# The Inter-Rater Reliability of the Hispanic Bilingual Gifted Screening Instrument (HBGSI)

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## Abstract

This study investigated the inter-rater reliability of the Hispanic Bilingual Gifted Screening Instrument (HBGSI) over a 4-year period. As many Hispanic children are underrepresented in gifted and talented services, it is important to find effective ways to identify them. HBGSI results demonstrated strong and semi-strong inter-rater reliability with all grade levels. The HBGSI provides educators with a screening instrument that has inter-rater reliability to identify potentially Hispanic bilingual gifted and talented students in elementary grades.

*Keywords*: gifted and talented, identification, reliability, HBGSI, screener, bilingual

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## Purpose of the Article

The purpose of this article is to explain the inter-rater reliability of the Hispanic Bilingual Gifted Screening Instrument (HBGSI) (Irby & Lara-Alecio, 1996) as measured over a 4-year period. Inter-rater reliability is defined by Richards, Platt, and Platt (1992) as "the degree to which different examiners or judges making different subjective ratings of ability (e.g. of language proficiency) agree in their evaluations of that ability" (p. 188). It is important to find a helpful gifted screening instrument identifying Hispanic bilingual students since in the United States the Hispanic immigrant population grew continuously (U.S. Census, 2010) until 2011 when the numbers of Mexican unauthorized immigrants decreased (7 million in 2007 to 6.1 million in 2011), with authorized immigrants showing a slight increase (5.6 million in 2007 to 5.8 million in 2011) according to a 2012 Pew Report (Passel, Cohn, & Gonzalez-Barerra, 2012). Even with these recent facts, in Texas alone, 37.6% of the state's total population is Hispanic which is more than double the number (16.3%) in the United States (U.S. Census Bureau, 2011). Even though Texas holds a high Hispanic population, the Texas Education Agency recognized there is an underrepresentation of minority children in gifted and talented (GT) programs (TEA, 2008). Due to this dilemma, finding more measures that properly identify Hispanic students for GT programs is critical.

## Definition of Gifted and Talented

For this study, the definition of gifted and talented was defined by Renzulli (1976) as, "those possessing or capable of developing above average intelligence (IQ), task commitment, and creativity and applying them to any potentially valuable area of human performance" (p. 261). Adding to Renzulli's definition of gifted students, Lara-Alecio and Irby (1993) proposed encompassing the three traits in a socio-linguistic-cultural context. That socio-linguistic-cultural context, along with Renzulli's triadic definition, is evident in the eleven clusters of the HBGSI. When examining the HBGSI, one will find that components of the Texas definition are also

included. According to Texas State Plan for the Education of Gifted/Talented students (2000), gifted and talented means the following:

> A child or youth who performs at or shows the potential for performing at a remarkably high level of accomplishment when compared to others of the same age, experience, or environment and who:
>
> (1) Exhibits high performance capability in an intellectual, creative, or artistic area;
> (2) Possesses an unusual capacity for leadership; or
> (3) Excels in a specific academic field. (p.11)

It is of greatest importance for teachers to be aware of the specific definitions as they have a significant role in nominating students for GT programs (Harris, Plucker, Rapp, & Martinez, 2009; Irby, Lara-Alecio, & Rodriguez; 2003b; Plata, Masten, & Trusty, 1999).

Teachers not only need to be aware of what it means to be GT, but also know what characteristics to look for in a potentially GT Hispanic bilingual student. Some characteristics of potentially GT Hispanic bilingual students may include a great desire to learn English and their native language, enjoy problem solving, exercise creative thinking, and have curiosity (Brulles, Castellano, & Laing, 2011). Another factor to consider is that students do not need to be fully proficient in English in order to begin receiving GT services. Unfortunately, there is a misconception among some teachers that students need to master English before they can be nominated for GT services (Harris et al., 2009). If students are not nominated for GT services until they master English, schools are not fostering their creativity and are creating a disadvantaged, unbalanced education to those children.

## Methods

The purpose of our research was to investigate the inter-rater reliability of the Hispanic Bilingual Gifted Screening Instrument (HBGSI). The HBGSI is an instrument designed to be used in the first phase of identifying Hispanic bilingual gifted students (Irby, Lara-Alecio, & Rodriguez, 2003a). The participants in the study were part of a large 4-year longitudinal and randomized study titled English Language and Literacy Acquisition (Project ELLA) which focused on an urban school district located in the Houston area (Irby, Lara-Alecio, & Milke, 1999; Irby, Lara-Alecio & Rodriguez, 2003a; Irby, Lara-Alecio & Rodriguez, 2003b). The data for this study were derived from a randomized-experimental design at the school level and quasi-experimental at the participant level (ELLA: IES Funded Grant, R305P030032). Students were in either bilingual education or structured English immersion education, but all were classified as English language learners.

### Participants

The study took place in an urban school district in Texas. Students in our study were in kindergarten, first, second, and third grades during the longitudinal study; the students were followed and matriculated through four grade levels. In the kindergarten school year there were a total of 822 students (experimental $n = 464$, control $n = 358$), first grade had 768 students

(experimental $n = 394$, control $n = 374$), second grade had 517 students (experimental $n = 261$, control $n = 256$), and by the end of the third grade there were 390 students (experimental $n = 188$, control $n = 202$) (Final ELLA Performance Report, 2008). Students participating in the study were of Hispanic descent, their primary language was Spanish, and they were also economically disadvantaged. School selection criteria were based on availability of Transitional Bilingual Education (TBE) programs in the school district.

## Procedures

Access was requested and approved to utilize archived data collected in the ELLA project concerning the HBGSI. Participating classroom teachers administered the HBGSI once a year to the same students from kindergarten through fourth grade. Classroom teachers were also professionally trained before administering the HBGSI to their students. Archived data provided through the ELLA project were analyzed to provide inter-rater reliability. It is necessary to provide inter-rater reliability as the HBGSI is administered by classroom teachers, particularly since the students were matriculating from teacher to teacher over 4 years and through the grade levels. In order for an instrument to yield reliable results, one of main criteria is that raters should provide consistency in their results.

## Data Collection Procedure

Data were stored and saved in an Internet website (www.teachbilingual.com) with the online HBGSI being published and maintained in a secure environment by INLINE Resources. Schools participating in the ELLA study adopted the HBGSI instrument to help them identify potentially gifted Hispanic students. IRB permission was obtained in order to access information that took place throughout the 4 years of the ELLA study with the protocol number 2010-0934.

**Administration procedure.** During the ELLA project, the HBGSI instrument was accessible on-line for the identified ELLA teachers. Face-to-face training was provided to the teachers on how to complete the instrument, and an on-line video was provided for teachers to learn how to enter student information and answer questions concerning the 11 clusters about each student. Once teachers input information into the HBGSI software, they received calculations and scores concerning each student screened. Data were safely stored in the HBGSI software in case teachers needed to edit any information. The software then highlighted which students should further be tested for GT by determining the mean score for each classroom.

**HBGSI 11 clusters.** The 11 HBGSI clusters identify characteristics of potential Hispanic GT students (Irby & Lara-Alecio, 1996). Irby and Lara-Alecio (1996) defined the 11 HBGSI clusters as follows: (a) Social and Academic Language "deals with four modes of language, reading, speaking, listening, and writing, in the native language" (p. 7), (b) Cultural Sensitivity "is related to the expression of appreciation toward the Hispanic culture and language" (p. 7), (c) Familial "is characterized by the fact that the student has strong interpersonal relationships among family members, has participative parents, has strong maternal/paternal role models, and respect for authority" (p. 7), (d) Motivation for Learning deals with how "students value education as a way to improve status, sustain their motivation to succeed, and have a genuine

desire for learning" (p. 8), (e) Collaboration focuses on the "student's abilities to lead and work with others in a cooperative manner" (p. 8), (f) Imagery "is aligned with the verbal precocity of the child" (p. 8), (g) Achievement focuses on "the same achievement indicators as the mainstream population with the distinctiveness that the bilingual student uses stored knowledge to solve problems through the use of his/her native or through the target language, and reasons through a personal cultural perspective" (p. 8), (h) Support focuses on the "support provided by the teacher in the areas of assessment and language development" (p. 8-9), (i) Creative Performance looks into the "indicators that deal with the students' creative productivity in the arts" (p. 9), (j) Problem-Solving "deals with actions in solving problems, as well as cognitive functions of problem solving" (p. 9), and (k) Locus of Control is "representative of an internal locus of control" (p. 9) (Irby, Lara-Alecio, & Rodriguez, 2003b). The internal consistency using Cronbach's alpha was .987 for the kindergarten sample, .983 for the first grade sample, .986 for the second grade sample, and .985 for the third grade sample.

## Results

### Inter-rater Reliability of the HBGSI

To find inter-rater reliability of the HBGSI ratings for students over a 4-year period, a test and retest reliability coefficients were conducted in four different time points (kindergarten, first, second and third). Tables 1 through 12 demonstrate 11 matrices that are 4x4 across each HBGSI cluster with all pairwise grade combinations (e.g., K and first, K and second, etc.).

**Cluster 1: Social and academic language**. Table 1 shows a high inter-rater reliability for all grade levels (K-3) in Cluster 1. The following significant correlations existed between grade levels, Kindergarten and first at .370 correlation, kindergarten and second at .148, kindergarten and third at .383, first and second at .406, first and third at .531, and second and third at .476.

Table 1

*Cluster 1 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 |  |  |  |
| N | 786 |  |  |  |
| First Grade | .370** | 1.000 |  |  |
| N | 515 | 607 |  |  |
| Second Grade | .148** | .406** | 1.000 |  |
| N | 377 | 378 | 454 |  |
| Third Grade | .383** | .531** | .476** | 1.000 |
| N | 322 | 316 | 378 | 383 |

** $p < 0.01$

**Cluster 2: Cultural sensitivity**. Table 2 demonstrates correlations ranges for Cluster 2 which was between -.104 to .454. A significant correlation existed between second grade and kindergarten at .162. First grade and kindergarten were found to have a small but significant negative correlation at -.104.

Table 2

*Cluster 2 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | -.104* | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .162** | -.054 | 1.000 | |
| N | 377 | 378 | 454 | |
| Third Grade | .035 | .098 | .454 | 1.000 |
| N | 322 | 316 | 378 | 383 |

\* $p < 0.05$
\*\* $p < 0.01$

**Cluster 3: Familial.** Table 3 shows significant correlations for all grade levels in the third cluster, which is evidence of consistency in test administration from all raters. There was positive correlations with the following: kindergarten and first at .197, kindergarten and second at .181, first and second at .183, kindergarten and third at .151, first and third at .163, and second and third at .191.

Table 3

*Cluster 3 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .197** | 1.000 | | |
| N | 516 | 608 | | |
| Second Grade | .181** | .183** | 1.000 | |
| N | 377 | 379 | 454 | |
| Third Grade | .151** | .163** | .191** | 1.000 |
| N | 322 | 317 | 378 | 383 |

\*\* $p < 0.01$

**Cluster 4: Motivation for learning.** Table 4 shows most grade levels with significant correlations for Cluster 4. There was a small but significant correlation among Kindergarten and first at .102, first and second at .255, first and third at .233, and second and third at .352.

Table 4

*Cluster 4 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .102* | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .091 | .255** | 1.000 | |
| N | 377 | 377 | 453 | |
| Third Grade | .079 | .233** | .352** | 1.000 |
| N | 322 | 316 | 377 | 383 |

*p < 0.05
** p < 0.01

**Cluster 5: Collaboration.** Table 5 demonstrates the correlations for Cluster 5 which has three significant correlations between kindergarten and second at .345, kindergarten and third at .208, and second and third at .266, finally there is a small but significant correlation with first and second at .131.

Table 5

*Cluster 5 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .022 | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .345** | .131* | 1.000 | |
| N | 377 | 377 | 453 | |
| Third Grade | .208** | .093 | .266** | 1.000 |
| N | 322 | 316 | 377 | 383 |

*p < 0.05
** p < 0.01

**Cluster 6: Imagery.** Table 6 shows Cluster 6 having a significant correlation for all grade levels. Kindergarten and first have a correlation at .122, kindergarten and second at .144, kindergarten and third at .203, first and second at .200, first and third at .208, and finally second and third at .191.

Table 6

*Cluster 6 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 |  |  |  |
| N | 786 |  |  |  |
| First Grade | .122** | 1.000 |  |  |
| N | 515 | 607 |  |  |
| Second Grade | .144** | .200** | 1.000 |  |
| N | 377 | 377 | 453 |  |
| Third Grade | .203** | .208** | .191** | 1.000 |
| N | 322 | 316 | 377 | 383 |

** $p < 0.01$

**Cluster 7: Achievement.** Table 7 demonstrates Cluster 7 having all grade levels a significant correlation. Kindergarten and first have a correlation at .145, kindergarten and second at .277, kindergarten and third at .178, first and second at .250, first and third at .196, and finally second and third at .349.

Table 7

*Cluster 7 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 |  |  |  |
| N | 786 |  |  |  |
| First Grade | .145** | 1.000 |  |  |
| N | 515 | 607 |  |  |
| Second Grade | .277** | .250** | 1.000 |  |
| N | 377 | 377 | 453 |  |
| Third Grade | .178** | .196** | .349** | 1.000 |
| N | 322 | 316 | 377 | 383 |

** $p < 0.01$

**Cluster 8: Support.** Table 8 demonstrates Cluster 8 with significant correlations among first and third at .234, and second and third at .289.

Table 8

*Cluster 8 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .024 | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .069 | .000 | 1.000 | |
| N | 376 | 376 | 452 | |
| Third Grade | -.039 | .234** | .289** | 1.000 |
| N | 321 | 315 | 375 | 382 |

** $p < 0.01$

**Cluster 9: Creative performance.** Table 9 shows one small but significant correlation with kindergarten and third at .113, and a significant correlation with second and third at .259 for Cluster 9.

Table 9

*Cluster 9 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | -.010 | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .067 | -.075 | 1.000 | |
| N | 376 | 376 | 452 | |
| Third Grade | .113* | .081 | .259** | 1.000 |
| N | 322 | 316 | 376 | 383 |

* $p < 0.05$
** $p < 0.01$

**Cluster 10: Problem-solving.** Table 10 illustrates three significant correlations: kindergarten and second at .150, first and third at .201 and finally second and third at .343 for cluster 10.

Table 10

*Cluster 10 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .036 | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .150** | .065 | 1.000 | |
| N | 376 | 376 | 452 | |
| Third Grade | .092 | .201** | .343** | 1.000 |
| N | 322 | 316 | 376 | 383 |

** $p < 0.01$

**Cluster 11: Locus of control.** Table 11 shows four significant correlations: kindergarten and first at .151, kindergarten and second at .231, first and second at .162, and finally second with third at .203 for cluster 11.

Table 11

*Cluster 11 Pearson's r Correlations*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .151** | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .231** | .162** | 1.000 | |
| N | 376 | 376 | 452 | |
| Third Grade | .086 | .039 | .203** | 1.000 |
| N | 322 | 316 | 376 | 383 |

** $p < 0.01$

**Total of all clusters.** Table 12 demonstrates the total scores for all grade levels. There were five significant correlations found: kindergarten and second at .235, kindergarten and third at .201, first and second at .159, first and third at .243, and finally second and third at .334.

Table 12

*Total of All Clusters*

|  | Kindergarten | First Grade | Second Grade | Third Grade |
|---|---|---|---|---|
| Kindergarten | 1.000 | | | |
| N | 786 | | | |
| First Grade | .084 | 1.000 | | |
| N | 515 | 607 | | |
| Second Grade | .235** | .159** | 1.000 | |
| N | 376 | 376 | 452 | |
| Third Grade | .201** | .243** | .334** | 1.000 |
| N | 322 | 316 | 376 | 383 |

** $p < 0.01$

**Conclusion/Discussion**

The HBGSI's inter-rater reliability was answered using a test and retest reliability in four different time points (kindergarten, first, second and third). Analysis showed a high correlation for clusters 1, 3, 6, and 7 and all grade levels (K-3) which shows a strong inter-rater reliability. Analysis demonstrated a moderate correlation for clusters 2, 4, 5, 10, 11 and all grade levels, which indicates inter-rater reliability existed between raters. Analysis further revealed that Cluster 2 ratings were unstable in kindergarten and first grade of elementary school, Finally, strong correlations were found for clusters 8 and 9 in the older grades (second and third). A pattern found in the results was that stronger correlations existed among older children for Clusters 1 and 4-11,

A theory as to why correlations grew stronger for older children can be explained by the fact that children's characteristics were more prominent once skills were developed and once they were able to express themselves more comprehensively. Clusters 1 and 4-11 dealt with school related tasks that may have improved through practice and years in school. It is not surprising that raters were able to notice these types of academic characteristics more easily as time passed and as students moved through the grade levels.

Results are significant as they provide teachers a reliable way of identifying potentially Hispanic bilingual GT students from grades kindergarten through third grade. The Texas Education Agency reported an underrepresentation of minority students in GT programs (TEA, 2008); therefore, providing a reliable screening instrument for teachers to use will help increase the number of minority students in GT programs. The HBGSI screening instrument will affect many minority students being identified in Texas and possibly across the United States where there are high numbers of Hispanic bilingual students.

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