



STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
LANSING



JENNIFER M. GRANHOLM
GOVERNOR

THOMAS D. WATKINS, JR.
SUPERINTENDENT OF
PUBLIC INSTRUCTION

TO: Members of the State Board of Education

FROM: Jeremy M. Hughes, Ph.D., Acting Superintendent 

DATE: March 3, 2005

**SUBJ: REVISIONS TO MICHIGAN'S NCLB
ACCOUNTABILITY WORKBOOK**

The *Accountability Workbook* is a formatted report, developed by the U. S. Department of Education (USDOE), in which each state proposes how it will implement the assessment and accountability requirements of the *No Child Left Behind Act of 2001 (NCLB)*. The USDOE, after review of a state's plan and after possible revisions, approves the plan, which then becomes the blueprint for implementation.

Because NCLB is, to some extent, a work still in progress, the USDOE allows states to request modifications and amendments to the workbook. If a state wishes to have these approved in time to be applied to the next school or district report card, the modifications and amendments must be submitted to the USDOE on or before April 1 each year.

As a result of Michigan's experience in implementing NCLB, there are modifications we would like to submit that would assist our schools and districts by ensuring that AYP decisions are made on the most reliable data, that district size is considered in making student group decisions, and that it is possible to honor the proficient ("passing") scores of more children with disabilities eligible to take an alternate assessment.

Attached are documents pertaining to the following amendments we wish to submit:

- Application of a reliability formula to assessment scores in calculating AYP.
- Larger minimum group size for districts with enrollment over 3,000.
- A request for an exemption from the 1% cap on including proficient scores of students who take an alternate assessment.

A separate document, regarding proposed consequences for Non-Title I schools not making AYP, is not a part of the *Accountability Workbook* since NCLB does not specify, but leaves it up to each state, to determine consequences, if any, for Non-Title I schools.

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TO: Members of the State Board of Education

FROM: Jeremy M. Hughes, Ph.D., Acting Superintendent 

DATE: March 2, 2005

**SUBJ: RELIABILITY FORMULA FOR 2005 AYP SCHOOL
AND DISTRICT REPORT CARDS**

The No Child Left Behind Act of 2001 requires states to implement "...a set of high quality, yearly student academic assessments" which, among other things, "will be used for purposes for which such assessments are valid and reliable, and be consistent with relevant, nationally recognized professional and technical standards." [Sec. 1111(b)(3)(A) and (C)(iii)]

Reliability becomes an increasingly important factor, in Michigan and in other states, as:

1. Academic adequate yearly progress (AYP) targets increase, as they do in Michigan for our 2005 report cards.
2. More schools are identified as needing improvement.
3. More schools face increasingly severe federal consequences for not making AYP.

With serious consequences at stake for not making AYP, it is appropriate to ask how reliable are the assessment scores that are being used to determine a school or district's status. Is there any margin of error associated with these scores?

At last count, about 30 states have received approval from the U. S. Department of Education (USDOE) to apply some type of reliability formula to the calculation of a school's or district's AYP status. We believe it is appropriate to consider doing the same for Michigan's schools and districts.

Attached is a document developed by our psychometrician, Dr. Joseph Martineau, and Paul Bielawski, explaining the operation and effect of combining two statistics to calculate AYP:

- A statistic accounting for measurement error.
- A statistic accounting for sampling error.

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With your approval, it is our hope to be able to include this as a proposed amendment to our NCLB Accountability Workbook.

Stated in statistical terms, in calculating AYP for 2004-05, our proposed amendment would seek USDOE permission to use:

- A 90% confidence interval on schools' estimated proportion of students proficient, and
- A plus-and-minus one Standard Error of Measurement confidence interval on individual student scores.

Accounting for Measurement Sampling Error in Calculating Adequate Yearly Progress (AYP): Executive Summary of a Proposal to the Michigan State Board of Education

Joseph A. Martineau, PhD. Psychometrician
Paul Bielawski, Accountability Manager

Michigan Office of Educational Assessment & Accountability

Best practice in educational assessment requires that measurement error be accounted for in reporting results based on student achievement (*see Standard 13.14 of Standards for Educational and Psychological Testing*; American Educational Research Association *et al.*, 1999). Best practice in statistics also requires that sampling error be accounted for in reporting results based on samples from a larger population (see International Standards Organization, 1980 and 1993).

It is conceivable that some may see a move toward best assessment and statistical practices as lowering Michigan's high achievement standards. However, moving toward best practice does not in any way lower Michigan's high achievement standards. The approaches proposed here leave the standards intact, more accurately indicating how confidently we are able to classify individual schools as making or not making AYP. This proposal more accurately indicates our confidence by separating schools into three categories: (1) *making AYP*, (2) *provisionally making AYP*, and (3) *not making AYP*. The second category indicates our lack of confidence in definitively categorizing schools whose performance levels are just above and just below the AYP achievement targets. For No Child Left Behind (NCLB) purposes, schools provisionally making AYP would be counted as making AYP.

Classifying schools and districts in this way alleviates the negative effects of being falsely identified as not making AYP because sanctions would not kick in for provisional schools and districts, but special attention would be given to those schools because of their "provisional" status. This method also alleviates the negative effects of not paying the needed attention to schools and districts falsely identified as making AYP because special attention would be given to "provisional" schools.

A Method of Accounting for Measurement Error in Calculating AYP

The key quantity in AYP calculations is the estimated proportion of students in a school (or subgroup) that were proficient. The simplest (and current) approach to AYP is to simply count the number of students whose scores are at or above the proficiency cut score, and divide by the total number of students tested, as illustrated in Figure 1. To simplify the graphics, the example given in this section exaggerates the effect of accounting for measurement error.

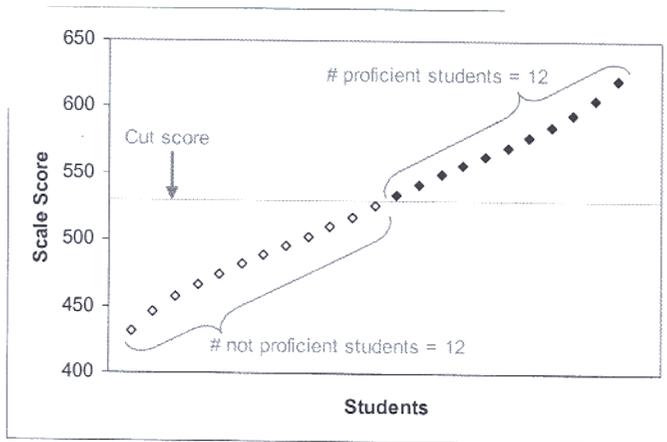


Figure 1. Traditional approach to estimating percent proficient, as applied in Michigan.

However, because of measurement error, it is likely that students with scores close to the cut point are misclassified as either proficient or not proficient. The standard error of measurement can be used to place a confidence interval around each student's score, as in Figure 2.

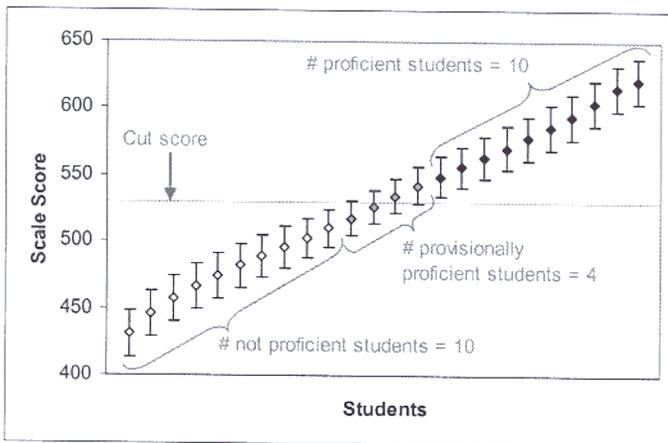


Figure 2. Placing confidence intervals around individual student scores.

The four provisionally proficient students in Figure 2 can be counted as not proficient to put a lower end on the confidence interval of the proportion proficient in this school, and they can be counted as proficient to place an upper end on the confidence interval. For this school, the estimated percent proficient is 50 percent, with a confidence interval running from a low of 42 percent to a high of 58 percent. The effect of this approach on the calculation of AYP is shown in Figure 3. Only those schools very near the AYP target (50% proficient in this case) are categorized as provisionally making AYP.

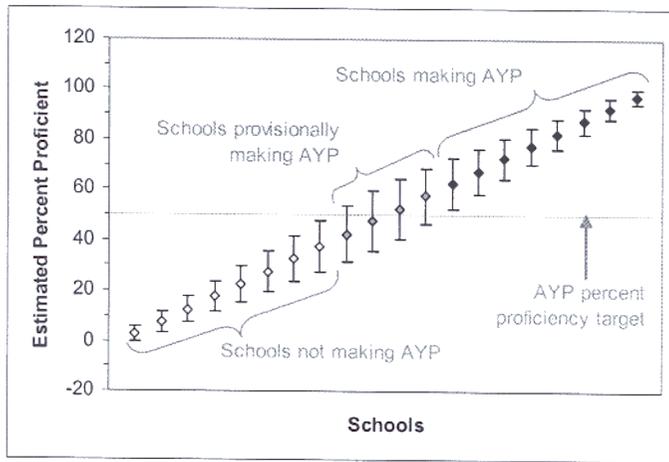


Figure 3. Effect of measurement error on calculating AYP for a sample of schools.

A Method of Accounting for Sampling Error in Calculating AYP

Many states incorporate a correction based on the standard error of the proportion by building a traditional confidence interval around each school's estimated proportion of students that are proficient (see Erpenbach *et al.*, 2003). However, this traditional approach to building the confidence interval assumes that we want to know how schools would perform with any random sample of students from the entire statewide population of students. This assumption is difficult to defend.

The proposed approach assumes that we want to know how schools did with the actual population of students they served. This is a finite and small population for each school. Even though we have access to the entire population in each school, sampling still occurs because not all students are present during the testing period, and many schools are required to test only a portion of the grades they serve. To more accurately correct for sampling error, a finite population correction is applied to the standard error of proportion, which makes the confidence intervals around each school's estimated proportion proficient much smaller than those being used by other states, as shown in Table 1.

Table 1. *Approximate Size of Michigan's Proposed 90% Confidence Interval.*

Type of school	Approximate Size of Michigan's Proposed 90% Confidence Interval
K-3 (1/4 of grades tested)	nine tenths the size of other states' 90% intervals
K-5 (1/2 of grades tested)	three quarters the size of other states' 90% intervals
All grades tested	one quarter the size of other states' 90% intervals

Reasons for Adopting a Confidence Interval Approach at this Time

The *bona fide* reason for implementing these confidence interval approaches is to implement best practices in educational assessment and statistical practice. However, there are practical and

public relations considerations that provide a reason to implement the measurement and sampling error confidence intervals as soon as possible.

Two changes in the MEAP and MI-Access assessment programs will soon cause an increase in the number of schools classified as not making AYP based on student achievement. First, the percent proficiency targets to make AYP increase by about ten percent for all subjects and grades for the 2004/2005 school year. Second, the number of elementary and middle school students tested in Math and English Language Arts will triple in Math and English Language in the 2005/2006 school year, increasing the possibility that schools will have additional NCLB subgroups large enough to be included in AYP calculations.

With these intentional changes are intentional it is expected that more schools will be classified as not making AYP. On the practical side, because NCLB carries extraordinarily high stakes for schools, it is important to acknowledge and address the uncertainty in AYP calculations when that uncertainty will have an undue effect on a larger number of schools.

On the public relations side, implementing the proposed confidence interval approaches at this point would have a less visible effect on the number of schools identified as not making AYP. This is because the expected increase in the number of schools not making AYP would be offset by the expected decrease in the number of schools targeted for sanctions under the proposed confidence interval approaches. Note that this proposal does not “just let schools provisionally making AYP off the hook.” While schools provisionally making AYP would not face NCLB sanctions, they would be publicly identified as at risk of not making AYP and in need of monitoring.

Impact Data of Accounting for Measurement and/or Sampling Error

Table 2 shows the impact of implementing the confidence interval approaches in the 2004/2005 school year, assuming that student scores will be similar to the 2003/2004 school year score. The anticipated effects shown in Table 2 are only appropriate for the calculation of 2004/2005 school year AYP. Because of the move to grade 3-8 testing in the 2005/2006 school year and beyond, the projected number of schools not making AYP would be closer to the 1142 that would not make AYP when applying only the measurement error confidence interval.

Table 2. *Impact of Accounting for Measurement and/or Sampling Error.*

Type of School	2004/2005 School Year	2005/2006 School Year, With			
		Neither Interval	Measurement Error Interval Only	Sampling Error Interval Only	Both Intervals
Makes AYP	2735	2162	**	**	**
Provisionally makes AYP*	not applicable	not applicable	**	**	**
Does not make AYP	861	1,444	1,142	789	762

* Classified as making AYP for NCLB purposes.

** These quantities are in the process of being simulated.

A more complete explanation of this proposal is available upon request for the packet of materials to be submitted to the U.S. Department of Education in applying for this amendment to Michigan’s Accountability Workbook.

References

- American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (1999). *Standards for Educational and Psychological Testing*. Washington, D.C.: American Educational Research Association (AERA).
- Erpenbach, W. J., Forte-Fast, E., & Potts, A. (2003). *Statewide Educational Accountability Under NCLB: Central Issues Arising From an Examination of State Accountability Workbooks and U.S. Department of Education Reviews Under The No Child Left Behind Act of 2001*. Washington, DC: Council of Chief State School Officers, State Collaborative on Assessment and Student Standards (SCASS) Accountability Systems and Reporting (ASR) Consortium.
- International Standards Organization. (1980). *Statistical Interpretation of Test Results-- Estimation of the Mean -- Confidence Interval*. Geneva, Switzerland: International Standards Organization.
- International Standards Organization. (1993). *Guide to the Expression of Uncertainty in Measurement*. Geneva, Switzerland: International Standards Organization.



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TO: Members of the State Board of Education

FROM: Jeremy M. Hughes, Ph.D., Acting Superintendent *JMH*

DATE: March 2, 2005

SUBJ: MINIMUM GROUP SIZE FOR CALCULATING AYP FOR SCHOOL DISTRICTS

We recently issued our first AYP report cards for school districts. After doing so, it became clear that some districts which made AYP at all three school levels (elementary, middle, and high school) failed to make AYP because of one or several subgroups. In these cases, subgroup numbers at the individual schools were below the minimum group size of 30 but, when aggregated together at the district level, numbered above 30 and thus were included in calculating the district AYP.

Several other states have received U. S. Department of Education (USDOE) approval to use a larger minimum group size when calculating AYP at the district level.

Staff have considered and are recommending to you the proposal USDOE approved for the state of Washington. Under this proposal:

Minimum group size would remain at 30 for all school districts whose total enrollment was 3,000 or less.

- For districts above 3,000, minimum group size would be one-percent (1%) of the district's total enrollment.

By way of simulation, both a 1% and 0.5% have been applied to the district 2004 AYP report cards recently issued. The following table depicts that changes that would occur in the number of districts making/not making AYP had this been applied.

	30	30 or 1% of enrollment	30 or 0.5% of enrollment
Make AYP - All Levels	302	489	480
Made AYP - missed 1 grade range	129	25	30
Did not make AYP	104	21	25

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The above table uses AYP data and enrollment data from Spring, 2004. Some highlights of the simulation are:

150 districts enroll over 3,000 students. Of these there are:

- 146 districts with enrollment over 3,100 = minimum n of 31 or more,
- 75 districts with enrollment over 5,000 = minimum n of 50 or more.
- 38 districts with enrollment over 7,500 = minimum n of 75 or more.
- 26 districts with enrollment over 10,000 = minimum n of 100 or more.

Outcomes:

Only 21 districts do not make AYP under the 1% simulation, 25 districts under the 0.5% simulation. This compares to 109 districts that did not make AYP in 2004 using 30 as the minimum N.



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March 2, 2005

 **DRAFT**

Secretary Margaret Spellings
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202

Dear Secretary Spellings,

The Michigan Department of Education (MDE) is requesting an exception permitting it to exceed the one percent cap of student scores of “advanced” and “proficient” on alternate assessments based on alternate academic achievement standards when calculating adequate yearly progress (AYP). We are requesting the exception to the 1% cap for the 2004-05 school year assessment cycle. As specified in the final regulations published on December 9, 2003, we will include in this request: documentation of the incidence of students with the most significant cognitive disabilities in tested grades; an explanation of why the incidence exceeds 1%; and documentation of the ways in which the state is addressing section 200.6(a)(2)(iii) in the final regulation.

In Michigan all students are assessed using either the Michigan Educational Assessment Program (MEAP) assessment, the MEAP with accommodations, or the MI-Access, Michigan’s Alternate Assessment Program that tests students on alternate academic achievement standards. Additional information about our state assessment system is provided in Attachment A. Statewide data from the 2003-04 assessment cycles indicates that 4.28 percent of all students in the tested grades participated in an alternate assessment based on alternate academic achievement standards aligned with the state’s challenging achievement standards. Although more than 4% of tested students used the alternate assessment, MDE counted as proficient, for the purposes of AYP, no more than 1% of each tested cohort. The table below shows the 2003-04 data.

2003-04 Testing Cohort Data

Subject	All Students	Students w/Disabilities	Alt.Assessment on Alt Stand.	Percent on Alt. Assessment
ELA	385,133	48,871	17,064	4.4%
Math	383,959	48,425	15,905	4.1%

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In our fall student count for the 2004-05 school year 95,136 students with disabilities were counted in the grades tested out of a total of 700,182 students. Among the students with disabilities we estimate that 14, 882 are students with the most significant cognitive impairments. The table below shows the estimated 2004-05 data.

Estimate of Testing Cohort for 2004-05

Grade	4	5	7	8	11	Total
General Ed	117496	120031	128751	128798	109971	605047
Special-Education	16803	16921	17522	17247	11761	80254
Sp.Ed.Sig.Cog. Impairment	2666.4	2936	3344	3341.2	2594	14882
Total	136965	139888	149617	149386	124326	700182
Grade	4	5	7	8	11	Total
Est. MEAP Participation	134299	136952	146273	146045	121732	685301
Est. MI-Access Participation	2666.4	2936	3344	3341.2	2594	14882
Total	136965	139888	149617	149386	124326	700182
Grade	4	5	7	8	11	Total
% MEAP	98.05%	97.90%	97.76%	97.76%	97.91%	97.87%
% MI-Access	1.95%	2.10%	2.24%	2.24%	2.09%	2.13%

The continuum of educational options for students with disabilities in Michigan ranges from full inclusion to centralized and highly specialized schools. Michigan has a strong commitment to excellent educational services and options for students with disabilities as evidenced by our strong special education laws and guaranteed provision of services to students with disabilities **from birth to the age of 26 (The Revised School Code, Sections 380.1701-380.1766)**. This guarantee has drawn families to Michigan to obtain this high quality of education and service for their students. Evidence of this can be seen in the data below from the Annie E. Casey Foundation's Kids Count website. The Foundation's data are based on national census data for children with disabilities between the ages of 5 and 15, which show Michigan as the state with the tenth highest population. The table below shows that Michigan's percent of children with disabilities exceeds the percent of the states that surround us and exceeds the national average.

State	Number	Percent (national = 5.8)
Michigan	108,655	6.6
Illinois	111,378	5.5
Indiana	61,622	6.3
Minnesota	43,780	5.4
Ohio	113,374	6.3
Wisconsin	53,192	6.2

We have implemented an exception request process to handle the documented requests from schools that educate students with the most significant cognitive impairments and for whom these students comprise more than one percent of their population. Even with the flexibility in the regulations to apply the exceptions to the total state population of students with the most significant cognitive disabilities, we have discovered that we have the need to extend the cap to 1.8% to meet the needs of the legitimate requests from LEAs. Although our data suggest a need for the cap to be increased to 2.1%, we feel that increased guidance and a standard error of measure will result in a slightly lower participation rate in our alternate assessment based on alternate academic achievement standards.

Michigan has developed extensive guidance for IEP teams to assist them in making the appropriate assessment and accommodation choices for students with disabilities. The Michigan Educational Assessment Program (MEAP) Coordinators Manual also lists the standard and non-standard accommodations and it provides some information about the use of accommodations in an effort to include as many students as possible in the state's assessment that is based on rigorous academic achievement standards. Additional guidance has been provided by the Office of Educational Assessment and Accountability on the MI-Access, the state's alternate assessment based on alternate academic achievement standards, to help IEP teams understand when and why to choose MI-Access instead of MEAP. These various guidance documents can be viewed at the MDE website at this location: www.mi.gov/mi-access.

State assessment information and results have been shared with parents in a variety of ways, but MDE continues to work to coordinate the current efforts and add materials to make the information to parents more effective. This information will continue to be shared with parents, school district administrators, assessment coordinators, and IEP teams to ensure clear and consistent communication with parents about the implications of having their child tested with an alternate assessment.

Educators throughout the state have been working toward the goal of providing access to and progress in the general curriculum for all students with disabilities, especially those with the most significant cognitive disabilities. We want to ensure that students are appropriately included in the state's assessment and accountability system in increasing numbers. The exception to the 1% cap for the 2004-05 school year will help ensure that districts are accountable for all of their students. It will also assist Michigan in reinforcing the commitment of ensuring a fair and consistent application of the final regulation related to the 1% cap.

In summary, it is therefore our request that, in calculating AYP, we be allowed to use a cap of 1.8% in including the "advanced" and "proficient" scores of students whose IEP's appropriately designate them to be assessed with Michigan alternate assessment, based on alternate academic achievement standards.



DRAFT

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If you have questions about this request, please contact me at 517-335-0011 or by email at hughesj@michigan.gov.

Sincerely,

Jeremy M. Hughes, Ph.D.
Acting Superintendent
Michigan Department of Education