

The Achievement Level Index – ALI

Reporting the Performance of Schools and School Districts in Mississippi Based on the Results of the Statewide Accountability System

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Office of Research and Statistics
Mississippi Department of Education

Performance-Based Accreditation System

Based on the Mississippi Education Reform Act of 1982, the state implemented a Performance-Based Accreditation System (PBAS) beginning in 1986-1987. Each district was assigned an accreditation status (1987 through 1991) or accreditation level (1992 through 1999). For the last four years the system was in place, each district was also assigned a performance index. The performance index was based solely on student performance; not on compliance with the accreditation process standards. The index ranged from 1.0 through 5.0 and indicated where the district's performance fell within its assigned accreditation level. For example, one level 3 district might have a performance index of 3.1 while another might have a performance index of 3.9. The district with performance index 3.9 exhibited greater performance than the district at 3.1 and very similar performance compared to a level 4 district with a performance index of 4.0. The performance index provided a more sensitive measure of each district's performance. The last accreditation levels and performance indexes from the PBAS were assigned in March 1999.

School Level Accountability System

Based on legislation passed during the 1999 and 2000 regular sessions, Mississippi developed a new student assessment program and a new school level accountability system based on achievement and growth. The system was piloted in Fall 2002 based on data from the 2001 and 2002 test administrations. The first live school accountability results were approved by the State Board of Education in 2003.

The achievement and growth models use data from the Mississippi Curriculum Test and the Subject Area Testing Program to calculate a basic achievement index (BAI), a higher achievement index (HAI), and a growth composite for each school. The official results from the accountability system -- an achievement index (1-5), a growth status (not met, met, exceeded), and a school performance classification (1-5 with an appropriate label) – are reported to districts and to the public each year.

Each school was originally assigned an achievement level and a performance classification each consisting of a single value from 1 through 5. There was no finer (more sensitive) measure of school performance. In addition, measures were available only at the school level; there was no measure of district level performance.

There are two reasons why a finer measure of school performance is useful. First, a finer measure can indicate where a school's performance fell within its assigned achievement level. Second, there are numerous places in state legislation citing district level performance. When those code sections were written, the PBAS was in place. A finer measure of school performance can be used for calculating an overall measure of district level performance.

The basic elements for producing a more sensitive school performance measure are already calculated within the approved achievement model – the BAI and HAI values. The figure on the next page shows how the BAI and HAI values are used to produce a continuous numeric scale onto which a school's performance is mapped.

Note: The Achievement Level Index (ALI) concept and its use went through the state Administrative Procedures Act (public comment) procedure during February 2006 and was approved by the State Board of Education in April 2006.

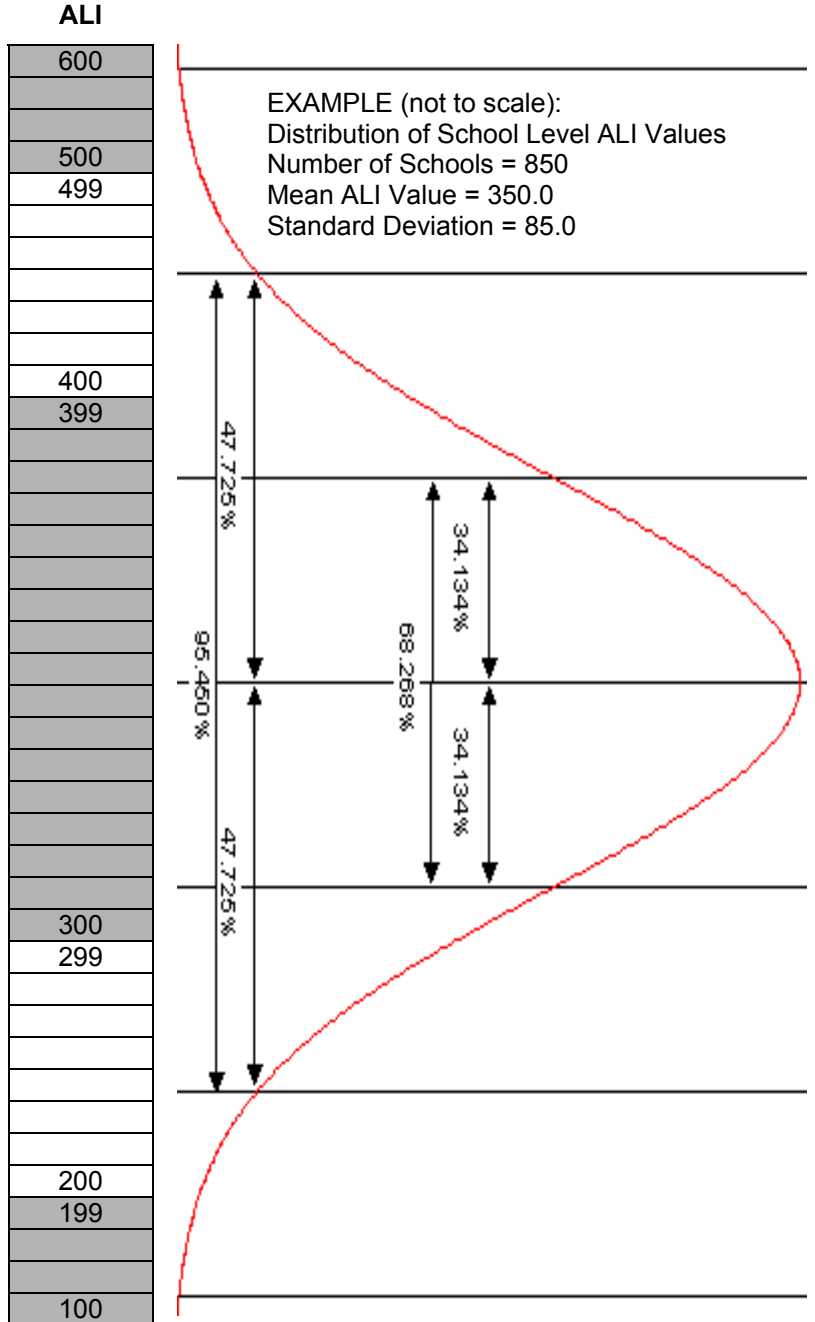
The Achievement Level Index

Graphical Illustration of the Mississippi Achievement Model Showing the Achievement Indexes and the Relationship of those Scales to the Achievement Level Index (ALI)

Basic Achievement Index (BAI) = The sum of the standardized/weighted measures of "Basic" achievement

		Highest	
	Achievement Level 5		
		+0.992	
	Achievement Level 4		
		+0.617	
	Achievement Level 3		
		0.0	
	Achievement Level 2		
		-0.240	
	Achievement Level 1		
		-1.100	
	Lowest		

Higher Achievement Index (HAI) = The sum of the standardized/weighted measures of "Higher" achievement



Calculation of the Achievement Level Index (Fixed Endpoint Method)

The ALI value is computed from the school's achievement level and either its BAI or HAI value. The school performance classification is not used for calculating the ALI. So, the ALI is a measure of student achievement, not a combination of achievement plus growth.

For purposes of computing the ALI, the BAI value is used for schools in achievement levels 1 and 2 and the HAI value is used for schools in achievement levels 3 through 5. Schools obtaining the low BAI or HAI cut score value for their achievement level are assigned an intermediate value of 0 and schools with BAI or HAI values immediately below the cut score for the next higher achievement level are assigned an intermediate value of 99. Achievement level 1 schools with a BAI score of -2.0 or lower are assigned an intermediate value of 0. Achievement level 5 schools with an HAI value of +2.0 or higher are assigned an intermediate value of 100.

Schools that did not fall at the achievement level endpoints described above are assigned intermediate values using linear interpolation. For example, a school with a BAI/HAI value falling in the middle of the range for all schools in its achievement level is assigned an intermediate value of 50.

The intermediate value is added to a constant representing the school's achievement level – 100 for achievement level 1 schools ... 500 for achievement level 5 schools. The ALI values yielded by this process range from 100 through 199 for achievement level 1 schools ... 500 through 600 for level 5 schools. The possible ALI range each year is 100 to 600.

The scale produced using this process is a true ordinal scale where higher ALI values represent higher overall school performance. Whereas the separate BAI and HAI scales are linear interval scales in z-score format, the ALI values are linear only within each achievement level grouping (e.g., between 100 and 199, between 200 and 299...). For most purposes, the ALI will be treated as a linear interval scale.

Uses of the Achievement Level Index

One use of the ALI is to get a better idea of how each school performed. For example, one school might have an ALI of 310 while another might have an ALI of 390. The school with ALI 390 exhibited greater performance than the school at ALI 310 and very similar performance compared to an achievement level 4 school with an ALI of 400. The ALI provides a finer, more sensitive measure of a school's performance.

The school level ALI values are used to calculate a useful district level performance measure. Averaging school performance classifications or school achievement level values is not statistically appropriate because those measures represent simple classifications. Much of the school performance variability (e.g., differences in the BAI and HAI values reflecting differences in student level achievement) has been lost once the school measure is converted to a simple classification. Since the ALI preserves the school level variation by using the BAI and HAI values to map each school onto the numeric scale, ALI values are more appropriate for averaging. Since the school is the basic unit of measurement in the statewide accountability system, it is statistically appropriate to average school level ALI values in order to obtain an overall measure of district level performance (i.e., "typical school performance").

The following pages contain tables showing statistics for school level ALI distributions and district level average ALI (AVGALI) distributions based on the achievement model results from 2002 (pilot run) through 2007. At the school level, the ALI value reflects the school's achievement level (but not, necessarily, the School Performance Classification).

For purposes of classifying district performance, the following AVGALI ranges are used:

- Level 1 District** = Rounded average ALI (AVGALI) value between **100 and 199**
- Level 2 District** = Rounded average ALI (AVGALI) value between **200 and 319**
- Level 3 District** = Rounded average ALI (AVGALI) value between **320 and 449**
- Level 4 District** = Rounded average ALI (AVGALI) value between **450 and 519**
- Level 5 District** = Rounded average ALI (AVGALI) value between **520 and 600**

School Statistics Based on Achievement Level Index (ALI)¹ Measures

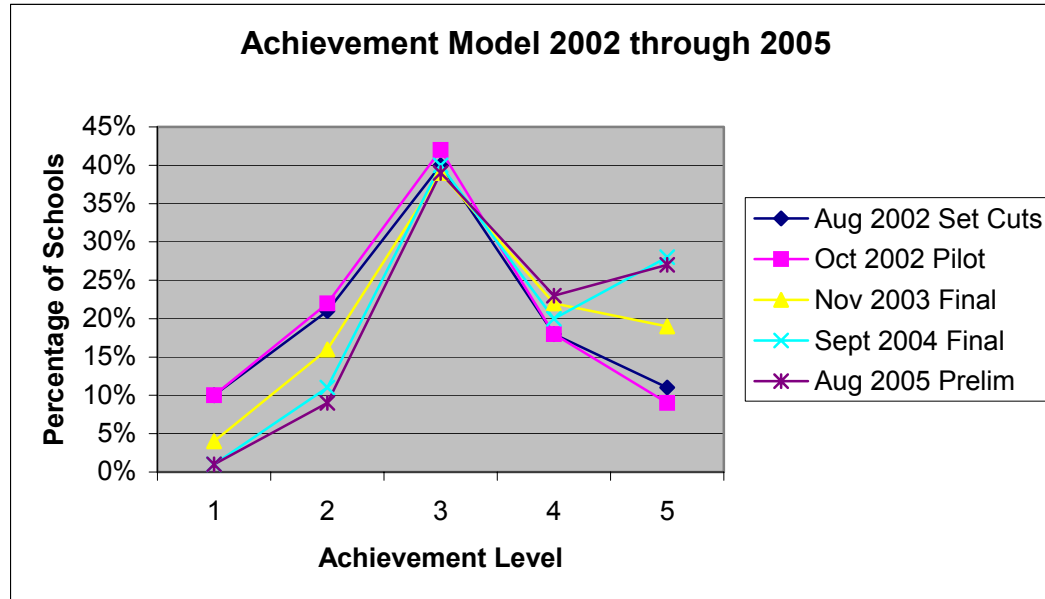
Statistic	Variable Endpoint Method					Fixed Endpoint Method
	2002 School Level ALI Values ²	2003 School Level ALI Values	2004 School Level ALI Values	2005 School Level ALI Values	2006 School Level ALI Values ³	2007 School Level ALI Values ⁴
N-Count	830 Schools	836 Schools	841 Schools	839 Schools	836 Schools	843 Schools
Mean Value	350.2	385.1	412.7	415.6	417.7	410.4
Standard Deviation	107.4	96.7	93.6	90.2	85.1	88.8
P80	436	495	510	511	510	506
P75 (Q3)	409	469	504	503	503	498
P50 (Median)	365	386	398	400	404	399
P25 (Q1)	276	341	352	355	359	359
P20	254	299	337	345	349	348
+1.0 SD	457	482	506	506	503	499
+0.5 SD	404	433	460	461	461	454
Mean	350	385	413	416	418	410
-0.5 SD	296	337	366	371	375	366
-1.0 SD	243	288	319	326	333	321

¹ALI ranges from 100 to 600 and is derived from a school's Achievement Model BAI and HAI values.

²The 2002 values represent results from the pilot run of the Achievement Model in October 2002. The other columns represent final results from the live runs of the model.

³The ALI values for 45 schools that were "held harmless" in 2006 are actually from the 2005 final run.

⁴The fixed endpoint (FEP) method was used for official reporting beginning in 2007.



Note: The final 2005, 2006, and 2007 School Achievement Level distributions are very similar to the August 2005 preliminary run shown above.

District Statistics Based on Average Achievement Level Index (AVGALI)¹ Measures

Statistic	Variable Endpoint Method					Fixed Endpoint Method
	2002 District Level AVGALI Values ²	2003 District Level AVGALI Values	2004 District Level AVGALI Values	2005 District Level AVGALI Values	2006 District Level AVGALI Values	2007 District Level AVGALI Values ³
N-Count	152 Districts	152 Districts	152 Districts	152 Districts	152 Districts	152 Districts
Mean Value	339.0	374.6	404.9	407.1	410.1	401.3
Standard Deviation	88.1	86.5	83.2	79.3	74.6	77.8
P80	423	458	483	483	476	475
P75 (Q3)	410	440	471	468	471	467
P50 (Median)	349	378	409	402	407	397
P25 (Q1)	280	318	351	352	360	348
P20	255	300	332	334	345	334
+1.0 SD	427	462	488	486	485	479
+0.5 SD	383	418	446	447	447	440
Mean	339	375	405	407	410	401
-0.5 SD	295	332	363	367	378	362
-1.0 SD	251	289	322	328	335	323

¹ALI ranges from 100 to 600 and is derived from a school's Achievement Model BAI and HAI values. AVGALI is the average of the ALI values for the schools in the district.

²The 2002 values represent results from the pilot run of the Achievement Model in October 2002. The other columns represent final results from the live runs of the model.

³The fixed endpoint (FEP) method was used for official reporting beginning in 2007.

District Statistics Based on Average Achievement Level Index (AVGALI)¹ Measures

Statistic	Variable Endpoint Method					Fixed Endpoint Method
	2002 District Level AVGALI Values ²	2003 District Level AVGALI Values	2004 District Level AVGALI Values	2005 District Level AVGALI Values	2006 District Level AVGALI Values	2007 District Level AVGALI Values ³
Distribution of Districts by AVGALI (Number and Percentage)						
AVGALI 100-199	10 (7%)	5 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
AVGALI 200-299	39 (26%)	25 (16%)	19 (13%)	14 (9%)	14 (9%)	18 (12%)
AVGALI 300-399	61 (40%)	55 (36%)	52 (34%)	59 (39%)	57 (38%)	60 (39%)
AVGALI 400-499	39 (26%)	61 (40%)	57 (38%)	57 (38%)	60 (39%)	57 (38%)
AVGALI 500-600	3 (2%)	6 (4%)	24 (16%)	22 (15%)	21 (14%)	17 (11%)
AVGALI Ranges for District Level Achievement Classifications						
Level 1 = 100-199	10 (7%)	5 (3%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Level 2 = 200-319	52 (34%)	33 (22%)	23 (15%)	24 (16%)	19 (13%)	24 (16%)
Level 3 = 320-449	79 (52%)	82 (54%)	80 (53%)	78 (51%)	79 (52%)	78 (51%)
Level 4 = 450-519	11 (7%)	32 (21%)	32 (21%)	37 (24%)	43 (28%)	42 (28%)
Level 5 = 520-600	0 (0%)	0 (0%)	17 (11%)	13 (9%)	11 (7%)	8 (5%)

¹ALI ranges from 100 to 600 and is derived from a school's Achievement Model BAI and HAI values. AVGALI is the average of the ALI values for the schools in the district.

²The 2002 values represent results from the pilot run of the Achievement Model in October 2002. The other columns represent final results from the live runs of the model.

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[ALI_Explanation_2007.doc]