine Peterson, for her help and guidance throughout my writing process. Thank you for all the time and effort you contributed in helping me to complete my thesis. The comments and feedback you provided were truly appreciated and valued. Second, I would like to thank all the school psychology professors at the University of Wisconsin-Stout for their energy, encouragement, guidance and support throughout my Masters program. Third, I would like to thank my parents and family who live in Malaysia, for supporting me throughout my studies. Although I could not see them often, I would like to tell them that I am grateful to have them in my life. Additionally, I would also like to thank my boyfriend, Sun Yong, for his love and support. Without his care and support, I do not think I would have made through my graduate studies in the United States. Lastly, I would like to thank all of my friends who have listened to me talk about intelligence testing, culturally and linguistically diverse children, and current best practices during my thesis. Thank you for being supportive and encourage me throughout my Masters degree.
Table of Contents

Abstract ........................................................................................................................................... 2

Chapter I: Introduction .................................................................................................................... 6
  Statement of the Problem .................................................................................................. 10
  Purpose of the Study ......................................................................................................... 11
  Research Questions ........................................................................................................... 11
  Definition of Terms ........................................................................................................... 11
  Assumptions and Limitations ........................................................................................... 13

Chapter II: Literature Review ....................................................................................................... 14
  Origin and Purposes of Cognitive Assessment .................................................................. 14
  Changing Demographics in the U.S. Schools .................................................................... 17
  Current Problems and Challenges Faced in Schools ......................................................... 20
    Disproportionate representation of CLD students in special education.............. 20
    Lack of bilingual school psychologists ................................................................. 22
    Lack of training ..................................................................................................... 23
  Legal and Ethical Considerations in Assessment ............................................................. 24
  Best Practices in Conducting Culturally Sensitive Assessment ....................................... 28

Chapter III: Summary, Critical Analysis, and Recommendations ................................................ 33
  Summary ........................................................................................................................... 33
  Critical Analysis ............................................................................................................. 36
  Recommendations ........................................................................................................... 36
    Recommendation for practice ............................................................................... 36
    Recommendation for research ............................................................................... 37
References ......................................................................................................................................39
Chapter I: Introduction

The term “Assessment” has become inextricably linked to education in the United States, over the course of the last twenty years. From No Child Left Behind to IDEA, assessment has taken on an increasingly prominent role in understanding effective instruction and learning in the United States schools. School personnel generally use assessment in decision-making about students and to monitor progress in the classroom, when compared to peers, as well as national norms. Cognitive assessment in particular, has long been an important tool for school psychologists to assess student ability to perform in school, and to guide decisions about special services or supports they may need to succeed (Salvia, Ysseldyke & Bolt, 2007). It can be used to distinguish students with superior intellectual ability and students with intellectual deficit (Sattler, 1982, as cited in Suen & French, 2003).

Cognitive assessment is widely used by school psychologists in school settings for several reasons. The primary purpose of cognitive assessment is to make eligibility, exceptionality, and educational decisions about individuals (Salvia et al., 2007). It is important to include assessment data in the process of report writing and eligibility decision for special educational services based upon individual’s intellectual evaluation. Stanford Binet was the beginning era of standardized cognitive assessment and it still remains a popular instrument for cognitive assessment, which has several versions of different languages and was available worldwide (Wasserman & Tulsky, 2005). Therefore, there are increased cognitive assessments to be utilized in order to assess culturally and linguistically diverse (CLD) students as well.

The role and function of cognitive assessment takes on a new dimension as the diversity of our U.S. school population evolves and changes over time. The culturally and linguistically diverse (CLD) student population is growing at a quicker rate than general student population in
the United States. English language learners represented 14.3% of the K-12 school population in the United States in year 2010-2011, and continue to increase (National Clearinghouse for English Language Acquisition, 2011). As the number of culturally and linguistically diverse (CLD) students in the United States increases, school psychologists face with the heightened challenges of assessing CLD students’ true ability by administering cognitive assessment. School psychologists need to ensure that CLD students are assessed with fidelity and evaluated fairly before making such important decision.

The challenge for school psychologists lies in the recognition that a number of cognitive assessments may not appropriately and fairly measure culturally and linguistically diverse (CLD) students’ intellectual ability (Rhodes, Ochoa, & Ortiz, 2005). It is critical to choose an appropriate assessment for CLD students due to language barrier and cultural difference they are experiencing. The assessments used to assess CLD students must develop measures that are psychometric sound that assess students’ true cognitive ability instead of their language and/or cultural knowledge, which in turn bring negative relationship to test performance. CLD students may be preoccupied with the concern of linguistic demand and cultural loading that are required in a cognitive assessment, so they are more likely to have trouble in learning (Rhodes et al., 2005). School drop out rates are generally high in diverse populations. Hence, overrepresentation of CLD students in special education can be found across the United States.

Because of the challenge to competently assessing culturally and linguistically diverse (CLD) students, many mistakes have been made on CLD students in special education placement. It is one of the major issues when comes to assessing CLD students. Disproportionate representation of CLD students in special education consists of overrepresentation and underrepresentation. Disproportionate representation of CLD students in special education is due
to the norm comparison of standardized cognitive assessment was not based on CLD students (Ortiz & Dynda, 2005). The Wechsler series of assessments is one of the examples of a test publisher that did not utilize specific norms for CLD students. When the performance of the individual is not compared to similar groups of students, the assessment data is not valid to represent student’s ability, thus limiting it’s utility for valid decision making. Comparing apples to oranges does not provide valid reasoning. In addition, other potential limiters in the use of cognitive assessments that are not properly normed on CLD populations, and that lead to disproportionate CLD students in special education, arise from a failure to understand linguistic demands and cultural loading embedded in a cognitive assessment.

Inability to acknowledge cultural and linguistic influences can lead to bias in testing CLD students. Inherent to the idea of “fair assessment” is that standardized test content represents the culture that an individual has developed the knowledge or learned those skills from, or at least is free from bias (Ortiz & Dynda, 2005). Fair assessment using cognitive tests should result in an accurate representation of an individual’s general ability. School psychologist must understand the test construction and measurement of an assessment, regardless of cultural and/or linguistic background of diverse population. Individual’s language proficiency and literacy background are other factors that may create test bias. Test bias is not generated by the cultural and linguistic difference; however, the difference between individual’s experience to the tests’ underlying cultural content in comparison to others same-aged peers, which lead to invalid assessment results (Ortiz & Dynda, 2005). Disproportionate representation of CLD students in special education continues to exist, and therefore school psychologist should be cautious in making eligibility decision (Rhodes et al., 2005). Due to the complexity of culturally competent
assessment for CLD students, it is beneficial to refer to a series of ethical codes that are extensively applied to school psychologists in a school setting.

The legal and ethical requirements for the assessment of culturally and linguistically diverse (CLD) students reflect the ideal principles and standards set by experts, rather than the principles set by society. The American Psychological Association (APA), National Association of School Psychologists (NASP), American Educational Research Association (AERA) and National Council on Measurement in Education (NCME) all provide guidance and on the topic of ethical assessment practices. These other principles for professional ethics serve as valuable guides for school psychologists in practicing culturally competent assessment. The Individuals with Disabilities Act (IDEA) demands nondiscriminatory assessment and intervention to all students in school (Rhodes et al., 2005). The availability of ethical guidance provided for school psychologists does not imply that it is easy to practice culturally competent assessment. Although standards for professional ethics provide guidance, cognitive assessment of CLD students remains challenging and complex.

There are several factors that influence nondiscriminatory assessment. A shortage of bilingual school psychologist to provide services to culturally and linguistically diverse (CLD) children limits the number of examiners available to provide assessment in a student’s first language (Ochoa, Riccio, Jimenez, Alba, & Sines, 2004). The number of CLD students is growing at a faster rate than bilingual school psychologists are entering the field, so it remains a concern. Families from CLD background have limited access to services and information due to language barriers and lack of bilingual school psychologists (Rogers, 2005). Because of this, use of an interpreter is a relatively common practice in school setting for families from CLD backgrounds (Ochoa, 2003). However, there is a higher risk of invalid assessment and
School psychologists are trained to conduct a variety of assessment and practices for assessing culturally and linguistically diverse (CLD) students. Nearly all of the current available cognitive assessments are primarily focus on White American population and neglect the needs of CLD populations (Valencia & Suzuki, 2001). Currently, there are several assessments specifically design for special population. Nonverbal assessment is widely used by many school psychologists as a current practice to CLD children (Bainter & Tollefson, 2003). Also, early research in a process known as cross-battery assessment shows promise as a strategy for conducting culturally competent assessment (Flanagan & Ortiz, 2001).

**Statement of the Problem**

As the number of culturally and linguistically diverse (CLD) students in the United States continues to increase, school psychologists are faced with the heightened challenge in providing culturally competent assessment. Currently standardized cognitive assessments may be inadequate for assessing CLD populations due to cultural loading and linguistic demand. Furthermore, not all school psychologists have continuous training and professional development in assessing CLD populations. School psychologists need to ensure that all students, including those that are culturally and linguistically diverse, are assessed fairly and accurately before making decisions about their educational programming. This literature review will identify best practices that are recommended in conducting culturally sensitive assessment.
Purpose of the Study

The purpose of this literature review is to examine possible barriers and challenges school psychologists faced in conducting nondiscriminatory assessment of CLD students in the United States. In addition, best practices to assessing CLD students will be examined.

Research Questions

The following questions will be addressed in this literature review.

1. What is the origin and purpose of cognitive assessment/intelligence testing?
2. How are ethnic and linguistic demographics changing in the United States schools?
3. What factors influence disproportionate representation of CLD students in special education?
4. What are the current barriers and challenges school psychologists faced in conducting culturally sensitive assessments?
5. What legal and ethical standards guide school psychologists in providing culturally sensitive assessments?
6. What are the best practices in conducting culturally sensitive assessments?

Definition of Terms

The following terms have been defined and will be used in order to understand this literature review. They are:

Cognitive assessment. An examination and evaluation to determine one’s level of cognitive ability, which creates a global intelligence quotient (IQ). The terms intellectual assessment and intelligence testing will be used interchangeably.
Intelligence. Collection of abilities in judgment, fundamental mental developments, higher-order thinking, reasoning and problem solving, and the ability to adapt to environment (Sattler, 2008).

Culturally and linguistically diverse (CLD). “Students from racial/ethnic minority groups and linguistic minority groups” (Sullivan, 2011, p. 317). This includes students who speak native languages other than English, and English language learners that have not achieved English proficiency (Sullivan, 2011).

Cultural loading. “Items that make use of scholastic types of knowledge or skills (e.g., reading or arithmetic) or items in which the fundamentals consist of artifacts peculiar to a period, locality, or culture are considered to be ‘cultural-loaded’” (Jensen, 1980, p.133, as cited in Valencia & Suzuki, 2001).

Linguistic demand. “The amount of linguistic facility required by a given test and is based on three factors: (1) verbal versus nonverbal language requirements; (2) receptive language requirements; and (3) expressive language requirements on the part of the examinee (Rhodes et al., 2005).

Overrepresentation. Disproportionately large numbers representation of minority students compared to the general population of students.

Underrepresentation. Disproportionately small numbers representation of minority students compared to the general population of students.

Test bias. When the same test evaluates different elements for different group of people (Valencia & Suzuki, 2001).
Assumptions and Limitations

It is assumed that there is current and available research pertaining to all of the research questions listed as above, and that all available search engines will be utilized to identify published research related to the topic. It is also assumed that the published research provided reliable psychometric strengths to support the study.

This literature review is the limited to research published on examining nondiscriminatory assessments due to the rapid change in demographics. In summary, this study will review current research related to cognitive assessment of CLD children. The thesis will give the readers a better understanding of conducting a culturally competent assessment in making decision.
Chapter II: Literature Review

This chapter will include the following topics relating to cognitive assessments on CLD children: 1) origins and purposes of cognitive assessment, 2) changing demographics in the U.S. schools, 3) current problems and challenges faced in schools, 4) legal and ethical considerations in assessment, and 5) best practice in conducting culturally sensitive assessment.

Origin and Purposes of Cognitive Assessment

Cognitive assessment is also known as psychological testing, intellectual assessment, and intelligence testing. Cognitive assessment is widely used among school psychologists in making important decisions about individual students, related to services and supports to ensure learning, including eligibility for special education. The relationship between the brain and intelligence dates to 400 BCE by Hippocrates, Plato, and Aristotle, who were Greek physician and philosophers (Sattler, 2008), though much of scientific investigation on the topic began with the study of contemporary psychology and mental processes, developed later in the 19th century. Francis Galton established the concept of intelligence tests, and his statistical concept assisted researchers to examine intelligence by using test scores (Valencia & Suzuki, 2001; Sattler, 2008). Although Galton’s concept psychological testing was a success, he misidentified that intelligence can be distinguished by sensory acuity (Wasserman & Tulsky, 2005).

Notwithstanding the psychological testing developed by Galton in Europe, the development of modern cognitive assessment was began by French psychologist, Alfred Binet, who is considered the father of cognitive and intellectual assessment (Wasserman & Tulsky, 2005). The first available psychometrically sound intelligence test was the Binet-Simon scale, developed by Alfred Binet and Theodore Simon to access the intelligence of school children in 1905 (Wasserman & Tulsky, 2005; Sattler, 2008). The Binet-Simon scale helped to distinguish
children with mental delay from average children in schools (Sattler, 1982, as cited in Suen & French, 2003). The 1905 Binet-Simon scale comprised of 30 age-based items, and these test items were arranged based on degree of difficulty, and supplemented with detailed administration procedures (Wasserman & Tulsky, 2005, Sattler, 2008). Henry Goddard translated the scale from French into English in 1909 and he also believed that intelligence testing measured innate ability (Sattler, 2008).

The Binet-Simon scale grew in popularity when a modified American standardized norm revision was available in the United States. It is “called the Stanford Revision and Extension of the Binet-Simon Scale, or the Stanford-Binet”, which was critical in the field of psychological testing (Sattler, 2008, p. 219). The Stanford-Binet was the prominent psychological testing tool for intellectual assessment due to availability of multiple language versions and its availability internationally (Wasserman & Tulsky, 2005). Although Stanford-Binet intelligence testing was common during the beginning of 20th century, the use of psychological testing grew rapidly during World War 1 (Wasserman & Tulsky, 2005). Robert M. Yerkes and some psychologists collaborated and developed Army Alpha (verbal test) and Army Beta (nonverbal test) for the purpose of classifying the armies into jobs that coordinated to their abilities (Scroggins, Thomas, & Morris, 2008). Psychological testing continued to expand from military use, into schools and workplaces (Wasserman & Tulsky, 2005). The developers of Army mental tests led the movement of psychological testing and became the foundation of modern test batteries (Wasserman & Tulsky, 2005).

The Wechsler-Bellevue Intelligence Scale, Form I was published by David Wechsler in 1939, and most of the subtests were originally developed from Army mental tests (Boake, 2002). The Wechsler-Bellevue Intelligence Scale was soon become popular and extensively used than
the Stanford-Binet (Boake, 2005). Wechsler continually published Wechsler Intelligence Scale for Children (WISC), the Wechsler Adult Intelligence Scale (WAIS; Wechsler Adult Intelligence Scale (WAIS), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Wasserman & Tulsky, 2005). Wechsler tests’ primary focus was on the “global nature of intelligence or general mental ability” (Sattler, 2008). There is extensive data implying that Wechsler’s intelligence tests continue to dominate the world of intellectual assessments among school psychologists today (Archer & Maruish, 1991; Camara, Nathan, & Puente, 2000; Wilson & Reschly, 1996). According to Watkins and Smith (2013), WISC-IV scores should not be assumed to have long-term consistency and stability; therefore, practitioners should be cautious on using previous WISC-IV scores for special education eligibility.

Intelligence tests are simply measures samples of behavior (Salvia et al., 2007). The full scale IQ is not equivalent to one’s total capability for cognitive abilities (Kaufman & Lichtenberger, 2006). Various types of sampled behaviors measured in cognitive assessment depend on test creator's notion of intelligence (Salvia et al., 2007). Valencia and Suzuki (2001) noted that intelligence tests were used for curriculum differentiation during past time. Intelligence tests, like Wechsler Scales functioned as classification instrument to distinguish individuals based on their intellectual abilities (Flanagan, McGrew, & Ortiz, 2000; Floyd, 2010).

School psychologists spent great amount of time performing cognitive assessments for making decisions (Camara et al., 2000; Wilson & Reschly, 1996). Cognitive assessments are usually employed in schools for the purpose of making diagnostic decision on special education eligibility and educational placement decisions by evaluating mental retardation, academic failure, giftedness, and learning disabilities (Gottfredson & Saklofske, 2009; Salvia et al., 2007; Vazquez-Nuttall et al., 2007). Diagnosis of learning disabilities involves intelligence and
achievement tests, depends on states (Kaufman & Lichtenberger, 2006). As response to intervention (RTI) model started, IDEA no longer required student to display severe significant discrepancy between cognitive assessment and achievement in order to qualify for learning disability and receive special education services (Klotz & Canter, 2006). However, cognitive assessment remains as a vital resource for making other eligibility decision.

As the nature of the diversity population being served in the United States has expanded rapidly, assessment of CLD students increase noteworthy concerns (Vazquez-Nuttall et al., 2007). It is questionable on test reliability and validity of norm-referenced cognitive assessments when assessing CLD students due to inadequate representative norm group (Padilla & Borsato, 2008; Valencia & Suzuki, 2001). Furthermore, criterion-referenced assessment utilized standards that reflect the principles of dominant culture, such as language and knowledge in particular culture (Padilla & Borsato, 2008). Therefore, school psychologists face increased challenges in assessing CLD populations today.

**Changing Demographics in the U.S. Schools**

The most recently available U.S. Census Bureau data (2011) indicates that the United States nation is becoming more racially and ethnically diverse. Although the White population accounts for 75 percent of the overall population and remains the largest group in the United States, it is increasing at the slowest rate compared to other non-White groups (U.S. Census Bureau, 2011). The most significant population growth between year 2000 and 2010 was reported among Hispanics, with an increase of 43 percent to reach 50.5 million in the year 2010 (U.S. Census Bureau, 2011). Individuals identifying as Black or African American accounted for 12% of the overall population, and are expected to continue growing, but at a slower rate (U.S.
Census Bureau, 2011). Individuals identifying as Asian represent 3.6 percent of the total population and increased quicker than many other races (U.S. Census Bureau, 2011).

In addition to a growing diversity of ethnicity and race in the U.S., there are increasing numbers of individuals speaking more than one language other than English at home. There are more than 400 languages spoken by CLD students in the United States, (U.S. Department of Education, 2008). Approximately 20 percent of the total population (55 million out of 281 million individuals) aged 5 and over, spoke at least a language other than English at home (U.S. Census Bureau, 2010). The number of non-English speakers has grown in the United States for the past decades. Foreign-born individuals aged 5 and beyond in the United States who have limited English proficiency increased by 30.7 percent during year 2010-2011 period (Migration Policy Institute, 2013). There are 14.3% of English language learners of the population in the United States in year 2010-2011 (National Clearinghouse for English Language Acquisition, 2011). While there are many different languages spoken in the United States, the most frequent language spoken behind English is Spanish, representing approximately 62 percent of the total number of individuals who speak more than one language (U.S. Census Bureau, 2010). It followed by languages spoken by Asian and Pacific Islanders, such as Chinese, Vietnamese, and Japanese (Ochoa, 2003).

Hispanic and Asian populations are anticipated to triple in the coming years (U.S. Census Bureau, 2011). The Census Bureau estimates that the Hispanic population will become the majority population in the United States by 2050. Approximately 10 percent of the total number of students registered in public schools from pre-kindergarten to 12th grade was CLD student (Kindler, 2002). The statistics also indicated that the majority of CLD students are in elementary school. The CLD population has increased more than 100 percent since 1990-1991 and is
believed to be continually growing (Kindler, 2002). However, the general student population grew only 12 percent at the same time (Kindler, 2002). The CLD student population is growing at a quicker rate than general student population in the United States.

The CLD student population accounts more than 30 percent in California (42.6%), New Mexico (35.7%), Texas (33.9%) in year 2007 (U.S. Census Bureau, 2010). However, CLD student population constitutes less than 5 percent in following states: Alabama, Kentucky, Mississippi, Montana, and West Virginia (U.S. Census Bureau, 2010). Almost every state demonstrated growth in CLD student population and it has grown more than twice in 23 states (Rhodes et al., 2005). According to Rhodes and colleagues (2005), almost one in two schools has CLD pupils and there are two in five educators instructed CLD school-aged students during 1999-2000. Nevertheless, only 4 states require all educators to be licensed in working with CLD individuals (National Clearinghouse for English Language Acquisition, n.d.). Given the increasing numbers of CLD students, the number of licensed bilingual educator is limited.

The change in demographics of the United States over the past decades has brought many concerns and debates to current psychological assessment practice. Misidentification of CLD students into special education is one of the major concerns these days. Possible barriers faced in schools are overrepresentation of CLD students in receiving special education services and underrepresentation of CLD students in gifted education program. Misidentification of CLD students into special education may lead to inappropriate educational placement and inability to provide adequate learning experience for CLD students. Changing in demographics has pushed school psychologists to examine and discover approaches to provide effective services across cultures. This includes providing nondiscriminatory assessment and appropriate educational placement to CLD students. As the number of CLD students in the United States continues to
increase, school psychologists face with the heightened challenge of developing best practice of culturally competent assessments.

**Current Problems and Challenges Faced in Schools**

**Disproportionate representation of CLD students in special education.** As schools continue to serve more diverse populations, these students are disproportionately represented in special education. Disproportionate placement has been viewed as an ongoing national problem and continues to increase concern (Artiles & Trent, 1994; Rhodes et al., 2005; Sullivan, 2011). According to the U.S. Office of Civil Rights (OCR) surveys, African American students were disproportionally classified as having disabilities, such as mental retardation (Rhodes et al., 2005). Even today, African Americans remain one of the primary ethnic groups that are disproportionately identified as having disabilities (Sullivan, 2011). Although Hispanics were not disproportionately identified in special education nationally, there were disproportionately representation in several states, like Arizona, Colorado, New Mexico, and Texas (Rhodes et al., 2005). Past studies showed disproportionality commonly emphasized on “specific learning disabilities (SLD), mild mental retardation, emotional disabilities, and to a lesser extent, speech-language impairments” (Sullivan, 2011, p. 318).

Although overrepresentation of CLD students in special education is common, it is also important to recognize the existence of underrepresentation of CLD students in gifted education program. Asian American and White American students are overrepresented in gifted program in the national level of the United States, while Hispanic, American Indian, African American students are underrepresented in gifted program in most states (Yoon & Gentry, 2009). Ford (1998) pointed out several factors that may hinder enrollment of CLD students in gifted programs, which include the classification and standards approved by states and school districts,
psychometric strengths of instruments adopted, and the quality of CLD students’ educational involvement and experiences.

The definition, classification and eligibility criteria of special education varies by states. For example, some states use significant discrepancy model between cognitive functioning and academic achievement in order to qualify for learning disability (LD) category, and each state may have slightly different criteria to define significant discrepancy (Rhodes et al., 2005). The degree of discrepancy between two standard scores needed to qualify got LD varies by states too (Rhodes et al., 2005). In Minnesota, the significant discrepancy must be equal or greater than 1.75 standard deviations below the mean is required to quality for LD (Minnesota Department of Education, 2012), while in Wisconsin, student is only qualified when not responding to intensive intervention (Wisconsin Department of Public Instruction, n.d.). Therefore, students who qualify for special education in one state may not qualify in another state. Due to different definitions and criteria for each disability category, it is much challenging to identify factor that might lead to disproportionate representation of CLD students in special education and it would be difficult to compare state by state.

Not all cognitive assessment can be employed on CLD populations. There were norming and standardization limitation on the nature of most cognitive assessments. Intelligence tests developed in the U.S. reflect middle class White American standardized norms (Valencia & Suzuki, 2001). These tests may be inappropriate when used with CLD students since the tests consisted items that are cultural loading and linguistic demanding (Rhodes et al., 2005). Given the psychometric properties of assessment and inappropriate representation of norms samples of CLD individuals that characterized by many of these tests, it is crucial to consider each criterion and factor in conducting assessment on CLD populations. (Rhodes et al., 2005). In addition,
different educational involvement and experiences CLD students have gained influence individual’s performance on cognitive assessment. Prior to conducting cognitive assessment on CLD students, school psychologists are required to consider if the test items are loaded with cultural content and/or required high linguistic proficiency to understand directions and test items (Rhodes et al., 2005). Without understanding the instructions of assessment, the results of assessment are not valid and could not be interpreted fairly, and that may lead to disproportionate representation of CLD students into special education.

**Lack of bilingual school psychologists.** Apart from the disproportionate representation of CLD students in special education, there are numerous factors and reasons of disproportionate representation of CLD populations in receiving special education services. The increasing numbers of CLD populations place demands on bilingual school psychologist and well-trained school psychologists in assessing CLD students (Rogers, 2005). According to NASP membership study (2011), the ethnicity group breakdown of NASP changed from 93% Whites, and 7% non-Whites during the year 2004-2005 to 90.7% Whites, 3.4% Hispanics, 3% African American, 1.3% Asian or Pacific Islander, 1% others, and 0.6% Native American during the year 2009-2010. The data reflects only a little growth of minority representation of school psychologists over the 5 years. Given the slightly increase minority diversity in school psychologists, the growth of minority school psychologist still not surpassed by the number of CLD students served in school (Rogers, 2005).

Past research also indicated the use of bilingual school psychologist was always acceptable (Bainter & Tollefson, 2003). According to O’Bryon and Rogers (2010) study, bilingual school psychologists indicated having “above average” expertise on second-language acquisition, and utilizing language proficiency assessment results to distinguish between
academic difficulties due to second language acquisition problems and those due to learning disabilities. However, there is shortage of bilingual school psychologists as compared to the number of CLD students served in schools currently (Ochoa, 2003). Due to lack of bilingual school psychologist, the use of interpreters is predominantly prevalent in school practice (Ochoa, 2003). When involving interpreters in the process of assessing CLD students, school psychologists need to ensure they are trained and have a fundamental understanding of the assessment procedure (Ochoa, 2003). Using untrained interpreters may not only create errors of assessment results, but also affect the validity of assessment results (Ochoa, 2003).

**Lack of training.** Recent research continues to suggest that not many school psychologists are well prepared in assessing CLD students and interpreting the results of CLD populations. According to NASP Research Committee, approximately 70% of school psychologists believed their knowledge of cultural impact on bilingual psycho-educational assessment is inadequate (Ochoa, Rivera, & Ford, 1997). The majority of school psychologist who had experience in conducting assessment of CLD students reported they are not well-trained by graduate program to conduct nondiscriminatory assessment of CLD populations (Ochoa et al., 1997). Nearly 60% of school psychologists indicated, “they had received no or very little training on interpreting results of bilingual assessment” (Ochoa et al., 1997, p. 341). The inadequate training in assessment of CLD students brought the main concern.

Next, lack of knowledge on second language acquisition also lead to inaccurate cognitive assessment. Without having a clear understanding on how CLD students acquire a language different from their primary language provides higher probability of making inaccurate assumptions about students’ disability and making mistakes in conducting a valid assessment that measure individual’s true ability (Ochoa, 2003). These school psychologists may find it
challenging to distinguish CLD students with disabilities and CLD students who faced common problem related to second language acquisition (Ochoa, 2003).

Ochoa and colleagues (1997) found that only 8% of school psychologists believed their graduate schools provide fairly to extremely well adequate training on second language acquisition and its relationship to CLD assessment. The understanding of differences between basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP) are critical for school psychologists when assessing CLD children (Cummins, 1984, as cited in Ochoa, 2003). The number of CLD students referred to receiving special education services is decreased when school psychologists are well-trained and understand the impact of second language acquisition (Ortiz, 1990, as cited in Ochoa, 2003). Therefore, accurate and nondiscriminatory assessments of CLD students is crucial to ensure that CLD students are accessed to appropriate and suitable instructional programs that fit their individual needs and assessed in a fair and valid manner. Due to the concern of disproportionate representation of CLD students in special education, many legal and ethical considerations in assessment were discussed.

**Legal and Ethical Considerations in Assessment**

The most prominent legal issue regarding CLD populations is a consistent pattern of disproportionate representation of CLD students in special education (Oakland & Gallegos, 2005). Due to the difference of cultural and linguistic backgrounds, it is challenging to evaluate them fairly. Legal rights in testing exist mainly to safeguard individual rights to ensure that important decision are made on the basic appropriate assessment data (& Irvin, 2003). The Guidelines for Providers of Psychological Services to Ethnic, Linguistic, and Culturally Diverse Populations was published by American Psychological Association (APA, 1993) in order to
serve psychologists in understanding cultural and language influence on behavior while working with CLD population. Furthermore, the guidelines also consider the importance on validity of instrument and methods used for assessments while interpreting data (APA, 1993).

Assessment of CLD students requires a non-biased and fair approach. Even the most well trained professional may miss the important aspects in assessing CLD individuals. However, testing CLD students can be a complicated task as it is difficult to determine if such test is free of cultural bias. Test bias addresses the psychometric strength of the tool. In the past, many cases related to assessment of CLD children serve as a guide for current practices.

Hobson v. Hansen (1967, cited in Valencia & Suzuki, 2000) was one of the first legal cases to highlight the perils of using group-administered intelligence tests to place CLD students accordingly. In this case, a disproportionate number of black children placed in the special education were discovered (Sandoval & Irvin, 2003). Throughout the investigation, the court discovered that tests were generally standardized on white middle-class children, not African American students, thus the standardization could not be generalized to all (Sandoval & Irvin, 2003). When test was administered on students who are different from the majority of the norm group, the result must be interpreted with caution (Salvia et al., 2007). Most of the current available cognitive assessments are norm-referenced assessments, which compare test results to other same-aged peers. This can be a complicating issue when using different sources to make comparison. The notion of standardization led to the legal terms of test bias and validity concerns in using with CLD students (Sandoval & Irvin, 2003).

Following Hobson v. Hansen (1967) case, there were many cases related to inappropriate placement of CLD students in educable mentally retarded (EMR) classes (Valencia & Suzuki, 2000). Diana v. State Board of Education (1970) required assessment of dominant language or
utilize tests that do not need English knowledge (Rhodes et al., 2005). Guadalupe Organization v. Tempe Elementary School District No. 3 (1972) mandated the use of multiple sources of assessment in making decision and intelligence testing would never be the only methods for making conclusion (Rhodes et al., 2005). These two cases were popular consent decrees associated to disproportionate CLD students in special education (Rhodes et al., 2005).

Due to many cases regarding disproportionate of CLD students into special education program, equal protection must be acknowledged. According to Brown v. Board of Education (1954), separation of CLD students based on their ethnicity infringed the 14th Amendment of the U.S. Constitution (Rhodes et al., 2005). Discrimination is resulted when CLD students were given separate education from the majority group of students.

The Individuals with Disabilities Act (IDEA) is a federal law regarding equal protection for children with disabilities to receive free and appropriate education (FAPE) (Oakland & Gallegos, 2005). This law was named the Education for All Handicapped Children Act and enacted in 1975. IDEA demands nondiscriminatory assessment and intervention to all students in school. Therefore, IDEA regulation mandates states to protect against over-identification of CLD children to special education when deficits result from language deficiencies or other reasons (Oakland & Gallegos, 2005). PL 94-142 mandated to conduct nondiscriminatory assessment and assess students in their native language whenever it is feasible (Ochoa, 2003). Congress also required tests to be valid for the purpose of which they are employed (Salvia et al., 2007). By acknowledging and understanding these legal rights, school psychologist will be well prepared to provide appropriate assessment to CLD children within legal boundaries.

Other than legal mandates, school psychologists should be familiar with ethical standards relate to their professional and assessment practices as well. American Educational Research
Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME) (1999) developed the Standards for Educational and Psychological Testing have shaped educational guidelines and practices that relate to CLD students. The Standards provide school psychologists with valuable resources on selecting assessment tools and evaluation for CLD children (Rogers, 1998). In addition, the Standards also examined various views of fairness: “fairness as lack of bias, fairness as equitable treatment in the testing process, fairness in equality of outcomes of testing, and fairness as opportunity to learn” (Sandoval & Irvin, 2003, p. 63). Specifically, the AERA and colleagues (1999) of Standards for Educational and Psychological Testing includes:

9.1 Testing practice should be designed to reduce threats to reliability and validity of test score inferences that may arise from language difference (p. 97).

9.3 When testing an examinee proficient in two or more languages for which the test is available, the examinee's relative language proficiencies should be determined. The test generally should be administered in the test taker's most proficient language, unless proficiency in the less proficient language is part of the assessment (p. 98).

In addition, the Standards for Educational and Psychological Testing also includes the following guidelines in administering a test on CLD population:

9.7 When a test is translated from one language to another, the methods used in establishing the adequacy of the translation should be described, and empirical and logical evidence should be provided for score reliability and validity of the translated test’s score inferences for the uses in the linguistic groups to be tested (AERA et al., 1999, p. 99).

The two major codes of ethical conduct available for school psychologists involved in assessment of CLD children are American Psychological Association (APA) and National
Association of School Psychologists (NASP). The Standards 2.01 of APA’s (2002) Ethical Principles of Psychologists and Code of Conduct indicates that psychologists provide services only within their competence parameters, and attain required training to ensure their services are competent. Additionally, Standards 9.02 also mandates psychologists to utilize reliable and valid assessment tools that are sensitive to student’s first language (APA, 2002). Furthermore, school psychologist must be careful and take into consideration of culturally and linguistically factors while interpreting assessment results (APA, 2002).

Standard II.1.2 of the NASP’s Principles for Professional Ethics (2010) mandates explicitly that school psychologists obtain training and understand pupils’ diverse cultural and linguistic backgrounds in order to provide competent assessment otherwise make referral. In addition, school psychologists are required to conduct nondiscriminatory assessments by selecting, administering, and interpreting appropriate assessment tools and procedures (NASP, 2010).

These legal and professional ethical principles serve as valuable guides for school psychologists in practicing culturally competent assessment. It is crucial that school psychologists understand the legal and ethical guidelines to reduce possible harm and enhance value of cultural competent assessments. These ethical guidelines suggest that school psychologists should be responsible in pursuing continuous training to conduct culturally competent assessment with CLD populations (APA, 2002; NASP, 2010).

**Best Practices in Conducting Culturally Sensitive Assessment**

CLD children have unique learning and assessment needs. It is crucial for school practitioners to recognize the impact of culture, socioeconomic status, language, and acculturation to CLD population prior to administering cognitive assessment (Sattler, 2008). The
Multidimensional Assessment Model for Bilingual Individuals, also known as MAMBI was specifically intended to provide an integrative matrix to determine the best approach of assessment to evaluate bilingual individuals that would likely generate the most valid results (Ortiz & Ochoa, 2005). Three important variables are integrated by MAMBI, which include “current degree of language proficiency in both English and the native language, current and previous types of educational program(s), and current grade level (Ortiz & Ochoa, 2005, p. 236).

Besides that, another framework to guide culturally competent assessment to CLD population is the Cattell-Horn-Carroll (CHC) cross-battery approach (Flanagan & Ortiz, 2001). The CHC cross-battery assessment was developed to examine how school psychologists can conduct assessments that sufficiently provide global range of cognitive abilities (Flanagan et al., 2000). It allows practitioners to accurately assess a broader range or more in-depth with selective range of abilities than by a single intelligence test battery (Flanagan et al., 2000).

The CHC cross-battery assessment provides a comprehensive framework, which is an integration matrix aligned within a 3x3 table for cognitive assessment subtests to identify the best approach to assess CLD children (Vazquez-Nuttall et al., 2007). This matrix is categorized based on the degree of cultural loading and linguistic demand, which range from low, moderate to high (Vazquez-Nuttall et al., 2007). The ideal potential of cognitive assessment is to the lowest degree of cultural loading and linguistic demand in order to generate valid results of one’s cognitive ability (Vazquez-Nuttall et al., 2007). The cross battery matrix is able to guide practitioners to determine if cultural content and linguistic demands are embedded in any cognitive test battery, which can influence a CLD child’s cognitive performance (Rhodes et al., 2005). The CHC cross-battery approach utilizes a systematic approach to evaluate the influence
of cultural and linguistic factors on the validity of test performance, called the Culture-Language Interpretive Matrix (C-LIM) (Flanagan & Ortiz, 2001).

Other than that, nonverbal assessment is another approach that school psychologists use to assess CLD students. Past study found that the use of nonverbal assessments was considered in the sometimes or usually acceptable category among school psychologists (Bainter & Tollefson, 2003). Bainter and Tollefson (2003) also found out that the use of nonverbal tests that involved verbal directions without the presence of an interpreter were fall under the never or rarely acceptable practices among school psychologists. Nonverbal assessment is a preferable approach to assess CLD populations because it assists in reducing the effects of language and cultural content requirements in a given test, but it does not eliminate the potential bias entirely (Salvia et al., 2007). Some nonverbal assessments have English direction and some utilize completely nonverbal instructions and responses (Salvia et al., 2007). Administering nonverbal assessment that employs less oral language demands yields fewer biased results for CLD individuals (Rhodes et al., 2005).

Even though nonverbal assessment may be a better approach to administer to CLD individuals than verbal assessment that is administered in English, many limitations do still exist (Rhodes et al., 2005). First, nonverbal assessments generally do not provide an overall cognitive ability but they tend to measure a narrow range of cognition, such as receptive vocabulary (Ortiz & Dynda, 2005; Salvia et al., 2007). Furthermore, nonverbal assessment requires high level of receptive language skills in order to fully understand examiner’s directions and expectations although its test content has less linguistic demand (Rhodes et al., 2005). Nevertheless, testing continues to rely on effective nonverbal communication and understanding between examiner and examinee (Rhodes et al., 2005). Moreover, nonverbal assessment still has cultural
implications as other verbal assessments do (Ehrman, 1996, as cited in Rhodes et al., 2005). According to Rodriguez (2000), nonverbal assessment requires analytic reasoning abilities that are usually established through formal education; thereby children who have no or less formal education are less vulnerable to nonverbal measure.

Despite the fact that nonverbal assessments reduce linguistic demand, they continue to suffer from lacking norm sample representation (Ortiz & Dynda, 2005). According to Lopez (1997), numerous available nonverbal assessments do not include CLD population in their norm sample (as cited in Ochoa, 2003). There is no single assessment battery or approach fits all (Ortiz & Dynda, 2005). Some commonly used nonverbal assessments are Universal Nonverbal Intelligence Test (UNIT), the Leiter International Performance Scale- Revised (Leiter-R), Test of Nonverbal Intelligence -3 (TONI-3), Comprehensive Test of Nonverbal Intelligence (CTONI), Wechsler Nonverbal Scale of Ability (WNV), and the nonverbal components of the Standford-Binet, 5th Edition (SB-5). Some of these nonverbal assessments only measure a single aspect of intelligence, while some measure global cognitive ability. The UNIT is one of the most popular nonverbal assessments utilized by school psychologists (Fives & Flanagan, 2002). The UNIT is intended to generate a comprehensive assessment of global cognitive ability though its administration instructions are nonverbal (Ochoa, 2003).

Apart from that, testing in the CLD student’s native language is also acceptable (Rhodes et al., 2005; Salvia et al., 2007). However, current available cognitive assessments in CLD student’s native language is limited other than in Spanish (Rhodes et al., 2005). Some examples of current available cognitive assessment in Spanish include Batería III Woodcock-Muñoz and Wechsler Intelligence Scale for Children, Fourth Edition-Spanish (WISC-IV Spanish). Cognitive
assessment in the student’s native language is designed to provide a global measure of functioning in individual’s native language only (Rhodes et al., 2005).

Given all these school psychologists’ practices used in assessing CLD individuals’ cognitive functioning, school psychologists need to have extensive knowledge involving the appropriate selection of instruments and procedures in evaluating CLD students with needs.
Chapter III: Summary, Critical Analysis, and Recommendations

This chapter will include a summary of the topics presented in Chapter Two. It will include a summary of the origin and purpose of cognitive assessment, the changing demographics in the U.S. schools, current problems and challenges faced in schools, legal and ethical consideration in assessment, and best practices in conducting culturally sensitive assessment. Chapter Three will then move on to a critical analysis of the current literature pertaining to cognitive assessment of culturally and linguistically diverse children. To conclude the chapter, recommendations for school psychologists will also be addressed.

Summary

Intelligence tests were employed for curriculum differentiation during past time (Valencia & Suzuki, 2001). They were used to distinguish individuals based on their intellectual abilities, those with superior ability from those with intellectual deficit (Flanagan et al., 2000). The purpose of intelligence testing has shifted from screening tool for military during world war to school use as a diagnostic tool for educational placements and intervention planning (Boake, 2002; Sattler, 2008). Cognitive assessments are usually employed in schools for the purpose of making diagnostic decision on special education eligibility and educational placement decisions by evaluating mental retardation, academic failure, giftedness, and learning disabilities (Salvia et al., 2007). School psychologists are the one who greatly utilize cognitive assessments in school these days (Camara et al., 2000; Wilson & Reschly, 1996).

The nature of the diversity population being served in the Untied States has expanded rapidly (U.S. Census Bureau, 2011). Although the White population accounts for 75 percent of the overall population and remains the largest group in the United States, it is increasing at the slowest rate compared to other non-White groups (U.S. Census Bureau, 2011). Other than
diversity in nation’s ethnicity and race, there is increasing number of individuals speaking more than one language other than English at home. The change in demographics of the United States schools over the past decades has brought many concerns and debates to current assessment practice.

Possible barriers faced in schools are overrepresentation of CLD students in receiving special education services and underrepresentation of CLD students in gifted education program (Artiles & Trent, 1994; Rhodes et al., 2005; Sullivan, 2011; Yoon & Gentry, 2009). Factor that may hinder enrollment of CLD students into different programs can be due to the classification and eligibility criteria by states (Rhodes et al., 2005). Intelligence tests developed in the U.S. may be inappropriate when used with CLD students since the tests consisted items that are cultural loading and linguistic demanding which reflect middle class White American standardized norms (Rhodes et al., 2005; Valencia & Suzuki, 2001).

In addition, the increasing numbers of CLD populations place demands on bilingual school psychologist and well-trained school psychologists in assessing CLD students (Rogers, 2005). The growth of minority school psychologist still not exceeded by the number of CLD students served in school (Rogers, 2005). The use of interpreters is largely widespread in school practice due to the shortage of bilingual school psychologist (Ochoa, 2003). Besides, lack of training on second language acquisition can also lead to inaccurate assumptions about students’ true ability (Ochoa, 2003). Given all these possible barriers faced in schools, school psychologists face with the heightened challenge of developing best practice of culturally competent assessments.

Several legal cases discussed the problem of administering cognitive assessment with CLD children. Legal rights in testing exist generally to protect individual rights to ensure that
important decisions are made on the basic appropriate assessment data. IDEA demands nondiscriminatory assessment and intervention to all students in school. NASP’s Principles for Professional Ethics (2010) mandates that school psychologists obtain adequate training and understand pupils’ diverse cultural and linguistic backgrounds in order to provide competent assessment. School psychologists should be always responsible in pursuing continuous training to conduct culturally competent assessment with CLD populations.

A framework to guide culturally competent assessment to CLD children is the Cattell-Horn-Carroll (CHC) cross-battery assessment. It is a comprehensive integration 3x3 matrix for various assessment subtests, categorized based on the degree of cultural loading and linguistic demand, (range from low, moderate to high) in order to identify the best method in evaluating CLD children (Vazquez-Nuttall et al., 2007). This guides school psychologists to determine if any cultural content and linguistic demands are embedded in test battery, which can influence a CLD child’s cognitive test performance (Rhodes et al., 2005).

In addition, nonverbal assessment also helps in reducing the effects of language and cultural content requirements in a given test, which generate less biased results for CLD children (Rhodes et al., 2005; Salvia et al., 2007). However, it is crucial to recognize that nonverbal assessment demands high level of nonverbal receptive language skills to fully comprehend examiner’s directions and expectations (Rhodes et al., 2005). Nonverbal assessment is a better alternative for CLD students who are struggle with high linguistic demand compared to verbal assessment. Other than nonverbal assessment, testing in CLD student’s native language is another option, but it is limited to Spanish only.

Given all the challenges faced in the U.S. schools, school psychologists need to have extensive knowledge involving the appropriate selection of instruments and procedures in
evaluating CLD students with needs. Assessment of CLD students requires a non-biased and fair approach.

Critical Analysis

There is abundance of research regarding the increased of available cognitive assessment for CLD populations. CHC cross-battery assessment and nonverbal assessments are popular assessment tools suitable for CLD individuals. However, many of these cognitive assessments utilize middle class White American standardized norms and lack of norm sample representation for CLD population. Cognitive assessments developed in the U.S. are embedded with content that are cultural loading and linguistic demand for CLD individuals and thereby generate invalid representation of their true ability.

Previous research indicated challenges school psychologists encountered in assessing CLD children. One of the main concerns pointed out is the lack of competence and training received by school psychologists during their graduate program in assessing CLD children. Given the fact that not many school psychologists are confident in assessing CLD population, future research needs to examine what can be done to improve this problem.

There are lots of past studies describe practices that are ineffective and invalid in assessing CLD children, but there is limited research that provides information on effective and valid practices with CLD children.

Recommendations

Recommendation for practice. There is no one approach fits all. The type of cognitive assessment or any evaluation should always be tailored to the unique aspects of individual. School psychologists need to ensure that all students, including those that are culturally and
linguistically diverse, are assessed fairly and accurately before making decisions about their educational programming.

Since a significant number of school psychologists are not well-prepared in assessing and interpreting the results of CLD children, it is recommended for school psychologists to have continuous training and professional development in the area of assessment in CLD population. Training programs are encouraged to continue to infuse and strengthen the content they provide related to both second language acquisition and best practice assessment practices for CLD students. At the same time, practitioners should be seeking professional development and training to enhance their skills in the applied settings.

**Recommendation for research.** There is abundance of research indicating current problem faced in the U.S schools, however there is limited research address the best practices in the assessment of CLD children. Given that not many school psychologists are confident in assessing CLD population, future research needs to examine what can be done to improve this problem.

While many school psychologists have indicated they received little training in graduate school regarding cognitive assessment of CLD students, future research is needed to determine the specific training that are helpful in graduate program and school practice. School psychology graduate programs is recommended to brainstorm ways to provide the best education and practical training for graduate students to practice in conducting culturally competent assessment. Additionally, it is also recommended that school psychology graduate programs integrate the knowledge of second-language acquisition to cognitive assessment.

All students deserve an appropriate education that meets their unique needs. With the changing demographics in the United States, school psychologists need to learn, and use best
practices in conducting culturally competent assessment on CLD children. In doing so, they will enhance not only their own practice, but will help CLD students, educators and families thrive.
References


