

Letter Report

**Test Score Data for Pupils  
in the Milwaukee Parental  
Choice Program**

*September 2008*



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Janice Mueller  
State Auditor

September 16, 2008

Senator Jim Sullivan and  
Representative Suzanne Jeskewitz, Co-chairpersons  
Joint Legislative Audit Committee  
State Capitol  
Madison, Wisconsin 53702

Dear Senator Sullivan and Representative Jeskewitz:

As required by 2005 Wisconsin Act 125, we have reviewed the pupil test score data provided to us by the School Choice Demonstration Project, which is a group of privately funded education researchers who are studying the Milwaukee Parental Choice Program. The Choice program provides publicly funded private school tuition for low-income children in Milwaukee.

Project researchers are conducting a five-year longitudinal study of a sample of 2,727 Choice pupils that comprises a random sample of pupils in the third through eighth grades and all Choice pupils in the ninth grade; 2,727 Milwaukee Public Schools (MPS) pupils in the third through ninth grades who were selected based on their similarity to the Choice pupils; and a random sample of 2,727 MPS pupils in the third through ninth grades. The researchers plan to track changes in Wisconsin Knowledge and Concepts Examination scores and determine how participation in the Choice program affects changes in academic achievement.

We reviewed the project's data for the 2006-07 school year, the first year that it arranged for the Wisconsin Knowledge and Concepts Examination to be administered to Choice pupils. We analyzed and confirmed the test score averages and related analyses that the project reported in February 2008. However, we were unable to review average pupil test scores at individual Choice schools because the project, citing confidentiality concerns, did not provide us with this type of information. As a result, we cannot provide legislators and other policymakers with information about academic performance specific to each of the 120 Choice schools that operated in the 2006-07 school year. We also note analytical challenges that the project will need to address when analyzing test scores in future years.

We appreciate the courtesy and cooperation extended to us by the project in conducting this review.

Sincerely,

Janice Mueller  
State Auditor

JM/DS/ss

Enclosure



## **TEST SCORE DATA FOR PUPILS IN THE MILWAUKEE PARENTAL CHOICE PROGRAM**

The Milwaukee Parental Choice Program was established by 1989 Wisconsin Act 336. Under the program, parents and guardians may enroll their children in private secular or religious schools that have been approved for participation by the Department of Public Instruction (DPI), based on statutory and administrative rule requirements. In creating the program, the Legislature:

- limited participation to low-income pupils residing in the City of Milwaukee;
- established participation criteria for schools and authorized DPI to set certain administrative requirements; and
- required participating schools to accept the amount provided by the program as full payment for Choice pupils.

2005 Wisconsin Act 125, which was enacted in March 2006, made several changes to the Choice program. For example, it requires each private school participating in the Choice program to annually administer a nationally normed standardized test in reading, mathematics, and science to fourth-, eighth-, and tenth-grade pupils who attend school under the program. Beginning in 2006 and annually until 2011, participating schools must also provide the scores of all standardized tests they administer to the School Choice Demonstration Project, which is a group of privately funded education researchers who are based at the University of Arkansas but who include researchers from throughout the nation, including the University of Wisconsin-Madison.

2005 Wisconsin Act 125 directs the Legislative Audit Bureau to review and analyze the standardized test score data received from the project. In 2007 and annually thereafter until 2011, the Audit Bureau is directed to report to the Legislature on:

- the scores of a representative sample of fourth-, eighth-, and tenth-grade pupils in the Choice program who took the Wisconsin Knowledge and Concepts Examination, and third-grade pupils in the Choice program who took the Wisconsin Reading Comprehension Test;
- the scores of a comparable group of pupils enrolled in Milwaukee Public Schools (MPS) who took the Wisconsin Knowledge and Concepts Examination and the Wisconsin Reading Comprehension Test; and
- the results of the nationally normed standardized tests that Act 125 requires schools to administer annually to fourth-, eighth-, and tenth-grade pupils in the Choice program.

The Wisconsin Knowledge and Concepts Examination is administered each year to public school pupils statewide in the third through eighth grades, as well as to those in the tenth grade. It measures pupil achievement in reading and mathematics at each of those grade levels, as well as pupil achievement in science, language applications, and social studies at the fourth-, eighth-, and tenth-grade levels only. DPI has incorporated the Wisconsin Reading

Comprehension Test, which no longer exists as a separate test, into the Wisconsin Knowledge and Concepts Examination that is given to third-grade pupils.

In February 2008, the project released five reports on participation in the first year of its study. One report presents the baseline year of test scores from the expected five-year longitudinal study of samples of Choice and MPS pupils who were in the third through eighth grades in the 2006-07 school year and who took the Wisconsin Knowledge and Concepts Examination. Another report presents the results from a variety of nationally normed standardized tests that were administered to fourth-, eighth-, and tenth-grade pupils in the Choice program in the 2006-07 school year.

On December 28, 2007, the project provided us with test score data from the Wisconsin Knowledge and Concepts Examination and nationally normed standardized tests that were administered to Choice and MPS pupils in the 2006-07 school year. Sharing these data with us was delayed for several reasons, including because the firm that scored the tests provided results later than was originally anticipated and the project needed sufficient time to identify and correct errors and inconsistencies in the test score data. Because similar delays will likely occur in future years, we now expect that our reports will be released in 2008 through 2012, rather than according to the 2007 through 2011 time line specified by 2005 Wisconsin Act 125.

To complete this report, we reviewed and analyzed the test score data provided to us by the project and interviewed project researchers, DPI staff, and others familiar with the Choice program. Project researchers have indicated that the project is the largest effort undertaken to date to compare the academic performance of pupils in voucher schools and public schools. They also believe the project's sampling techniques are innovative and point to the project's plans to measure educational attainment, such as high school graduation and college enrollment, as further evidence of its comprehensiveness. They believe the project's methodology is rigorous and will ensure that it can correctly measure academic achievement in future years. We also note that two of the principal researchers are nationally recognized, experienced researchers of voucher programs.

While the project is designed to answer several academic research questions, there are limitations to its usefulness for policymakers, in part because of redactions to the data provided to us. Although we understand that individual pupils cannot be identified, we had initially believed that the project would provide us with data that identified the school attended by each Choice pupil who took the tests in the 2006-07 school year. However, citing confidentiality concerns, the project chose not to provide information on these pupils' schools. Federal law generally requires written permission from parents or guardians before information about individual pupils can be released. In addition, project researchers signed agreements with their universities stipulating that they would not release information that identified pupils or the schools they attended, and they signed similar confidentiality agreements with Choice schools and the parents and guardians of Choice pupils.

Because the project's data do not identify the Choice pupils and schools, we are limited in what we can report and confirm. For example, we cannot provide legislators and other policymakers with information about academic performance specific to each of the 120 Choice schools that operated in the 2006-07 school year. We note that school-specific performance information is available for public schools in Wisconsin, including MPS schools.

## Pupil and Private School Participation

To participate in the Choice program, statutes require that a child be in kindergarten through twelfth grade, reside in the City of Milwaukee, and be a member of a family whose total income does not exceed 175 percent of the federal poverty guidelines established by the Office of Management and Budget. In the 2006-07 school year, 175 percent of the federal poverty guidelines for a family of four was approximately \$35,500. 2005 Wisconsin Act 125 specifies that beginning in the 2006-07 school year, a pupil already attending a Choice school may continue to participate in the program, and his or her siblings may enter the program, if the family's income increases but does not exceed 220 percent of the federal poverty guidelines, which was approximately \$44,700 for a family of four in that school year.

Statutes require the parent or guardian to submit an application to the participating school a pupil wishes to attend. Each participating school must admit all eligible applicants unless the number of applications exceeds the number of spaces the school has designated for Choice pupils. In that case, the school must select randomly among eligible applicants. Total program enrollment is statutorily limited to 22,500 full-time equivalent pupils.

As shown in Table 1, 17,795 pupils participated in the Choice program in the 2006-07 school year. DPI reports they were enrolled at 120 schools. That number varies slightly from the number reported by the project, because DPI considers schools with multiple campuses to be the same school, while the project considers them to be separate schools.

Table 1

### Pupil Participation in the Milwaukee Parental Choice Program 2006-07 School Year

Grade Level	Number of Pupils <sup>1</sup>	Percentage of Total
4-Year-Old Kindergarten	1,555	8.7%
5-Year-Old Kindergarten	1,768	9.9
1	1,737	9.8
2	1,541	8.7
3	1,442	8.1
4	1,352	7.6
5	1,389	7.8
6	1,391	7.8
7	1,323	7.4
8	1,190	6.7
9	1,083	6.1
10	842	4.7
11	674	3.8
12	508	2.9
<b>Total</b>	<b>17,795</b>	<b>100.0%</b>

<sup>1</sup> As of the third Friday in September 2006.

To participate in the Choice program, schools must be private schools as defined in s. 118.165(1), Wis. Stats., which requires them to provide at least 875 hours of instruction each school year and to have a sequentially progressive curriculum of instruction in reading, language arts, mathematics, social studies, science, and health. In addition, each participating school must:

- notify the State Superintendent of Public Instruction by February 1 of the preceding year of its intent to participate in the program and specify the number of Choice pupils for whom it has space;
- comply with federal laws prohibiting discrimination on the grounds of race, color, or national origin;
- meet all health and safety laws or codes that apply to public schools; and
- ensure that all of its teachers have graduated from high school or have been granted a declaration of equivalency of high school graduation.

Choice schools are statutorily required to work either toward achieving accreditation from one of several statutorily designated organizations or to have been approved for scholarship funding in the 2005-06 school year by Partners Advancing Values in Education, which is a nonprofit organization that supports educational choice for low-income families in Milwaukee. Statutes include a number of other requirements, including those intended to ensure participating schools are financially viable.

In addition, each Choice school has been statutorily required since the program's inception to meet at least one of the following performance standards:

- at least 70 percent of the pupils in the program are to advance one grade level each year;
- the average attendance rate for pupils in the program is to be at least 90 percent;
- at least 80 percent of the pupils in the program are to demonstrate significant academic progress; or
- at least 70 percent of the families of pupils in the program are to meet parental involvement criteria established by the school.

In October, each Choice school must indicate to DPI which performance standard it intends to meet during the school year. By June 30 of the following year, it must provide DPI with information indicating whether it met the standard.

For each child participating in the Choice program, DPI pays a private school the lesser of its per pupil operating and debt service costs related to educational programming, as determined by DPI, or the amount paid per pupil in the prior year adjusted by the percentage change in the general pupil aid appropriation from the previous to the current school year. Statutes direct DPI

to pay Choice schools in four equal installments throughout the school year. DPI makes checks payable to the families but mails them to the schools. There, parents and guardians restrictively endorse the checks to the schools. If a school cannot obtain a signature because, for example, a pupil is no longer enrolled, the school is required to return the check to DPI.

## **Longitudinal Test Data**

As noted, 2005 Wisconsin Act 125 requires the Legislative Audit Bureau to report on the test score data from a sample of fourth-, eighth-, and tenth-grade Choice and MPS pupils who took the Wisconsin Knowledge and Concepts Examination. However, as part of its study, the project has chosen to compile and analyze Wisconsin Knowledge and Concepts Examination scores from samples of Choice and MPS pupils who were in the third through eighth grades in the 2006-07 school year. It plans to use the test results to track changes in pupils' scores over a five-year period and determine how participation in the Choice program affects changes in academic achievement. In addition, it plans in future years to collect the scores of pupils in its samples who progress to the tenth grade and take the Wisconsin Knowledge and Concepts Examination at that grade level.

For a separate analysis, the project collected ninth-grade pupils' scores on a "benchmark assessment," which each MPS school voluntarily chooses to administer four times each school year to pupils in the third through ninth grades. The project obtained scores from a benchmark assessment that was administered in the 2006-07 school year. It arranged for the benchmark assessment to be administered to all ninth-grade Choice pupils. Rather than measure the change over time in test scores of these ninth-grade pupils, the project plans to use the scores to help analyze the pupils' rates of high school graduation, college enrollment, and employment.

The project indicated that its longitudinal study includes pupils in three groups:

- a sample of 2,727 Choice pupils in the third through ninth grades that comprises a random sample of third- through eighth-grade pupils and all ninth-grade pupils enrolled in the program;
- a matched sample of 2,727 MPS pupils in the third through ninth grades who were selected based on their similarity to the random sample of Choice pupils on factors such as neighborhood, test scores, gender, and ethnicity; and
- a random sample of 2,727 MPS pupils in the third through ninth grades.

The project selected its sample of Choice pupils from the list of pupils who were expected to participate in the program in the 2006-07 school year. Although the sample initially included 3,095 pupils, 368 were ultimately excluded either because they did not appear in DPI's audited list of pupils in the Choice program on the third Friday in September 2006 or because their parents requested they not be included in the project's study. The project arranged for the Wisconsin Knowledge and Concepts Examination or the benchmark assessment to be administered to the 2,727 Choice pupils who remained in its sample.

The project selected its MPS matched sample based on several criteria that were designed to identify MPS pupils who were similar in several respects to corresponding Choice pupils in its sample. For each Choice pupil, it first identified all MPS pupils in the same grade level in the 2006-07 school year and then those who lived in the same City of Milwaukee census tract as a Choice pupil and who scored similarly to the Choice pupil on the Wisconsin Knowledge and Concepts Examination or the benchmark assessment in the 2006-07 school year. If there were multiple MPS pupils who could possibly be matched with a given Choice pupil, the project selected the most similar MPS pupil based on such factors as gender, race, and whether or not English was the pupil's first language.

The project's methodology ensured that each of its three samples contains the same number of pupils in each grade level. As shown in Table 2, there are considerably more pupils in the ninth grade than in other grades because, as noted, the project indicated that it included all ninth-grade Choice pupils in its sample.

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Table 2  
**Pupils in the Demonstration Project's Three Samples**

Grade Level	Number	Percentage of Total
3	341	12.5%
4	324	11.9
5	338	12.4
6	330	12.1
7	303	11.1
8	290	10.6
9	801	29.4
<b>Total</b>	<b>2,727</b>	<b>100.0%</b>

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### **Pupil Demographics**

Table 3 shows the race and ethnicity of pupils in each of the project's three samples, based on data the project provided. Compared to the MPS matched sample, the Choice sample includes fewer African-American, white, and Asian pupils, but 27 more Hispanic pupils. The data did not indicate the race and ethnicity for 263 Choice pupils, or 9.6 percent of the total. The project indicated that comprehensive demographic information for Choice pupils was not available from all schools, but it is currently surveying pupils and their parents, in part, to attempt to obtain this information.

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Table 3

**Race/Ethnicity of Pupils in the Demonstration Project's Samples**

	Choice Sample	MPS Matched Sample	MPS Random Sample
African-American	1,621	1,831	1,634
Hispanic	565	538	539
White	210	246	396
Asian	63	89	125
American Indian	5	15	20
Other	0	8	13
Missing Data	263	0	0
<b>Total</b>	<b>2,727</b>	<b>2,727</b>	<b>2,727</b>

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Table 4 shows the gender of pupils in each of the project's three samples.

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Table 4

**Gender of Pupils in the Demonstration Project's Samples**

	Choice Sample	MPS Matched Sample	MPS Random Sample
Female	1,354	1,456	1,317
Male	1,116	1,271	1,410
Missing Data	257	0	0
<b>Total</b>	<b>2,727</b>	<b>2,727</b>	<b>2,727</b>

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As shown in Table 5, the project's data did not include complete information on other characteristics of Choice pupils in the sample, including whether they were identified as having a disability, as having a primary language other than English, or as being eligible for free or reduced-price lunches under the National School Lunch Program. Information on the disability status of 1,635 Choice pupils, or 60.0 percent of the total, was missing.

Table 5

**Other Characteristics of Pupils in the Demonstration Project's Samples**

	Choice Sample	MPS Matched Sample	MPS Random Sample
<b>Disability</b>			
Yes	90	458	531
No	1,002	2,269	2,196
Missing Data	1,635	0	0
<b>Total</b>	<b>2,727</b>	<b>2,727</b>	<b>2,727</b>
<b>English Not Primary Language</b>			
Yes	257	263	362
No	2,057	2,464	2,365
Missing Data	413	0	0
<b>Total</b>	<b>2,727</b>	<b>2,727</b>	<b>2,727</b>
<b>Free or Reduced-Price Lunch</b>			
Yes	1,847	2,355	2,282
No	267	372	445
Missing Data	613	0	0
<b>Total</b>	<b>2,727</b>	<b>2,727</b>	<b>2,727</b>

We found that the project's February 2008 discussion of the extent to which pupils in the three samples were eligible for free or reduced-price lunches under the National School Lunch Program was based on two different information sources. Although the report did not disclose that it had done so, the project used information on eligibility for free or reduced-price lunches to report on Choice sample pupils, but information on participation to report on pupils in the two MPS samples. Because some eligible pupils may not actually participate, particularly if they attend a Choice school that does not have a cafeteria or prepare lunches at the school, using the project's data to compare the three samples may be problematic because they are likely not as similar as the project reported.

**Pupil Test Scores**

As noted, the project compiled Wisconsin Knowledge and Concepts Examination scores for samples of Choice and MPS pupils in the third through eighth grades in the 2006-07 school year. It analyzed scores on the test's reading and mathematics sections, which are scored separately. In addition, it calculated a combined score by averaging each pupil's scores on the

reading and mathematics sections, and then analyzed the average of the combined scores. It did not report on scores for the Wisconsin Knowledge and Concepts Examination's three other sections—science, language applications, and social studies—because those sections are not administered to pupils at all grade levels.

The project selected the pupils in its MPS matched sample based on their combined scores, rather than their reading or mathematics scores. DPI does not calculate or report combined scores for the Wisconsin Knowledge and Concepts Examination, in part because the reading and mathematics sections have different ranges of possible scores at each grade level. For example, third-grade pupils can score between 270 and 640 on the reading section, while they can score between 220 and 630 on the mathematics section.

When the project reported pupils' average test scores for the 2006-07 school year, it listed total pupils in its samples at each grade level. However, not all pupils completed both the reading and mathematics sections of the Wisconsin Knowledge and Concepts Examination.

Table 6 shows the number of pupils at each grade level of the three samples and the number who actually completed the reading section of the Wisconsin Knowledge and Concepts Examination. In total, 1,640 of 1,926 Choice pupils in grades three through eight, or 85.2 percent, had reading scores; 286, or 14.8 percent, did not. In comparison, 98.6 percent of MPS matched sample pupils and 94.8 percent of MPS random sample pupils had reading scores.

Table 6

**Number of Pupils with Scores on the  
Wisconsin Knowledge and Concepts Examination: Reading  
2006-07 School Year**

Grade Level	Total Pupils in Each Sample	Pupils with Test Scores		
		Choice Sample	MPS Matched Sample	MPS Random Sample
3	341	293	332	323
4	324	281	315	303
5	338	289	337	322
6	330	273	327	313
7	303	255	302	289
8	290	249	286	276
<b>Total</b>	<b>1,926</b>	<b>1,640</b>	<b>1,899</b>	<b>1,826</b>

The project compared the average test scores of pupils at each grade level in the three samples in order to determine whether differences were statistically significant. Statistical significance can be determined at any level of confidence but is typically reported at a 95 percent confidence level or higher. While the project reported its results at three levels of confidence, we chose the

95 percent confidence level, which is a common level used by researchers. In its February 2008 report, the project properly emphasized that test results for the baseline year of its longitudinal study were descriptive and could not be used to determine the Choice program’s effect on educational achievement.

In an attempt to keep the sample size as large as possible, when the project determined average reading scores its calculations included both the 286 MPS pupils who were matched to 286 Choice pupils without scores on the reading section and the 27 Choice pupils who were matched to MPS pupils without reading scores. Because these pupils were not excluded from the calculations, the average test scores may be based on samples of pupils with characteristics—such as race, gender, and neighborhood—that are no longer as similar as they were when the samples were originally selected. We recognize that excluding these pupils would make it more challenging for the project to obtain statistically significant test score results over time. Nevertheless, we believe that the project’s approach, while not inappropriate from a statistical perspective, diminishes the benefits of using a matched sample. The project disagrees and believes it has developed an appropriate methodology that it will use in the future to address our concern. We were unable to exclude the unmatched pupils from our reading test score analysis because the data the project shared with us did not include the detailed information that would allow us to do so.

Table 7 shows the average scores on the reading section of the Wisconsin Knowledge and Concepts Examination for pupils in each of the three samples in the 2006-07 school year. As expected, the project reported and we confirmed that none of the differences between the average scores of Choice and MPS matched sample pupils were statistically significant at any grade level. However, the project reported and we confirmed that the differences between the Choice pupils and MPS random sample pupils in the third and fourth grades were statistically significant.

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Table 7  
Average Pupil Scores on the  
Wisconsin Knowledge and Concepts Examination: Reading  
2006-07 School Year

Grade Level	Choice Sample	MPS Matched Sample		MPS Random Sample	
		Average Score	Difference from Choice Sample <sup>1</sup>	Average Score	Difference from Choice Sample <sup>1</sup>
3	427.9	429.9	2.0	440.2	12.3
4	436.0	437.5	1.5	447.2	11.2
5	441.8	440.6	(1.2)	448.1	6.3
6	463.7	466.3	2.6	464.9	1.2
7	472.0	467.9	(4.1)	476.7	4.7
8	487.2	483.5	(3.7)	488.4	1.2

<sup>1</sup> A shaded cell indicates that the difference is statistically significant at the 95 percent confidence level.

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Table 8 shows the numbers of pupils with scores on the mathematics section of the Wisconsin Knowledge and Concepts Examination. As with the reading section, not all pupils completed the mathematics section. In total, 1,636 of the 1,926 Choice pupils in the third through eighth grades, or 84.9 percent, had scores; 290 Choice pupils did not. At each grade level, more MPS matched sample pupils and MPS random sample pupils than Choice pupils completed the mathematics section.

Table 8

**Number of Pupils with Scores on the  
Wisconsin Knowledge and Concepts Examination: Mathematics  
2006-07 School Year**

Grade Level	Total Pupils in Each Sample	Pupils with Test Scores		
		Choice Sample	MPS Matched Sample	MPS Random Sample
3	341	293	337	335
4	324	280	321	313
5	338	288	338	329
6	330	274	328	315
7	303	254	302	291
8	290	247	285	282
<b>Total</b>	<b>1,926</b>	<b>1,636</b>	<b>1,911</b>	<b>1,865</b>

Table 9 shows the average scores on the mathematics section of the Wisconsin Knowledge and Concepts Examination for pupils in each of the three samples in the 2006-07 school year. The project reported and we confirmed that MPS matched sample pupils and MPS random sample pupils in the third, fourth, and fifth grades scored higher, on average, than Choice pupils in those grades, and the differences in the average scores for those three grades were all statistically significant. These statistically significant differences in the first year of the longitudinal study may suggest that the Choice and MPS matched sample pupils are dissimilar in ways that may affect how test score differences in future years are interpreted, although we note that the project disagrees with this concern.

Table 9

**Average Pupil Scores on the  
Wisconsin Knowledge and Concepts Examination: Mathematics  
2006-07 School Year**

Grade Level	Choice Sample	MPS Matched Sample		MPS Random Sample	
		Average Score	Difference from Choice Sample <sup>1</sup>	Average Score	Difference from Choice Sample <sup>1</sup>
3	380.5	390.1	9.6	401.8	21.3
4	414.8	423.0	8.2	434.4	19.6
5	437.9	444.6	6.7	452.4	14.5
6	467.4	471.5	4.1	469.4	2.0
7	492.1	494.2	2.1	498.6	6.5
8	495.9	500.2	4.3	497.3	1.4

<sup>1</sup> A shaded cell indicates that the difference is statistically significant at the 95 percent confidence level.

The statistically significant differences that we confirmed likely occurred for several reasons, including that the project's calculations did not exclude either the 290 MPS pupils who were matched to Choice pupils without scores on the mathematics section, or the 15 Choice pupils who were matched to MPS pupils without scores. It should also be noted that the pupils in the MPS matched sample were selected based on the extent to which their combined test scores, rather than their scores on the mathematics section, were similar to the pupils in the Choice sample.

As shown in Table 10, fewer pupils in each grade level of the Choice sample than in either of the MPS samples had scores on both the reading and mathematics sections of the Wisconsin Knowledge and Concepts Examination. Although 1,627 Choice pupils had scores on both sections of the test, 299 did not, including 21 who had a score on only one section and 278 who did not have a score on either section.

Table 10

**Number of Pupils with Scores on the  
Wisconsin Knowledge and Concepts Examination: Reading and Mathematics Combined  
2006-07 School Year**

Grade Level	Total Pupils in Each Sample	Pupils with Both Test Scores		
		Choice Sample	MPS Matched Sample	MPS Random Sample
3	341	292	330	322
4	324	278	315	303
5	338	288	337	321
6	330	272	327	310
7	303	252	302	287
8	290	245	284	274
<b>Total</b>	<b>1,926</b>	<b>1,627</b>	<b>1,895</b>	<b>1,817</b>

We also identified a methodological problem with how the project calculated the combined scores of Choice pupils who were missing a score on either the reading or the mathematics section. When there was a missing score, it considered a pupil's score on the other section to be the combined score. This is a concern for two reasons. First, as noted, the two sections have different ranges of scores. Second, even if the two sections had the same range of scores, it is not appropriate to assume that a pupil's performance in different subjects will be identical. To address this concern, we did not include in our calculations the 21 Choice pupils who were missing scores on one of the sections. As a result, the average test scores we calculated for Choice pupils differ from those that the project reported, but we believe they are more reflective of the pupils' actual performance. We also note that the project used an inconsistent methodology in its analyses because it excluded from its calculations 20 MPS matched sample pupils and 56 MPS random sample pupils who were missing a score on one test section.

The project reported that the differences between the average combined scores of third- and fourth-grade Choice pupils and MPS random sample pupils are statistically significant. However, as shown in Table 11, we found that the difference between the average combined scores of fifth-grade pupils is also statistically significant. The project did not report that this difference is statistically significant but indicated that it was an inadvertent oversight.

Table 11

**Average Pupil Scores on the  
Wisconsin Knowledge and Concepts Examination: Reading and Mathematics Combined  
2006-07 School Year**

Grade Level	Choice Sample	MPS Matched Sample		MPS Random Sample	
		Average Score	Difference from Choice Sample <sup>1</sup>	Average Score	Difference from Choice Sample <sup>1</sup>
3	404.2	410.1	5.9	421.7	17.5
4	424.7	430.0	5.3	440.8	16.1
5	440.1	442.7	2.6	450.8	10.7
6	465.7	468.9	3.2	468.3	2.6
7	482.8	481.1	(1.7)	488.1	5.3
8	492.3	492.2	(0.1)	493.0	0.7

<sup>1</sup> A shaded cell indicates that the difference is statistically significant at the 95 percent confidence level.

### Other Test Data

As noted, 2005 Wisconsin Act 125 requires all private schools participating in the Choice program to annually administer a nationally normed standardized test in reading, mathematics, and science to all fourth-, eighth-, and tenth-grade pupils attending school under the program. Act 125 also requires the schools to provide the pupils' scores to the project, which is analyzing these scores separately from its longitudinal study. While some of the Choice pupils in the fourth and eighth grades are included in the longitudinal sample of Choice pupils, most are not. The majority, therefore, will not be tested in subsequent school years. As a result, this part of the project's study provides only a snapshot of Choice pupils' academic achievement in a given school year.

Table 12 shows the number of pupils who took the Wisconsin Knowledge and Concepts Examination and several other tests in the 2006-07 school year. The Wisconsin Knowledge and Concepts Examination is administered only in Wisconsin and is not considered a nationally normed standardized test. Although Choice schools that administered it technically did not adhere to statutes, it seems reasonable that they chose to administer the test that all public schools statewide are required to administer.

Table 12

**Tests Administered to Choice Pupils**  
2006-07 School Year

Test	Number of Pupils		
	4 <sup>th</sup> Grade	8 <sup>th</sup> Grade	10 <sup>th</sup> Grade
<b>Nationally Normed Standardized Tests</b>			
Terra Nova	312	288	131
Iowa Tests of Basic Skills	301	135	18
PLAN	0	0	299
Other <sup>1</sup>	11	9	37
Subtotal	624	432	485
<b>Wisconsin Knowledge and Concepts Examination</b>	344	403	61
<b>Total</b>	<b>968</b>	<b>835</b>	<b>546</b>

<sup>1</sup> Includes five tests, such as the Stanford Achievement Test Series-10 and the Iowa Tests of Educational Development.

In February 2008, the project indicated that 106 Choice schools provided test scores, although without school-specific information, we were unable to confirm that. It reported that 14 of the 122 schools that participated in the Choice program throughout the 2006-07 school year did not enroll fourth-, eighth-, or tenth-grade pupils and, therefore, did not provide it with test scores. In addition, two Choice schools—Veritas Academy and Victory Preparatory Academy—enrolled pupils in those grade levels but did not provide test scores. Veritas Academy no longer participates in the program. Victory Preparatory Academy indicated that it would administer the tests in the 2007-08 school year and provide the project with the scores, but it had not yet provided them at the time of our fieldwork.

While the project indicated that only two Choice schools did not provide it with test scores in the 2006-07 school year, the data it provided to us include test scores of only 2,349 of the 3,384 Choice pupils, or 69.4 percent, enrolled in the program in fourth, eighth, or tenth grade, as was shown in Table 1. On any given day that tests are administered, some pupils will be absent, and individual schools likely made different levels of effort to ensure as many pupils as possible took the tests, such as by administering the tests on multiple days. We were unable to determine which schools had more or fewer missing scores because, as noted, the project's data did not include test information by Choice school.

### **Nationally Normed Standardized Tests**

It is difficult to directly compare the scores of pupils who took different nationally normed standardized tests, which may not measure the same types of knowledge and academic skills.

In addition, tests may have different ranges of possible scores. In its report, therefore, the project used pupils' national percentile rankings, which are based on the performance of all pupils nationwide who took a given test and which allow pupil performance on different tests to be compared to some degree. It separately analyzed pupils' scores on the Wisconsin Knowledge and Concepts Examination, for which national percentile rankings cannot be calculated because the test is administered only in Wisconsin.

Table 13 shows the average national percentile rankings of Choice pupils on the reading section of the nationally normed standardized tests. These averages were also reported by the project. Fourth-grade pupils attending Choice schools scored in the 34<sup>th</sup> percentile of all pupils nationwide, eighth-grade pupils scored in the 35<sup>th</sup> percentile of all pupils nationwide, and tenth-grade pupils scored in the 38<sup>th</sup> percentile of all pupils nationwide. This means that approximately two-thirds of all pupils nationwide scored higher than Choice pupils.

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Table 13

**Choice Pupils' Results on Nationally Normed Standardized Tests: Reading<sup>1</sup>**  
2006-07 School Year

Grade Level	Total Pupils	Number without Test Scores	Number with Test Scores	Average National Percentile Ranking
4	624	59	565	34.1
8	432	25	407	35.9
10	485	22	463	38.4

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

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Table 14 shows the average national percentile rankings of Choice pupils on the mathematics section of the nationally normed standardized tests. These averages were also reported by the project.

Table 14

**Choice Pupils' Results on Nationally Normed Standardized Tests: Mathematics<sup>1</sup>**  
2006-07 School Year

Grade Level	Total Pupils	Number without Test Scores	Number with Test Scores	Average National Percentile Ranking
4	624	51	573	32.3
8	432	27	405	33.2
10	485	38	447	34.3

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

Table 15 shows the average national percentile rankings of Choice pupils on the science section of the nationally normed standardized tests. The project's data indicate that even more Choice pupils are missing national percentile rankings for the science section than for the reading and mathematics sections. The average national percentile ranking we calculated for fourth-grade pupils on the science section differs slightly from the ranking the project reported, possibly because the data that the project provided us included the score of one more pupil than the project reported in February 2008.

Table 15

**Choice Pupils' Results on Nationally Normed Standardized Tests: Science<sup>1</sup>**  
2006-07 School Year

Grade Level	Total Pupils	Number without Test Scores	Number with Test Scores	Average National Percentile Ranking
4	624	302	322	28.1
8	432	141	291	28.6
10	485	39	446	38.8

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

Although the project reported on the average national percentile rankings of Choice schools in the 2006-07 school year, it did not identify the schools. The information reported indicates that the average rankings varied considerably among schools, but we were unable to replicate the results because of the data limitations. However, we did analyze the national percentile rankings of all Choice pupils, regardless of the specific schools they attended, as shown in Table 16, Table 17, and Table 18.

Table 16

**Choice Pupils' Percentile Rankings on  
Nationally Normed Standardized Tests: Reading<sup>1</sup>  
2006-07 School Year**

Percentile	Fourth-Grade Pupils		Eighth-Grade Pupils		Tenth-Grade Pupils	
	Number	Percentage of Total	Number	Percentage of Total	Number	Percentage of Total
1 to 9	107	19.0%	57	14.0%	65	14.0%
10 to 19	95	16.8	71	17.4	63	13.6
20 to 29	90	15.9	56	13.8	42	9.1
30 to 39	73	12.9	70	17.2	80	17.2
40 to 49	55	9.7	43	10.6	66	14.3
50 to 59	48	8.5	29	7.1	68	14.7
60 to 69	27	4.8	35	8.6	17	3.7
70 to 79	31	5.5	16	3.9	21	4.5
80 to 89	21	3.7	17	4.2	17	3.7
90 to 99	18	3.2	13	3.2	24	5.2
<b>Total</b>	<b>565</b>	<b>100.0%</b>	<b>407</b>	<b>100.0%</b>	<b>463</b>	<b>100.0%</b>

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

Table 17

**Choice Pupils' Percentile Rankings on  
Nationally Normed Standardized Tests: Mathematics<sup>1</sup>  
2006-07 School Year**

Percentile	Fourth-Grade Pupils		Eighth-Grade Pupils		Tenth-Grade Pupils	
	Number	Percentage of Total	Number	Percentage of Total	Number	Percentage of Total
1 to 9	118	20.6%	83	20.5%	75	16.8%
10 to 19	101	17.6	79	19.5	71	15.9
20 to 29	101	17.6	61	15.1	66	14.8
30 to 39	56	9.8	46	11.4	67	15.0
40 to 49	53	9.2	39	9.6	78	17.4
50 to 59	52	9.1	26	6.4	32	7.2
60 to 69	32	5.6	19	4.7	20	4.5
70 to 79	25	4.4	18	4.4	23	5.1
80 to 89	20	3.5	14	3.5	9	2.0
90 to 99	15	2.6	20	4.9	6	1.3
<b>Total</b>	<b>573</b>	<b>100.0%</b>	<b>405</b>	<b>100.0%</b>	<b>447</b>	<b>100.0%</b>

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

Table 18

**Choice Pupils' Percentile Rankings on  
Nationally Normed Standardized Tests: Science<sup>1</sup>  
2006-07 School Year**

Percentile	Fourth-Grade Pupils		Eighth-Grade Pupils		Tenth-Grade Pupils	
	Number	Percentage of Total	Number	Percentage of Total	Number	Percentage of Total
1 to 9	79	24.5%	59	20.3%	57	12.8%
10 to 19	65	20.2	66	22.6	61	13.7
20 to 29	52	16.1	45	15.5	55	12.3
30 to 39	35	10.9	35	12.0	79	17.7
40 to 49	37	11.5	34	11.7	54	12.1
50 to 59	20	6.2	20	6.9	50	11.2
60 to 69	13	4.0	13	4.5	31	7.0
70 to 79	9	2.8	12	4.1	28	6.3
80 to 89	5	1.6	4	1.4	9	2.0
90 to 99	7	2.2	3	1.0	22	4.9
<b>Total</b>	<b>322</b>	<b>100.0%</b>	<b>291</b>	<b>100.0%</b>	<b>446</b>	<b>100.0%</b>

<sup>1</sup> Does not include pupil results for the Wisconsin Knowledge and Concepts Examination.

### **Wisconsin Knowledge and Concepts Examination**

As noted, to comply with the requirements of 2005 Wisconsin Act 125 that all fourth-, eighth-, and tenth-grade Choice pupils be tested annually, some Choice schools chose to administer the Wisconsin Knowledge and Concepts Examination. In February 2008, the project reported the test scores of fourth- and eighth-grade pupils in the 2006-07 school year, but it did not report information about tenth-grade pupils because only 61 took the test. These test scores are separate from those of the project's longitudinal study.

The project compared the average scores of fourth- and eighth-grade Choice pupils on the Wisconsin Knowledge and Concepts Examination with the average scores of "income-disadvantaged" MPS pupils, whom it defined as those who received free or reduced-price lunches under the National School Lunch Program. Because of confidentiality concerns, the project declined to provide us with test scores of the income-disadvantaged MPS pupils. As a result, we were unable to independently assess the information it reported.

To help analyze pupil performance on each section of the Wisconsin Knowledge and Concepts Examination, DPI annually determines the percentages of pupils in each grade level who scored in four proficiency categories:

- advanced, which indicates a pupil has an in-depth understanding of the academic knowledge and skills that were tested;
- proficient, which indicates a pupil has competency in the academic knowledge and skills that were tested;
- basic, which indicates a pupil has some understanding of the academic knowledge and skills that were tested; and
- minimal performance, which indicates a pupil has very limited understanding of the academic knowledge and skills that were tested.

According to DPI, the advanced and proficient levels are the long-term educational goals for all pupils. Therefore, we used the project's data to determine the percentages of fourth-, eighth-, and tenth-grade Choice pupils who scored in those two levels on the reading, mathematics, and science sections of the Wisconsin Knowledge and Concepts Examination in the 2006-07 school year. We used DPI's data to determine the corresponding percentages for MPS pupils and all pupils statewide.

As shown in Table 19, lower percentages of Choice pupils than MPS pupils in the fourth grade scored in the proficient or advanced levels, but higher percentages of Choice pupils than MPS pupils in the eighth and tenth grades scored in those levels on most sections of the test. The percentages of pupils statewide who scored in those two levels are uniformly higher than the percentages of Choice pupils and MPS pupils. As noted, however, only 61 tenth-grade Choice pupils took the test.

Finally, the project used the per school average scores of fourth- and eighth-grade Choice and MPS pupils on the Wisconsin Knowledge and Concepts Examination's reading, mathematics, and science sections to calculate averages for all schools. In effect, it averaged pupil test scores at each school, and then it reported the average of the averages. While such a calculation is not necessarily inappropriate, it is difficult to interpret the results and determine their meaning.

Table 19

**Percentage of Pupils Scoring in the Proficient or Advanced Levels  
on the Wisconsin Knowledge and Concepts Examination  
2006-07 School Year**

	Choice	MPS	Statewide
<b>Fourth Grade</b>			
Reading	50.6%	61.5%	80.7%
Mathematics	36.0	51.6	76.4
Science	32.6	50.1	76.9
<b>Eighth Grade</b>			
Reading	67.5	61.8	83.2
Mathematics	41.2	39.6	74.1
Science	43.2	39.1	74.1
<b>Tenth Grade</b>			
Reading	41.0	38.5	74.2
Mathematics	29.5	28.6	69.9
Science	19.7	26.1	71.3

## Testing in Future Years

Although test scores for the 2006-07 school year collected by the project as part of its five-year longitudinal study are baseline data only and cannot be used to determine the extent to which attending a Choice school affects a pupil's academic achievement, the project anticipates that analyzing the changes in test scores over time will allow it to do so. In order to accomplish this, however, we believe the project will need to address two analytical challenges.

First, without test scores from sufficient numbers of pupils, it will be difficult to conclude that any differences in scores from one year to the next are statistically significant. This is the case because, in general, the more test scores included in an analysis, the more likely it is that any differences in average scores are statistically significant. In future years, however, the number of pupils in the project's sample groups will decline because some Choice pupils may transfer to MPS schools, some MPS pupils may transfer to Choice schools, some pupils in both sample groups may transfer to other school districts, and some will likely not take the Wisconsin Knowledge and Concepts Examination. While the project is confident that its pupil samples are large enough to provide meaningful results in future years, it will be challenging to analyze test scores in a meaningful way if significant pupil attrition occurs.

Second, the project will need to use the most appropriate methodology for analyzing and comparing the test scores of pupils in its longitudinal study. As noted, not all pupils in its samples took the reading or mathematics sections of the Wisconsin Knowledge and Concepts Examination in the 2006-07 school year, but the project included in its calculations all pupils who took a given section, even if the pupils with whom they were matched did not take that section. While the project's approach is not inappropriate from a statistical perspective, we believe that it diminishes the benefits of using a matched sample. As noted, the project disagrees and believes it has developed an appropriate methodology that it will employ in the future to correctly interpret changes in test scores.

Finally, both the minimum and maximum possible scores on the reading and mathematics sections of the Wisconsin Knowledge and Concepts Examination increase at every grade level. Therefore, as the pupils in the project's three samples progress to higher grade levels in future years, it would be expected that their test scores will increase simply as a result of these differences, regardless of changes in pupil performance. The project will need to take this into account as it analyzes test scores in future years, as well as present information in a manner that allows policymakers, parents, and others who may not be familiar with statistical analyses to interpret the information correctly.

