Research Report: Creating Local Norms for West Ada School District's Gifted and Talented Program

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Objective:

To identify if a difference exists between national and local norms for the identification of "gifted and talented" (GT) students.

Purpose:

This work will allow the West Ada School District (WASD) to compare our GT identification criteria with those provided by test vendors using national level student norms. This will enable us to recognize if we are missing students with potential gifted service needs based on local demographics.

Background and current practice:

Currently, WASD uses industry best practice by setting its GT service cut-scores at the 98th percentile based on nationally normed percentile rankings calculated by the test providers. Students at or above the 98th percentile in any one (or a combination) of the district's GT placement assessment tests are identified as needing further GT services. Additionally, WASD currently performs "screening" testing with all second (2nd) grade students in their Title I schools. Students who are found to be near the 98th percentile and above on any of the screeners are identified for further testing to determine the need for GT services.

Literature Review:

In order to ensure that students are selected for gifted and talented (GT) programs based on ability and talent, districts have long used a variety of methods for GT identification. These methods, however, are typically based on selection of top students within age-related cohorts of students. This practice disregards the notion that some students have not had equal "opportunities to learn" and will score lower on such assessments as a result (Lowman, 2008). Judgments about student "exceptionality" depend importantly on the norm group that is used and compared. Students who come from various demographic backgrounds will come to school with, as Lowman puts it, varied "experience within the culture."   This directly (and typically negatively) impacts the ability for gifted and talented testing metrics to highlight these students—even though they may be highly gifted in particular non-verbal (non-English language) areas. It is for this reason, that many of the experts on GT education highlight the need for schools and districts to develop "local norms" which will help to identify gifted students based on regional characteristics and demographics (Lohman, 2009; Renzulli, 1986).

Local Norms. The establishment of "local norms" for identifying GT students has several benefits. One of the most important is to aid in the identification of GT students who may have not had equal "opportunity to learn" but are in a particular age-cohort of students (Lowman, 2009). Therefore, districts and schools with large English Language Learner (ELL), immigrant, or low socio-economic status will place their students at a disadvantage if they simply use national norms as selection criteria. Since individual schools and districts cannot be precisely represented by "national norms", local norms can aid in developing a GT program best suited to local situations and therefore local students.   Additionally, the use of local norms can work to prevent the over-classification of GT students within a high achieving district, school, or classroom. Lowman states that "a student who scores at the 98th national percentile in [a high achieving] class will [not] be as mismatched with the common curriculum as the student who scores at the 98th national percentile in a class in which the typical student scores at the 50th percentile" on nationally normed assessments.   In short, local norms will identify which of these students needs to be accelerated beyond the general classroom- and which of them can be given greater challenge within the same classroom through differentiation. This is important for several reasons. First, because the need for special services depends not so much on a student's standing relative to age- or grade mates nationally, but on the student's standing relative to the other students in the class (Colorado Department of Education, 2016). Second, because this helps the classroom teacher who, trying to differentiate instruction for all abilities, will have a more homogenous group of students following proper GT identification. Lowman (2009) continues by stating that it is important to measure the right abilities, but it is equally important to compare students' scores to the right norm groups. He highlights:

> *The child who is considered gifted when compared to others in his class may*
> *not be considered gifted when compared to others in the nation, to others*
> *who are the same age, to those who were tested a few months earlier, to*
> *examinees of the same age who were tested a decade or two later, or to*
> *those who have had more experience in the culture of the assessment.*

One area of concern highlighted was to be cautious about not confusing typical proficient/advanced performance, or "on-track to pass state assessments" performance, with GT placement due to local norms use (Colorado Department of Education, 2016). In other words, in a low performing school we would not want to identify students simply "proficient" on a state assessment as in need GT services because their peers are lower performing. Talent searches and district-wide programs that recruit students from different schools need the common standard of national norms to understand where their students are relative to others. National norms also provide important information on a student's relative standing on the different abilities measured by the variety of assessments. Individual schools, however, rarely replicate the nation in their distribution of ability or achievement and this is why locally derived norms are needed.

Methods:
CogAT 7. In order to obtain an understanding of how WASD's local norms compare to the national norms, we decided to start with one assessment which is given as a screener to all second (2nd) grade

students within our Title I schools. Since these schools are hypothesized to have, on average, lower assessment scores due to a variety of factors- including less "opportunity to learn", these schools would represent the largest possible difference between local and national norms. The assessment used for WASD's GT screener is the CogAT 7. The CogAT is described by its research and development guide as "appraising the development of students' reasoning abilities using verbal, quantitative, and nonverbal cognitive tasks." It is the variety of measurement types that makes this tool appropriate for use as a screener within WASD. The non-verbal cognitive task aspect makes it effective for finding non-English (ELL) students and/or those with developmental disabilities linked to literacy or speech. Additionally, nationally normed data is provided in a variety of formats by the CogAT assessment group (Riverside).

For the purposes of this study we used the students' standard age scores (SAS) to make comparisons. The SAS are similar to IQ scores in that they statistically control for the effects of student age (CogAT Score Interpretation Guide, pg. 40). A student with an SAS score of 100 would be in the 50th percentile- meaning half of the students performed higher and half performed lower on the assessment. In effect, this gives a more clear approximation of student cognitive ability by controlling for differences in the "opportunity to learn" based on age. The comparison between the 98th percentile of the nationally normed group can then be easily compared with the local 98th percentile group and the cut score difference for these percentile rankings can be found. The difference between the scores gives us the difference between the national and local scores for identification of GT students- if one should exist. Subgroup cut scores could also be created using this same technique, but was not performed for this study.

Results:

Table 1 shows the national vs. local *Standardized Age Score (SAS)* norms for the participating schools within the WASD. These SAS values are based on the CogAT 7 universal screening test given to second grade students within the schools. The local SAS norm value of 127.5 was found to be significantly lower than the national SAS norm of 132; t(598)=-7.70, p=0.00, representing a *Cohen's d* effect size of 0.28. This represents a "small" difference between means (Cohen, 1969). 98th percentile SAS values ranged from 132.7 to 125.9 *between* schools studied within the WASD.

Table 1. Local vs. National Norms for CogAT 7 Second Grade Screener

Norm Type	Percentile	Baseline Score
National	98th	132
Local	98th	127.5

Figure 1 below shows the probability plot used to determine the local norm values described in table 1. Again, Standardized Age Scores were used to develop WASD's probability curve seen below. A probability curve which follows a linear trend line on the graph below demonstrates "normality" and can then be used to develop *local norms* based on the percentiles- in this case the 98th percentile*.* Additionally, the p-value of 0.178 indicates, from a statistical standpoint, that the plotted points did not significantly differ from "normal" and could be used to develop *local* norm values.

Figure 1. Local probability plot used to determine 98th percentile SAS value.
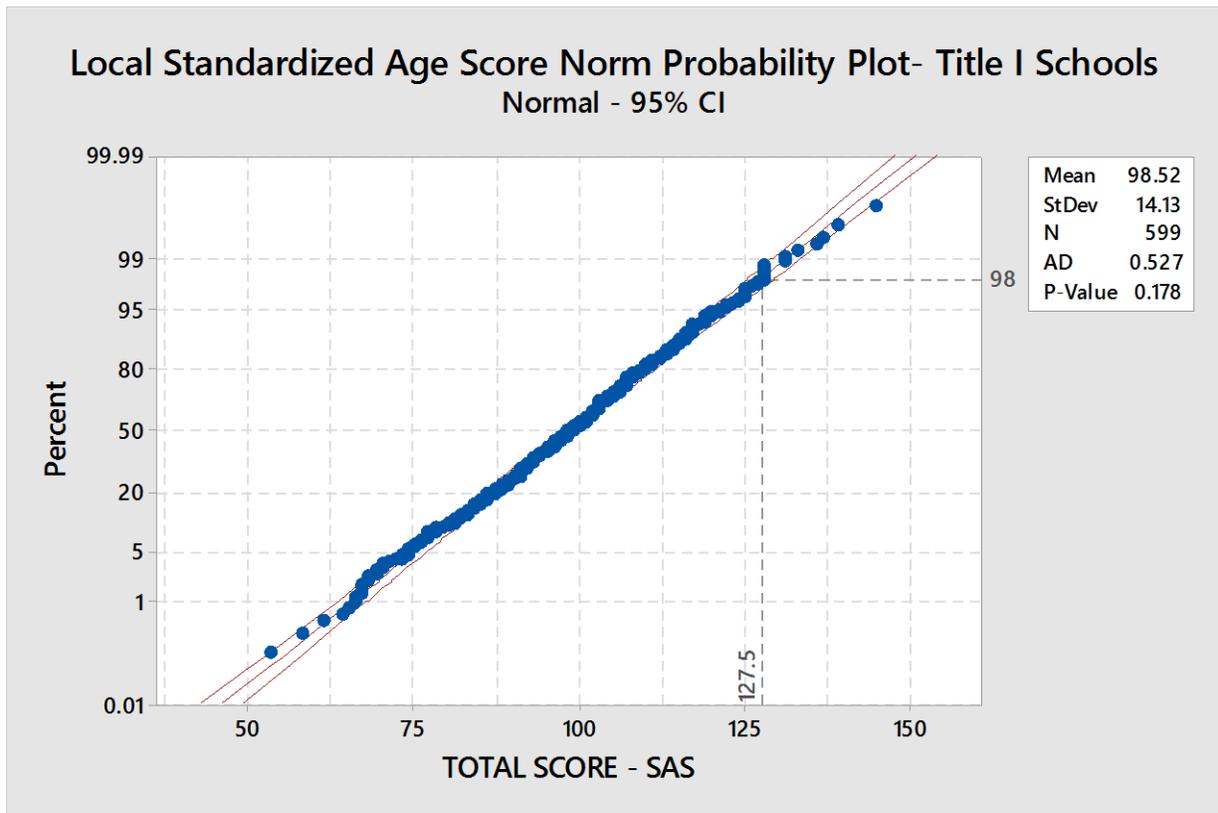
Conclusions:

Using the CogAT 7 data from the universal screening of second grade students in nine (9) schools within the WASD local norms were developed to determine Gifted and Talented (GT) recommendation criteria. Typically, *national* norms are used as baseline scores for selection. Best practice states that local norms should be developed in order to ensure that GT students are identified in underserved student populations—those which have not had equal "opportunities to learn" (Lowman, 2008). These local norms can then be compared with national norms to get a sense of comparison for the local district or schools. As a result a result of this work, WASD has found that there is a significant difference between the *local* and *national* norms based on student SAS values. A local norm baseline score of 127.5 was found and is compared to the national norm value of 132. This information can be used to make decisions regarding GT identification and possibly to develop school-based norms, if needed.

Work Cited

CogAT Score Interpretation Guide. Downloaded from CogAT 7 website.

Cohen, J. (1969) *Statistical Power Analysis for the Behavioral Sciences*. NY: Academic Press.

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Lohman, D. ((2009) *Identifying academically talented students: Some general principles, Two Specific Procedures.* International Handbook on Giftedness Chapter 49. Springer Business Media.

Renzulli, J.S. (2006). *A practical system for identifying gifted and talented students.* Early Child Development and Care, 63:1, 9-18.