



# RESEARCH BRIEF

## Research Services

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## The Uses of Local Norms A Question & Answer Overview

*The purpose of this paper is to promote local norms as a new way of reporting FCAT results for our district. The norms would:*

- *show a student's relative standing in the district, and*
- *show the student's growth compared to similar students.*

### What are some of the special features of local norms?

- Student scores are reported in easy-to-understand percentiles.
- Scores are easily combined to help evaluate schools, teachers, programs, etc.
- Consideration is given to the academic standing of the student at the start of the year.
- Schools with students at different starting points can be fairly compared.

### How useful are local norms in representing student performance?

No method of assessing academic performance is perfect. Performance is a function of many factors — student effort, home environment, teacher effectiveness, school climate, and countless other influences, some under the district's control and some not. This method is considered useful in that it reports the student's standing within the district and compares growth only to students with similar test score starting points. By adding a reasonably fair student growth component, this model can more accurately distinguish effective from ineffective instructional programs.

### What types of measures do local norms provide?

Two new scores will be computed for each student:

- a "what-you-know" *status norm* reflecting the student's percentile standing in the district, and
- a "how-you-grow" *gain norm* reflecting the student's percentile standing among students who had similar test scores the previous year.

### Sample

	Score	Status Norm	Gain Norm
Roberto D.	240	16%ile	42%ile
Oscar C.	366	82%ile	63%ile
Mercedes T.	392	87%ile	33%ile
James H.	305	53%ile	55%ile
Marsha J.	277	45%ile	67%ile
Ramona F.	324	60%ile	82%ile

### How is the status norm computed?

The distribution of scale scores for each test and each grade level is examined separately. Although the actual percentiles could be determined, a statistical shortcut is possible by presuming the scores to be normally distributed. (Preliminary investigations strongly support these assumptions.) First, the scores are converted to a distribution with a mean of zero and a standard deviation of one. Then, these “z-scores” are referred back to the standard normal distribution for their percentile equivalents.

### What is the interpretation of the status norm?

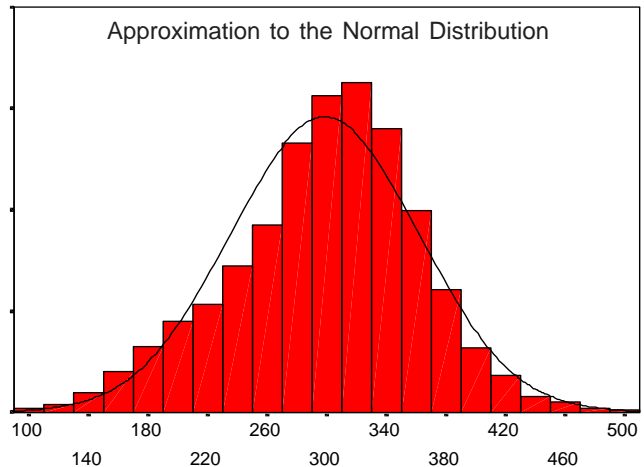
Each student will be assigned a percentile standing among all students. As an example, a student with a status norm of 34% in Reading is scoring above 34 percent of the students in the district at the same grade level on the reading test.

### How is this status norm different from the gain norm?

To calculate the gain norm, students are first categorized into groups with similar status norms from the *previous* year. For instance, all students with previous year’s status norms between the 30th percentile and the 39th percentile constitute one peer starting group. Those with previous year’s status norms between the 40th and the 49th percentile constitute another peer starting group, and so on. Thus, ten peer starting groups for each grade level are determined based on the previous year’s performance. The gain norm, then, is the percentile standing from *this* year’s scores within the distribution of each student’s peer starting group.

### What is the interpretation of the gain norm?

The gain norm is the student’s percentile standing relative to students who started out the year at roughly the same achievement level. For instance, a student with a gain norm of 68% in Reading is scoring above 68 percent of the



students in his achievement peer group for the same grade level on the reading test.

### Isn't it possible for a student to have a high status norm and a low gain norm?

Yes. Such a situation would indicate that, while the student is demonstrating high competence in the content of the test, among similar highly competent students his gain this year is below standard. In general, equivalent status and gain norms for a given student are not necessarily to be expected.

### Isn't it statistically improper to average percentiles?

That's right. The percentiles, themselves, are not averaged. Behind the scenes, the standardized scores for each student are retained and used appropriately in the averaging. These averaged standard scores are then converted back to percentiles for reporting purposes.

### Won't the norms change each year?

Yes, they will have to be calculated anew for each year's test results. This means a scale score of, say, 325 may convert to a status norm of 56% in one context and 52% in another. But, rather than constituting a problem, this is one of the desirable attributes of local norms. They automatically adjust for different difficulty levels from one year to the next and from one grade level to the next.

**How will the status and gain norms be made available?**

They could be generated by the district to be included in test result reports. Special tables, instructions, and interactive software could also be provided on the district’s website. This would allow students, teachers, and parents to investigate the norm equivalents for specific scale scores without district intervention.

**What is the expected value for the average of status norms or gain norms for any group of students?**

For any *random* group of students, the expected value for the norm would be around the 50th percentile. If the observed average for a given group is considerably higher or lower than the 50th percentile, there is probably something special about that group of students. Very high average norms may be indicative of

exceptional programs. The degree above the 50th percentile that would be considered statistically significant would depend on the number of students in the group. For the size of a single classroom, an average norm beyond the 65th percentile may be considered rare and deserve further investigation.

**If the average gain norm for students taught by a particular teacher was unusually high, would that indicate a very effective teacher?**

Possibly. There are many different reasons why a particular class of students might excel. While an excellent teacher may be the cause, the class may be special due to factors outside of school. However, consistent patterns of high gain norms over several years with different students for the same teacher would be strong evidence of effective teaching.

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**In summary, the following table provides various ways status and gain norms can be used in the district.**

<b>Status Norms</b>	<b>Gain Norms</b>
to help students understand their mastery of the content with respect to all other students in the district	to help students understand their progress with respect to other students at their same academic level
to help set student and classroom growth targets	to help assess progress toward growth targets
to help parents comprehend their children's standing in what they should know	to help parents comprehend their children's standing in how they are growing
to help teachers assess their students' progress and target instruction	to help teachers assess their students' advancement in their classes
to help principals evaluate the educational challenges of their student body	to help principals evaluate the instructional effectiveness of their faculty
to help administrators determine the academic rank of schools in the district	to help administrators determine the academic progress of schools in the district
to identify district or school level patterns and trends	to guide and evaluate improvement plans and policies