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Test Score Data for Pupils in the Milwaukee Parental Choice Program

(Report 5 of 5)

STATE OF WISCONSIN



Legislative Audit Bureau ■

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Joe Chrisman
State Auditor

August 30, 2012

Senator Kathleen Vinehout and
Representative Samantha Kerkman, Co-chairpersons
Joint Legislative Audit Committee
State Capitol
Madison, Wisconsin 53702

Dear Senator Vinehout and Representative Kerkman:

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 children in Milwaukee.

Project researchers conducted a five-year longitudinal study of Choice and Milwaukee Public Schools (MPS) pupils first selected in the 2006-07 school year. The representative sample includes 2,727 Choice pupils who were in the third through ninth grades in fall 2006 and a comparable group of 2,727 MPS pupils. The researchers tracked changes in Wisconsin Knowledge and Concepts Examination scores to determine how participation in the Choice program affects academic achievement. Their five-year study has now concluded, and we have fulfilled our responsibilities under 2005 Wisconsin Act 125.

We reviewed the project's data for the 2010-11 school year, which is the last year the researchers arranged to receive test scores of Choice pupils who took the Wisconsin Knowledge and Concepts Examination. Using different methodologies, we and the researchers found separate instances in which the average change in Choice pupils' test scores from the 2006-07 school year to the 2010-11 school year was greater than the average change in MPS pupils' test scores, and the differences in average test score changes were statistically significant. However, these test score results must be interpreted carefully.

To interpret their findings, the researchers reported evidence suggesting that increases in Choice pupils' test scores in the 2010-11 school year resulted, at least in part, from a new testing and reporting requirement, rather than solely from participation in the Choice program. Beginning in the 2010-11 school year, all Choice schools were statutorily required to administer the Wisconsin Knowledge and Concepts Examination to pupils and report the results to the Department of Public Instruction. As a result, we and the researchers believe the extent to which the Choice program affects pupil achievement cannot be definitively determined based on the test score results obtained from the longitudinal study.

We appreciate the courtesy and cooperation extended to us by project researchers as we conducted this review.

Sincerely,

Joe Chrisman
State Auditor

JC/DS/ss

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 the 2010-11 school year, statutes:

- 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 stipulated by statutes as full payment for Choice pupils.

Each participating private school was required by 2005 Wisconsin Act 125 to annually administer a nationally normed standardized test in reading, mathematics, and science to fourth-, eighth-, and tenth-grade Choice pupils. Beginning in 2006 and annually until 2011, participating schools were required to provide the scores of all standardized tests and examinations they administered to the School Choice Demonstration Project, which is a group of privately funded education researchers who are based at the University of Arkansas but include researchers from throughout the nation, including the University of Wisconsin-Madison and the University of Kentucky.

2005 Wisconsin Act 125 also directed the Legislative Audit Bureau to review and analyze the test score data provided by the project and 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 schools were required to administer annually to fourth-, eighth-, and tenth-grade pupils in the Choice program.

The Wisconsin Knowledge and Concepts Examination is administered annually to public school pupils statewide in the third through eighth grades, and to those in the tenth grade. It measures pupil achievement in reading and mathematics at each of those grade levels, as well as in science, language arts, and social studies at the fourth-, eighth-, and tenth-grade levels. The Wisconsin Reading Comprehension Test no longer exists as a separate test and is now part of the Wisconsin Knowledge and Concepts Examination given to third-grade pupils.

Beginning in the 2010-11 school year, 2009 Wisconsin Act 28 required Choice schools to administer the Wisconsin Knowledge and Concepts Examination to all pupils in the third through the eighth grades, and in the tenth grade. Act 28 required Choice schools to report pupils' scores annually to DPI, which in March 2011 publicly reported information on the pupils' scores for the tests that were administered earlier in the 2010-11 school year. Act 28 also required Choice schools to report pupils' scores to the project, which was directed to provide them to the Legislative Audit Bureau for review and analysis.

In February 2012, the School Choice Demonstration Project released several reports on the last year of its five-year study. One report presents the longitudinal change in test scores of samples of Choice and MPS pupils who took the Wisconsin Knowledge and Concepts Examination in the 2006-07 school year and the 2010-11 school year. Another report presents the results of the Wisconsin Knowledge and Concepts Examination that was administered to fourth-, eighth-, and tenth-grade pupils in the Choice program in the 2010-11 school year.

The project provided us with test score data from the tests that were administered to Choice and MPS pupils in the 2010-11 school year. Sharing of these data was delayed for several reasons, including the time the project needed to compile the test score data and identify and correct inconsistencies. Therefore, our reports were released one year later than the time line specified by 2005 Wisconsin Act 125, which was 2007 through 2011. We released our first report in September 2008, our second in August 2009, our third in August 2010, and our fourth in August 2011.

To complete this fifth and final report, we reviewed and analyzed the test score data provided by the project and interviewed project researchers and others familiar with the Choice program. The researchers have indicated their project was the largest effort to date to compare the academic performance of pupils in voucher schools and public schools and that their sampling techniques were innovative and rigorous. However, there are limitations to its usefulness for policymakers because of restrictions on the researchers' ability to report academic performance information for individual Choice schools, of which there were 102 in the 2010-11 school year. Project researchers signed confidentiality agreements with their universities, the Choice schools, and the parents and guardians of Choice pupils stipulating that information identifying pupils or their schools will not be released. The data provided to us were therefore redacted, which limits our ability to report certain information.

Pupil and Private School Participation

To participate in the Choice program during the 2010-11 school year, statutes required that a child be a member of a family whose total income did not exceed 175 percent of the federal poverty guidelines established by the federal Office of Management and Budget. This income limit for a family of four in the 2010-11 school year was approximately \$39,600, according to DPI. Pupils already attending a Choice school could continue to participate and their siblings could enter the program if the family's income increased but did not exceed 220 percent of the federal poverty guidelines, or approximately \$49,800 for a family of four in the 2010-11 school year.

Program enrollment was statutorily limited to 22,500 full-time equivalent pupils in the 2010-11 school year. As shown in Table 1, 20,996 pupils participated in the Choice program in that year.

Table 1

**Participation in the Milwaukee Parental Choice Program
2010-11 School Year**

Grade Level	Pupils ¹	Percentage of Total
4-Year-Old Kindergarten	1,880	9.0%
5-Year-Old Kindergarten	1,839	8.8
1	1,766	8.4
2	1,769	8.4
3	1,742	8.3
4	1,690	8.0
5	1,664	7.9
6	1,650	7.9
7	1,555	7.4
8	1,401	6.7
9	1,198	5.7
10	1,127	5.4
11	905	4.3
12	810	3.8
Total	20,996	100.0%

¹ As of the third Friday in September.

Schools that participate in the Choice program must be private schools as defined in s. 118.165(1), Wis. Stats., which requires a sequentially progressive curriculum of instruction in reading, language arts, mathematics, social studies, science, and health. For the 2010-11 school year, each participating school was required to:

- notify the State Superintendent of Public Instruction by February 1, 2010, of its intent to participate in the program and specify the number of Choice pupils for whom it had 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
- admit all eligible applicants, unless the number of applications exceeded the number of available spaces in the school. In that case, the school was required to select randomly among eligible applicants, although preference could be given to siblings of pupils.

Statutes stipulate other requirements for participating schools, including some to ensure they have appropriate accreditation and are financially viable. Each Choice school has also been statutorily required since the program's inception to meet and report to DPI on at least one of the following performance standards:

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

For each participating pupil in the 2010-11 school year, Choice schools received public funding equal to the lesser of \$6,442 or their per pupil operating and debt service costs related to educational programming as determined by DPI. As required by statutes, DPI made the payments in four equal installments, in the form of checks payable to pupils' families but mailed to their schools, where parents or guardians were required to restrictively endorse them. If a school could not obtain a signature because, for example, a pupil was no longer enrolled, it was 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 provided by the project for a sample of fourth-, eighth-, and tenth-grade Choice and MPS pupils who took the Wisconsin Knowledge and Concepts Examination. However, to provide more comprehensive information, the project compiled and analyzed Wisconsin Knowledge and Concepts Examination scores from samples of Choice and of MPS pupils who were in the third through eighth grades in the 2006-07 school year. It used the test results to track changes in their scores over a five-year period and determine how participation in the Choice program affects academic achievement.

The project's five-year longitudinal study included:

- 2,727 Choice pupils, who constituted a random sample of third- through eighth-grade pupils and all ninth-grade pupils enrolled in the program in the 2006-07 school year; and
- 2,727 MPS pupils in the third through ninth grades who were matched to the random sample of Choice pupils based on factors such as neighborhood, test scores, and demographic characteristics.

The MPS matched sample was selected using criteria that were designed to identify MPS pupils who were comparable in several respects to pupils in the Choice sample. First, for each Choice pupil, the project identified all MPS pupils in the same grade level. From that group, the project then identified those MPS pupils who lived in the same City of Milwaukee census tract as the Choice pupils and who scored similarly to the Choice pupils on the Wisconsin Knowledge and Concepts Examination. 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/ethnicity, and whether or not English was the pupil's primary language.

The project's methodology ensured that the Choice and MPS matched samples contained the same number of pupils in each grade level in the initial school year. As shown in Table 2, there were considerably more pupils in the ninth grade than in other grades because the project included all ninth-grade Choice pupils in the 2006-07 school year.

Table 2

Pupils in the Demonstration Project's Two Samples¹
2006-07 School Year

Grade Level	Pupils	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
Total	2,727	100.0%

¹ Both samples included the same number of pupils in each grade level during the 2006-07 school year.

Pupil Demographics

Table 3 shows available demographic characteristics of pupils in both samples. Compared to the MPS matched sample, the Choice sample included fewer African-American, white, and Asian pupils, but 47 more Hispanic pupils. Comprehensive demographic information was not available for all pupils because the project was unable to locate some pupils in its original samples, such as those who no longer attended schools in Milwaukee. In addition, some Choice schools did not record all demographic information. For example, information on the disability status of 1,152 Choice pupils and 460 MPS matched sample pupils was missing.

Table 3

Demographic Characteristics of Pupils in the Demonstration Project's Samples

	Choice Sample	MPS Matched Sample	
Race/Ethnicity	African-American	1,747	1,831
	Hispanic	585	538
	White	218	246
	Asian	65	89
	American Indian	5	15
	Other	0	8
	Missing Data	107	0
	Total	2,727	2,727
Gender	Female	1,431	1,456
	Male	1,177	1,271
	Missing Data	119	0
	Total	2,727	2,727
Disability	Yes	120	402
	No	1,455	1,865
	Missing Data	1,152	460
	Total	2,727	2,727
English Not Primary Language	Yes	165	259
	No	1,552	1,981
	Missing Data	1,010	487
	Total	2,727	2,727
Free or Reduced-Price Lunch¹	Yes	1,573	1,770
	No	926	499
	Missing Data	228	458
	Total	2,727	2,727

¹ Choice sample indicates eligibility for the free or reduced-price lunch program; MPS matched sample indicates participation in the free or reduced-price lunch program.

Enrollment by School Type

Because some pupils in the project’s two samples changed schools during the longitudinal study, the project attempted to track their locations. Data provided by the project for the five-year period from the 2006-07 school year through the 2010-11 school year allowed us to determine whether a pupil:

- remained in a Choice school for all five years;
- remained in MPS for all five years;
- transferred from a Choice school to MPS, or vice versa, during the five-year period; or
- had an unknown status because, for example, the pupil left the district, the pupil dropped out of school, or complete pupil information was unavailable in one or more school years.

As shown in Table 4, we determined that 17.5 percent of the Choice sample remained in Choice schools for the entire five-year study, compared to 43.5 percent of the MPS matched sample who remained in MPS. In addition, 18.4 percent of the Choice sample transferred to an MPS school during the five-year study, while 3.3 percent of the MPS matched sample transferred to a Choice school. The pupils who had been in the ninth grade during the 2006-07 school year were expected to graduate at the end of the 2009-10 school year. In the study’s fifth year, the location of 34.7 percent of the Choice sample and 23.8 percent of the MPS matched sample was unknown.

Table 4

Location of Pupils in the Demonstration Project’s Two Samples 2006-07 School Year through 2010-11 School Year

	Choice Sample		MPS Matched Sample	
	Pupils	Percentage	Pupils	Percentage
Remained in Choice Schools	476	17.5%	–	–
Remained in MPS	–	–	1,189	43.5%
Transferred from a Choice School to MPS	502	18.4	–	–
Transferred from MPS to a Choice School	–	–	89	3.3
Pupils Expected to Graduate from High School at the end of the 2009-10 School Year	801	29.4	801	29.4
Unknown in One or More School Years	948	34.7	648	23.8
Total	2,727	100.0%	2,727	100.0%

Pupil Test Scores

To track the academic achievement of Choice and MPS pupils, the project analyzed average changes in test scores on the Wisconsin Knowledge and Concepts Examination reading and mathematics sections, which are scored separately, for a sample of pupils who were in the seventh, eighth, and tenth grades in the 2010-11 school year. The project did not report on scores for the Wisconsin Knowledge and Concepts Examination's three other sections—science, language arts, and social studies—because those sections are administered to only fourth-, eighth-, and tenth-grade pupils.

We analyzed the project's data and were generally able to confirm the results presented in its February 2012 report. However, our results differed from those reported because the project used statistical techniques to compensate for missing test score data. For example, the project used a weighting procedure that adjusted pupils' test scores in order to account for missing scores in the 2010-11 school year, and it estimated 99 Choice pupils' and 19 MPS matched sample pupils' missing test scores in the 2006-07 school year. The project declined to provide us with detailed information on how it estimated test scores because it relied on a proprietary methodology.

The project's reported calculations of average changes in Choice pupils' test scores included pupils who started the study in a Choice school but later transferred to MPS. Similarly, its calculations for the MPS matched sample included pupils who started the study in MPS but transferred to a Choice school. The researchers note that including pupils who made such transfers is similar to the methodology used in medical and pharmaceutical clinical trials. We excluded from our calculations all pupils who transferred from a Choice school to MPS, or vice versa, because we cannot determine whether their academic achievement should be attributed to attendance at Choice schools, MPS, or both.

Table 5 shows the number of pupils who completed the reading and mathematics sections of the Wisconsin Knowledge and Concepts Examination in both the 2006-07 school year and the 2010-11 school year and who did not transfer from a Choice school to MPS, or vice versa, during that five-year period. In total, we determined that 238 Choice sample pupils, or 23.9 percent, had reading and mathematics scores in both school years. In comparison, almost 60.0 percent of MPS matched sample pupils had reading and mathematics scores in both school years.

Table 5

**Pupils with Scores on the Wisconsin Knowledge and Concepts Examination
2006-07 School Year and 2010-11 School Year**

Grade Level in 2010-11	Pupils in the Project's Two Samples	Reading		Mathematics	
		Choice Sample	MPS Matched Sample	Choice Sample	MPS Matched Sample
7	341	90	195	90	199
8	324	99	197	99	201
10	330	49	182	49	181
Total	995	238	574	238	581

Table 6 shows the average scores on the reading section of the Wisconsin Knowledge and Concepts Examination for pupils in the Choice sample and the MPS matched sample in the 2006-07 school year and the 2010-11 school year, and Table 7 shows the average scores on the mathematics section in those two school years.

Table 6

Average Pupil Scores on the Wisconsin Knowledge and Concepts Examination: Reading

Grade Level in 2010-11	Choice Sample		MPS Matched Sample	
	2006-07 School Year	2010-11 School Year	2006-07 School Year	2010-11 School Year
7	432.2	492.2	435.3	485.4
8	446.5	505.1	436.9	486.1
10	458.0	493.5	472.5	492.0

Table 7

Average Pupil Scores on the Wisconsin Knowledge and Concepts Examination: Mathematics

Grade Level in 2010-11	Choice Sample		MPS Matched Sample	
	2006-07 School Year	2010-11 School Year	2006-07 School Year	2010-11 School Year
7	388.2	501.6	395.7	500.0
8	426.3	504.2	424.4	493.3
10	462.9	515.5	478.7	524.2

Because the minimum and maximum possible test scores increase on both sections at every grade level, pupils' scores at higher grade levels do not necessarily reflect changes in their performance over time. However, the performance of pupils in the Choice sample and the MPS matched sample can be compared to statewide pupil performance because DPI annually reports percentile rankings for the reading and mathematics sections of the Wisconsin Knowledge and Concepts Examination, based on all public school pupils statewide who took these test sections in a given school year. As shown in the appendix, the pupils in both the Choice sample and the MPS matched sample ranked between the 12th and 26th statewide percentiles. This means that in both the 2006-07 school year and the 2010-11 school year, from 74 percent to 88 percent of all public school pupils statewide scored higher than pupils in the Choice sample and the MPS matched sample.

Changes in Test Scores

To assess how participation in the Choice program affects academic achievement, the project calculated the average changes in test scores from the 2006-07 school year to the 2010-11 school year for pupils in the Choice sample and the MPS matched sample. It then determined whether any of the differences in average changes between the two groups of pupils were statistically significant. Statistical significance can be determined at any level of confidence but is typically reported at a 95 percent confidence level, which is the level at which we and the project reported test score results.

In prior years of the longitudinal study, we found no statistically significant differences in the average changes in test scores between Choice sample and MPS matched sample pupils. However, as shown in Table 8, we found two instances in which the average change in Choice pupils' test scores from the 2006-07 school year to the 2010-11 school year was greater than the average change in MPS pupils' test scores over that five-year period, and the differences between the two groups of pupils were statistically significant. This occurred on the reading section for seventh- and tenth-grade pupils.

Table 8

Average Changes in Pupil Scores on the Wisconsin Knowledge and Concepts Examination 2006-07 School Year to 2010-11 School Year

Grade Level in 2010-11	Reading			Mathematics		
	Choice Sample Average Change	MPS Matched Sample Average Change	Difference from MPS Matched Sample ¹	Choice Sample Average Change	MPS Matched Sample Average Change	Difference from MPS Matched Sample ¹
7	60.0	50.1	9.9	113.4	104.3	9.1
8	58.6	49.2	9.4	77.9	68.9	9.0
10	35.5	19.5	16.0	52.6	45.5	7.1

¹ Shading indicates differences that are statistically significant at the 95 percent confidence level.

The researchers also found two statistically significant differences in average changes in test scores over the five years. They found that eighth-grade Choice pupils scored higher than MPS pupils on the reading section, and seventh-grade Choice pupils scored higher than MPS pupils on the mathematics section. Our results differ from the researchers' results because, as noted, we used a different methodology to analyze the test score data.

These test score results must be interpreted carefully. Beginning in the 2010-11 school year, all Choice schools were statutorily required to administer the Wisconsin Knowledge and Concepts Examination to pupils and report the results to DPI. In February 2012, the researchers reported evidence suggesting that increases in Choice pupils' test scores in the 2010-11 school year resulted, at least in part, from the introduction of the new testing and reporting requirement,

rather than solely from the pupils' participation in the Choice program. The researchers also noted that a number of other academic studies indicate that introducing test-based accountability policies tends to increase pupils' achievement levels. As a result, we and the researchers believe that the extent to which the Choice program affects student achievement cannot be definitively determined based on the test score results obtained from the longitudinal study.

A number of other factors made it challenging to analyze the study's test scores. First, because pupils take the Wisconsin Knowledge and Concepts Examination in the third through eighth grades and in the tenth grade, the number of grade levels for which the researchers had test scores declined over time. In the study's first year, the researchers had test scores for pupils in seven grade levels. Most pupils who were in the 7th and 8th grades during the study's first year had progressed to the 11th and 12th grades during the study's fifth year and no longer took the Wisconsin Knowledge and Concepts Examination, while most pupils who were in the 9th grade during the study's first year had graduated by the study's fifth year. In addition, most pupils who were in the fifth grade during the study's first year had progressed to the ninth grade and did not take the Wisconsin Knowledge and Concepts Examination during the study's fifth year. As a result, the researchers were able to measure changes in mathematics and reading test scores over five years for pupils in only three grade levels.

Second, many pupils transferred from Choice schools to MPS, or vice versa, during the study's five years. As noted, the researchers' reported calculations of average changes in test scores include the scores of pupils who transferred from Choice schools to MPS, or vice versa. The researchers believe this methodology is appropriate, in part because their statistical procedures indicate that academic achievement was not significantly affected by including the transferring pupils in the test score analysis. However, we maintain that it is difficult to determine whether the academic achievement of pupils who transferred could be attributed to attendance at Choice schools, MPS, or both.

Third, although the researchers indicate that pupil attrition was lower than they had anticipated when they began their study, approximately one-third of Choice pupils in the original sample could not be located in the study's fifth year. To compensate for the pupil attrition, the researchers estimated some pupils' 2006-07 test scores and used statistical procedures to compensate for other pupils who did not have test scores in the 2010-11 school year. As noted, the researchers believe these statistical procedures are appropriate, but because they declined to provide us with detailed information on how they estimated test scores, we are unable to comment on this procedure.

Other Test Data

In addition to the five-year longitudinal study, the project examined the performance of Choice pupils on a variety of tests that were administered in the 2010-11 school year. As noted, Choice schools have been statutorily required since the 2010-11 school year to administer the Wisconsin Knowledge and Concepts Examination to all pupils in the third through eighth grades, and in the tenth grade. These scores are analyzed separately from the project's longitudinal study and provide only a snapshot of Choice pupils' academic achievement in a given school year. Choice schools are permitted to administer nationally normed standardized tests in addition to the Wisconsin Knowledge and Concepts Examination, but statutes no longer require them to do so.

Table 9 shows the number of pupils who took the Wisconsin Knowledge and Concepts Examination and several other tests in the 2010-11 school year. Far more pupils took the Wisconsin Knowledge and Concepts Examination than the nationally normed standardized tests. In February 2012, the project reported that all 102 Choice schools that enrolled fourth-, eighth-, and tenth-grade pupils provided test scores for the 2010-11 school year. Because the data provided to us do not identify Choice pupils and schools, we cannot confirm this information.

Table 9

Tests Administered to Choice Pupils¹
2010-11 School Year

Test	Number of Pupils		
	4 th Grade	8 th Grade	10 th Grade
Wisconsin Knowledge and Concepts Examination	1,631	1,375	975
Nationally Normed Standardized Tests			
Iowa Test of Basic Skills	484	360	0
Terra Nova	142	135	138
Logramos	5	3	0
PLAN	0	0	411
Stanford	10	4	0
PSAT	0	0	36
Unknown	2	1	0
Subtotal	643	503	585
Total	2,274	1,878	1,560

¹ Some pupils took both the Wisconsin Knowledge and Concepts Examination and a nationally normed standardized test.

Wisconsin Knowledge and Concepts Examination

In February 2012, the project reported Wisconsin Knowledge and Concepts Examination scores of fourth-, eighth-, and tenth-grade pupils in the 2010-11 school year. 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 at those two levels on the reading, mathematics, and science sections of the Wisconsin Knowledge and Concepts Examination in the 2010-11 school year. We used DPI's data to determine the corresponding percentages for three groups of pupils:

- economically disadvantaged MPS pupils, who live in households with incomes less than 185 percent of the federal poverty guidelines and thus are eligible for the free or reduced-price lunch program;
- all MPS pupils; and
- all pupils statewide.

The researchers compared the test scores of Choice pupils with those of economically disadvantaged MPS pupils. Income eligibility requirements for the Choice program and the free or reduced-price lunch program were similar in the 2010-11 school year.

It should be noted that we and the project calculated the percentages based only on pupils who took the Wisconsin Knowledge and Concepts Examination. In contrast, DPI calculates the percentages based on the number of enrolled pupils, regardless of whether the pupils took the test. As a result, the percentages of MPS economically disadvantaged pupils, all MPS pupils, and all pupils statewide would be somewhat higher if DPI had calculated them using the same method we and the project used to calculate the percentages for Choice pupils.

We analyzed the project's data and were generally able to confirm the results presented in its February 2012 report. As shown in Table 10:

- among fourth-grade pupils, smaller percentages of Choice pupils than MPS economically disadvantaged pupils scored at the proficient or advanced levels on the reading, mathematics, and science sections; and
- among eighth- and tenth-grade pupils, higher percentages of Choice pupils than MPS economically disadvantaged pupils scored at the proficient or advanced levels on the reading and science sections, while lower percentages of Choice pupils than MPS economically disadvantaged pupils scored at those levels on the mathematics section.

Table 10

**Percentages of Pupils Scoring at the Proficient or Advanced Levels
on the Wisconsin Knowledge and Concepts Examination
2010-11 School Year**

	Choice	MPS Economically Disadvantaged	MPS	Statewide
Fourth Grade				
Reading	52.3%	56.2%	60.7%	82.1%
Mathematics	37.7	50.8	54.9	78.4
Science	37.0	45.5	50.5	76.7
Eighth Grade				
Reading	66.0	60.4	64.1	85.6
Mathematics	36.3	41.3	45.7	77.4
Science	42.1	39.6	44.6	76.3
Tenth Grade				
Reading	37.1	34.8	39.0	73.9
Mathematics	24.9	27.1	30.4	70.1
Science	28.9	27.8	31.7	73.2

Smaller percentages of Choice pupils than MPS pupils scored at the proficient or advanced levels in every grade level and on every test section, except for on the eighth-grade reading section. The percentages of pupils statewide who scored at the proficient or advanced levels were uniformly higher than those of the other three groups of pupils.

Nationally Normed Standardized Tests

In February 2012, the project reported that 39 Choice schools administered nationally normed standardized tests in the 2010-11 school year, but it did not report on pupils' scores on these tests. However, the project provided us with the test score data, which we analyzed.

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 and may have different ranges of possible scores. Therefore, we used pupils' national percentile rankings and a statistical procedure to compare performance on different tests. Because the Wisconsin Knowledge and Concepts Examination is administered only in Wisconsin, national percentile ranks cannot be calculated for it.

Table 11 shows the average national percentile rankings of Choice pupils on the reading, mathematics, and science sections of the nationally normed standardized tests. Fourth-grade pupils scored at the 38th percentile of all pupils nationwide on the reading section, at the 39th percentile on the mathematics section, and at the 36th percentile on the science section. Eighth- and tenth-grade pupils scored somewhat higher.

Table 11

**Choice Pupil Results on Nationally Normed Standardized Tests
2010-11 School Year**

	Average National Percentile Ranking
Fourth Grade	
Reading	38.4
Mathematics	39.0
Science	36.8
Eighth Grade	
Reading	39.5
Mathematics	45.1
Science	44.0
Tenth Grade	
Reading	50.9
Mathematics	48.7
Science	43.4



Appendix

Average Pupil Scores and Percentile Rankings on the Wisconsin Knowledge and Concepts Examination

Reading

Grade Level in 2010-11	2006-07 School Year				2010-11 School Year			
	Choice Sample	Statewide Percentile Ranking	MPS Matched Sample	Statewide Percentile Ranking	Choice Sample	Statewide Percentile Ranking	MPS Matched Sample	Statewide Percentile Ranking
7	432.2	20	435.3	22	492.2	26	485.4	22
8	446.5	21	436.9	15	505.1	26	486.1	16
10	458.0	15	472.5	22	493.5	20	492.0	20

Mathematics

Grade Level in 2010-11	2006-07 School Year				2010-11 School Year			
	Choice Sample	Statewide Percentile Ranking	MPS Matched Sample	Statewide Percentile Ranking	Choice Sample	Statewide Percentile Ranking	MPS Matched Sample	Statewide Percentile Ranking
7	388.2	15	395.7	19	501.6	19	500.0	18
8	426.3	16	424.4	15	504.2	17	493.3	13
10	462.9	12	478.7	20	515.5	14	524.2	19