# PRI Middle School Follow-Up Project

**July 2016 Progress Update**

Study conducted by the Peabody Research Institute

at Vanderbilt University

**PEABODY research institute**

HEISING - SIMONS
FOUNDATION

ies NATIONAL CENTER FOR EDUCATION STATISTICS

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**Acknowledgements**

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We also want to express our appreciation for the contributions of Dana True who served as Research Coordinator for much of the past year and to Lisa Swain, who tirelessly checked and followed through working with the teacher rating scales.
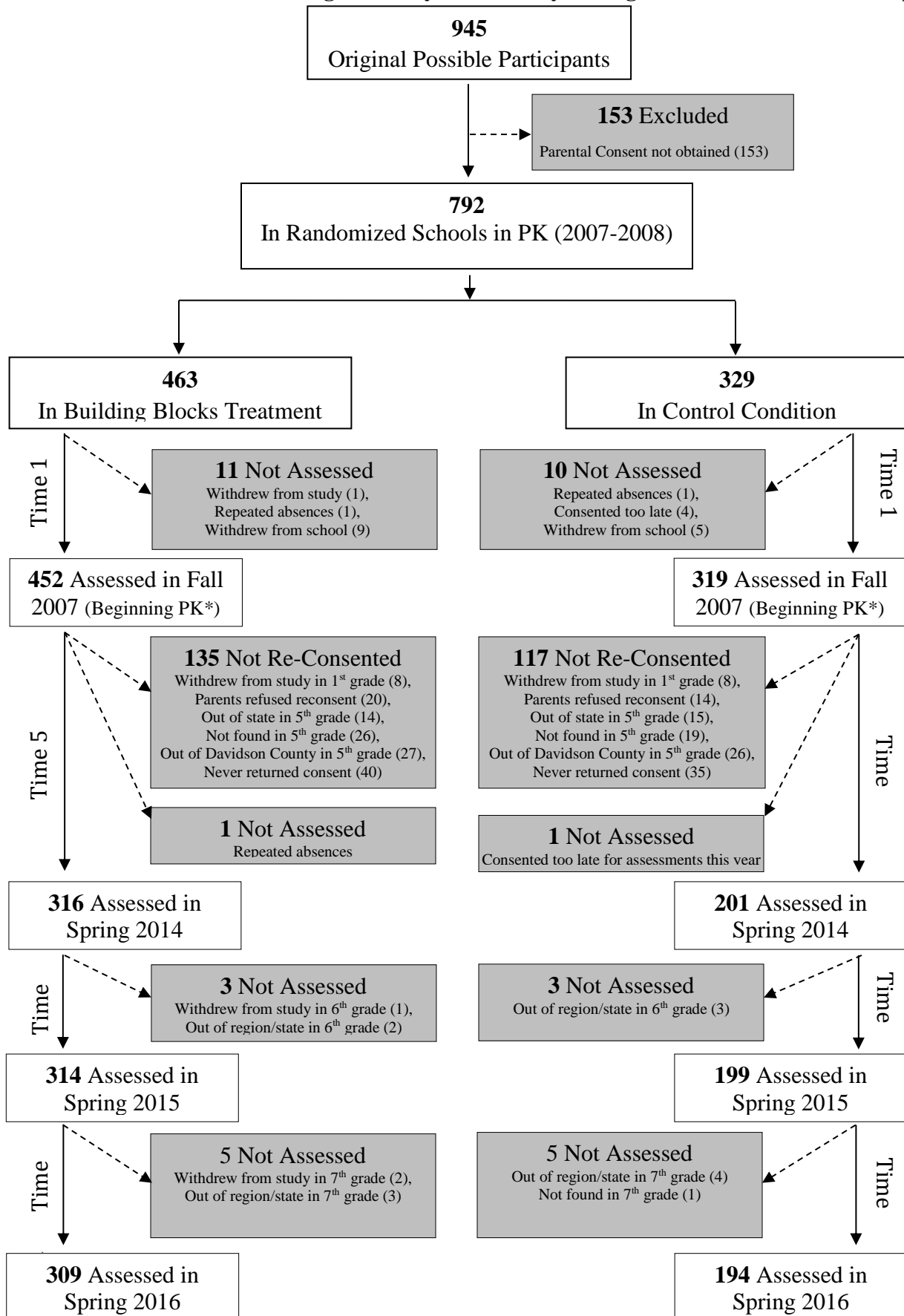
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# Official Analysis Sample

- There were 771 students in our database from the Pre-K study, and the goal for the newly consented sample, as written in the grant proposal, was 500 students.
  - 16 students withdrew from the study in 1st grade.
  - 29 students are no longer in the state.
  - 53 students are in the state but are not in Davidson County.
  - 45 students have not been located despite all efforts.
  - 34 students' parents declined to participate in the follow-up study (though 16 of those were communicated via the math teacher).
  - 72 students were located in Davidson County, but we could not get parental consent because of lack of response.
  - 3 additional students initially agreed to participate but parents never returned hard copy of consent form
- **THE OFFICIAL ANALYSIS SAMPLE CONSISTS OF 519 STUDENTS (517 assessed in Year 1, 513 assessed in Year 2, 503 assessed in Year 3).**

**Consort Chart:  From Original Early Math Study through Middle School Follow-Up**

```
                          ┌──────────────────────────────────┐
                          │              945                 │
                          │  Original Possible Participants   │
                          └──────────────────────────────────┘
                                        │
                                        │ ┄┄┄┄┄►  ┌──────────────────────────────────┐
                                        │         │        153 Excluded               │
                                        │         │ Parental Consent not obtained (153)│
                                        ▼         └──────────────────────────────────┘
                          ┌──────────────────────────────────┐
                          │              792                 │
                          │ In Randomized Schools in PK (2007-2008)│
                          └──────────────────────────────────┘
```
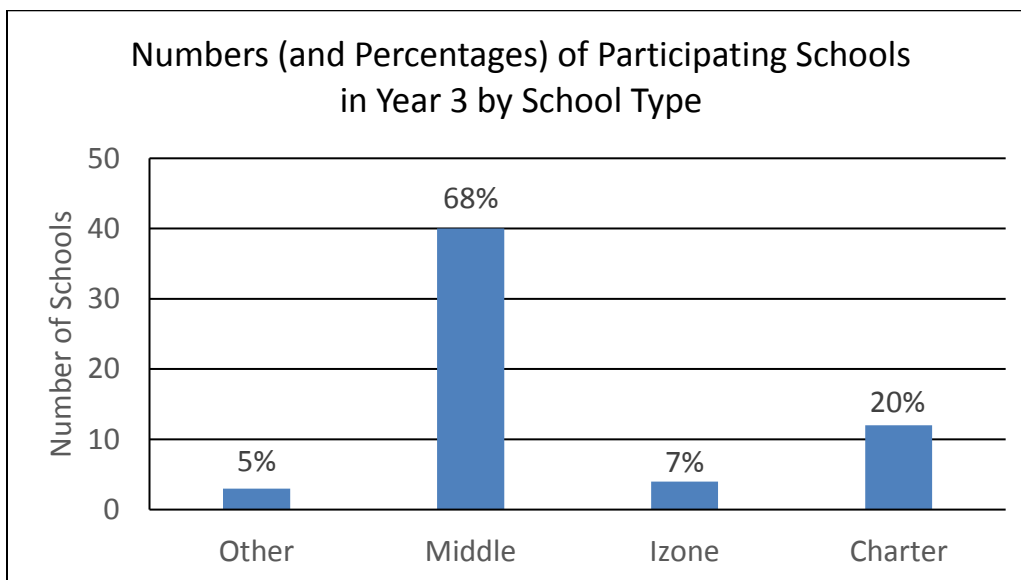
| **463** In Building Blocks Treatment | **329** In Control Condition |
|---|---|

**Time 1**

**11** Not Assessed
Withdrew from study (1),
Repeated absences (1),
Withdrew from school (9)

**10** Not Assessed
Repeated absences (1),
Consented too late (4),
Withdrew from school (5)

**Time 1**

**452** Assessed in Fall 2007 (Beginning PK*)

**319** Assessed in Fall 2007 (Beginning PK*)

**Time 5**

**135** Not Re-Consented
Withdrew from study in 1st grade (8),
Parents refused reconsent (20),
Out of state in 5th grade (14),
Not found in 5th grade (26),
Out of Davidson County in 5th grade (27),
Never returned consent (40)

**117** Not Re-Consented
Withdrew from study in 1st grade (8),
Parents refused reconsent (14),
Out of state in 5th grade (15),
Not found in 5th grade (19),
Out of Davidson County in 5th grade (26),
Never returned consent (35)

**Time**

**1** Not Assessed
Repeated absences

**1** Not Assessed
Consented too late for assessments this year

**316** Assessed in Spring 2014

**201** Assessed in Spring 2014

**Time**

**3** Not Assessed
Withdrew from study in 6th grade (1),
Out of region/state in 6th grade (2)

**3** Not Assessed
Out of region/state in 6th grade (3)

**Time**

**314** Assessed in Spring 2015

**199** Assessed in Spring 2015

**Time**

**5** Not Assessed
Withdrew from study in 7th grade (2),
Out of region/state in 7th grade (3)

**5** Not Assessed
Out of region/state in 7th grade (4)
Not found in 7th grade (1)

**Time**

**309** Assessed in Spring 2016

**194** Assessed in Spring 2016

# Assessed Students in Year 3
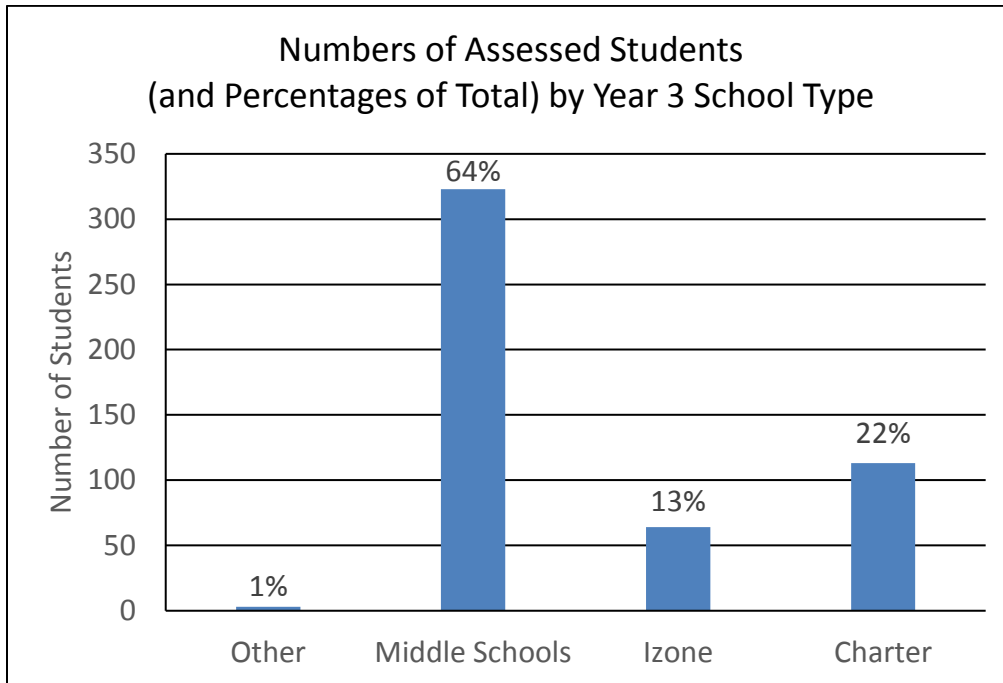
## Numbers of Assessed Students (and Percentages of Total) by Year 3 School Type

**Number of Students**

| School Type | Percentage |
|---|---|
| Other | 1% |
| Middle Schools | 64% |
| Izone | 13% |
| Charter | 22% |

*Note.* "Other" schools include 1 that only serves students with IEPs, 1 K-12 school, and 1 private school.

# Participating Schools in Year 3

## Numbers (and Percentages) of Participating Schools in Year 3 by School Type

**Number of Schools**

| School Type | Percentage |
|---|---|
| Other | 5% |
| Middle | 68% |
| Izone | 7% |
| Charter | 20% |

*Note.* "Other" schools include 1 that only serves students with IEPs, 1 K-12 school, and 1 private school.

# Mobility of Students between Schools in Year 3

|  | Frequency | Percent |
|---|---|---|
| Attended 1 School | 457 | 90.9 |
| Attended 2 Schools | 44 | 8.7 |
| Attended 3 Schools | 2 | 0.4 |

*Note.* 16 students (3.2%) attended an alternative school at some point during the year.
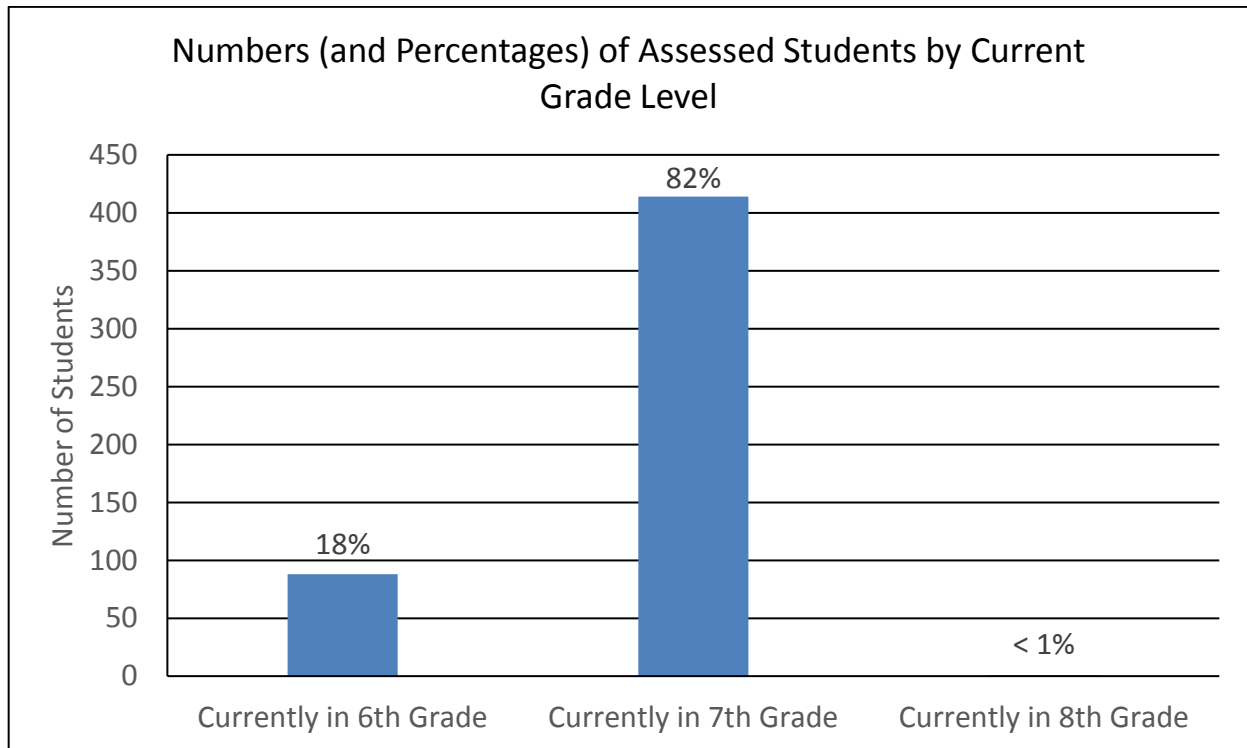
# Demographic Information (Assessed Sample for Year 3)

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| Age at Time of Testing (in years) | 503 | 12.4 | 14.4 | 13.0 | .325 |
| PK Building Blocks Treatment | 309 | 12.4 | 14.4 | 13.0 | .321 |
| PK Control Condition | 194 | 12.5 | 14.3 | 13.1 | .324 |

|  | Overall | | PK Building Blocks | | PK Control | |
|---|---|---|---|---|---|---|
|  | Freq | Pct | Freq | Pct | Freq | Pct |
| Ethnicity |  |  |  |  |  |  |
| Black | 396 | 78.7 | 251 | 81.2 | 145 | 74.7 |
| White | 44 | 8.7 | 23 | 7.4 | 21 | 10.8 |
| Hispanic | 41 | 8.2 | 20 | 6.5 | 21 | 10.8 |
| Other | 21 | 4.2 | 15 | 4.9 | 6 | 3.1 |
| Gender |  |  |  |  |  |  |
| Male | 219 | 43.5 | 135 | 43.7 | 84 | 43.3 |
| Female | 284 | 56.5 | 174 | 56.3 | 110 | 56.7 |
| Number of Current Schools* | 59 | - | 54 | - | 52 | - |
| Pre-K School System |  |  |  |  |  |  |
| Head Start (MAC) | 206 | 41.0 | 149 | 48.2 | 57 | 29.4 |
| MNPS Pre-K | 297 | 59.0 | 160 | 51.8 | 137 | 70.6 |

*Note.* Most students were located in Davidson County, but we also assessed any student who had moved to a contiguous county (4 in Robertson, 6 in Rutherford, 6 in Sumner, 1 in Wilson, 1 in Lebanon Special, 1 in Montgomery County). One student is missing ethnicity information.

# Grade Retention Information in Year 3

## Numbers (and Percentages) of Assessed Students by Current Grade Level

Number of Students

| | Currently in 6th Grade | Currently in 7th Grade | Currently in 8th Grade |
|---|---|---|---|
| | 18% | 82% | < 1% |

- 413 students have gone through 5th, 6th, and 7th grade as expected.
- 72 students were in 4th in year 1, 5th last year, and were in 6th grade this year.
- 10 students were in 5th in year 1, repeated 5th last year, and were in 6th grade this year.
- 6 students were in 5th in year 1, 6th last year, and repeated 6th grade this year.
- 1 student was in 4th grade in year 1, 5th grade last year, and moved from 6th to 7th grade this year.
- 1 student was in 6th grade in year 1, then 7th grade last year, and was in 8th grade this year.
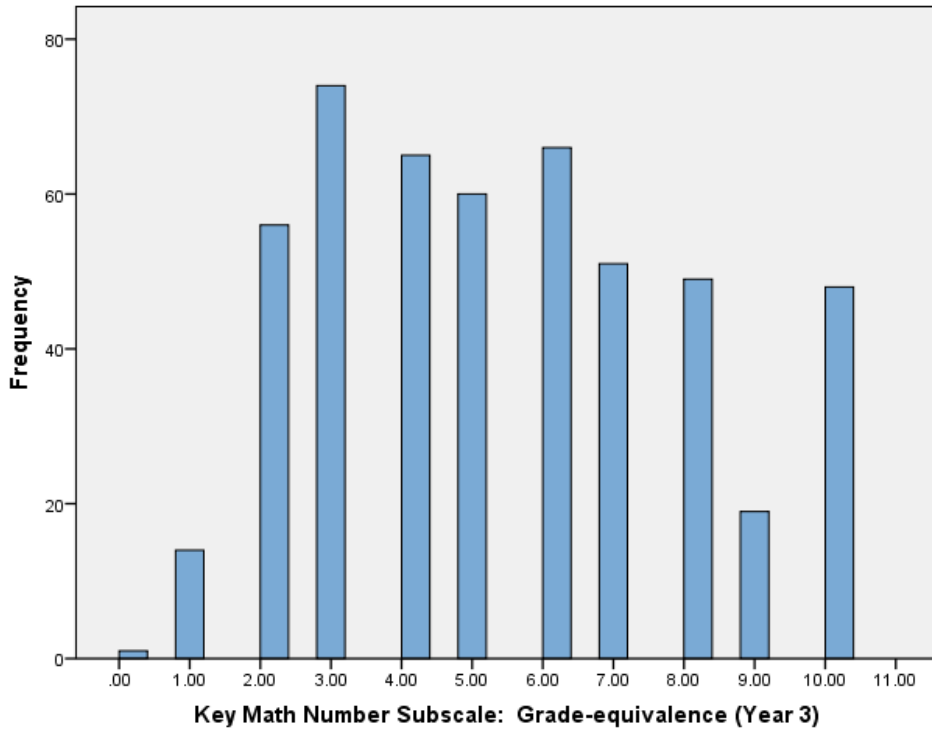
# Student Outcomes: Key Math

*Note.* The average age of the students was 13.0 years. The average grade level of the students was 7.84.

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| Key Math: Numeration |  |  |  |  |  |
| Raw Score | 503 | 5.0 | 48.0 | 26.60 | 9.02 |
| Age-Scaled Score | 503 | 1.0 | 17.0 | 7.93 | 2.87 |
| Grade-Scaled Score | 503 | 1.0 | 17.0 | 7.68 | 2.93 |
| Age Equivalent | 503 | 5.0 | 16.0 | 10.82 | 2.62 |
| Grade Equivalent | 503 | 0.2 | 10.0 | 5.38 | 2.55 |
| Key Math: Algebra |  |  |  |  |  |
| Raw Score | 503 | 2.0 | 36.0 | 20.22 | 6.90 |
| Age-Scaled Score | 503 | 1.0 | 16.0 | 8.35 | 3.03 |
| Grade-Scaled Score | 503 | 1.0 | 16.0 | 7.94 | 3.00 |
| Age Equivalent | 503 | 5.0 | 16.0 | 11.00 | 2.76 |
| Grade Equivalent | 503 | 0.0 | 10.0 | 5.70 | 2.65 |
| Key Math: Geometry |  |  |  |  |  |
| Raw Score | 503 | 6.0 | 34.0 | 21.08 | 5.29 |
| Age-Scaled Score | 503 | 2.0 | 15.0 | 7.70 | 2.40 |
| Grade-Scaled Score | 503 | 1.0 | 15.0 | 7.52 | 2.38 |
| Age Equivalent | 503 | 5.0 | 16.0 | 10.17 | 2.32 |
| Grade Equivalent | 503 | 0.0 | 10.0 | 5.13 | 2.31 |

**Key Math Number: Age-Equivalence Distribution**



Key Math Number Subscale: Age-equivalence (Year 3)
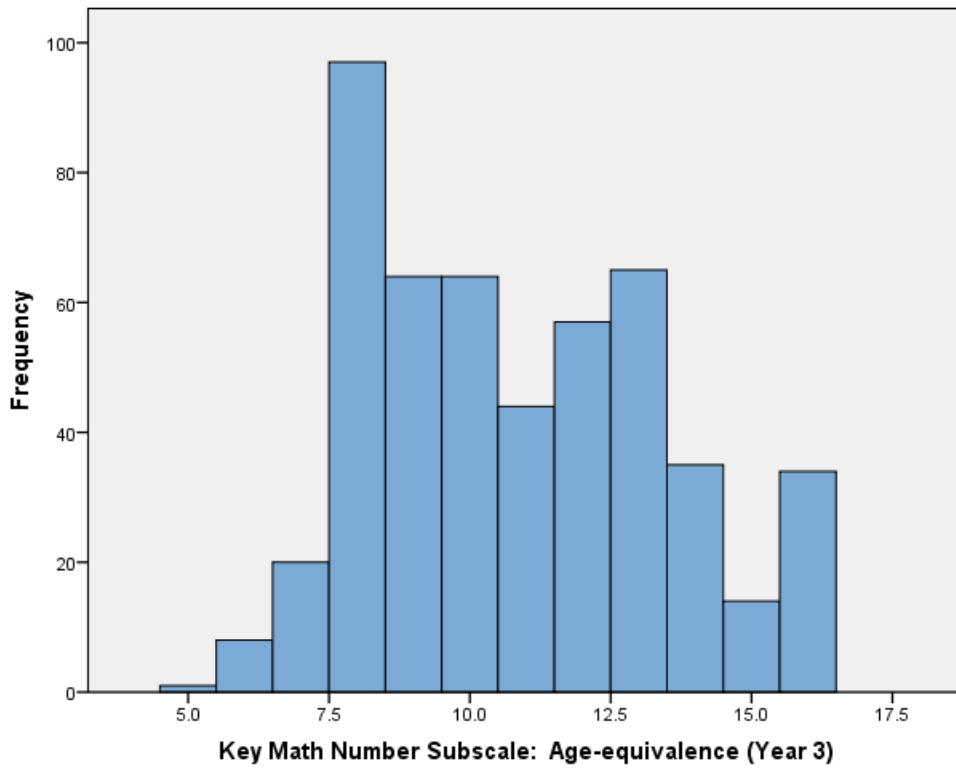
**Key Math Number: Grade-Equivalence Distribution**



Key Math Number Subscale: Grade-equivalence (Year 3)

## Key Math Algebra: Age-Equivalence Distribution



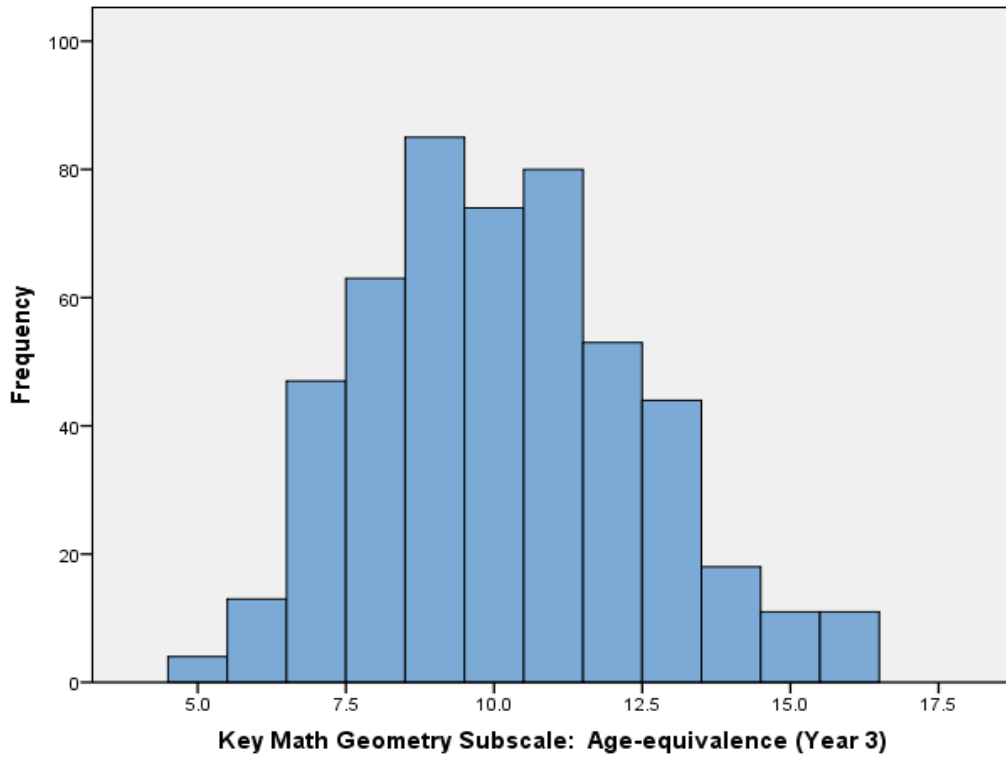Key Math Algebra Subscale: Age-equivalence (Year 3)
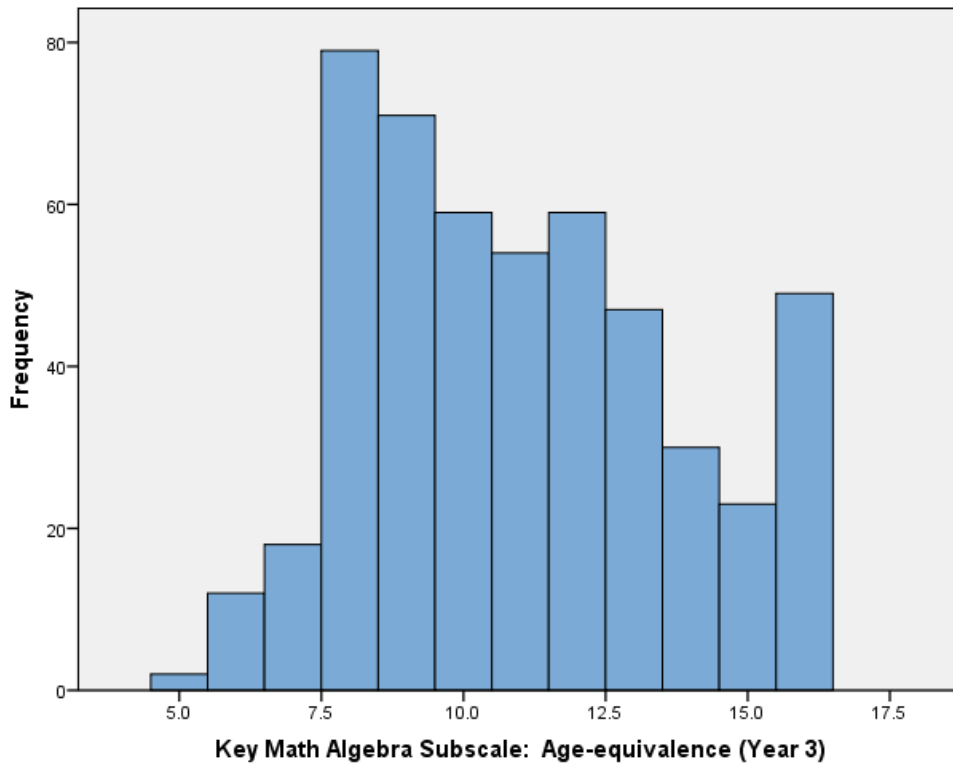
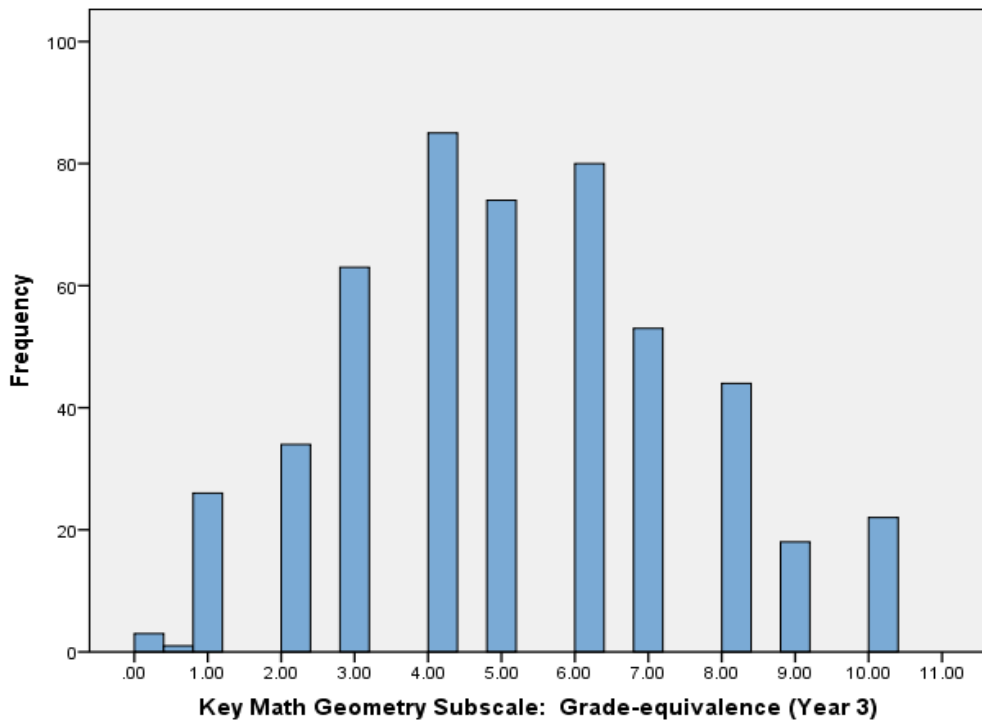## Key Math Algebra: Grade-Equivalence Distribution



Key Math Algebra Subscale: Grade-equivalence (Year 3)
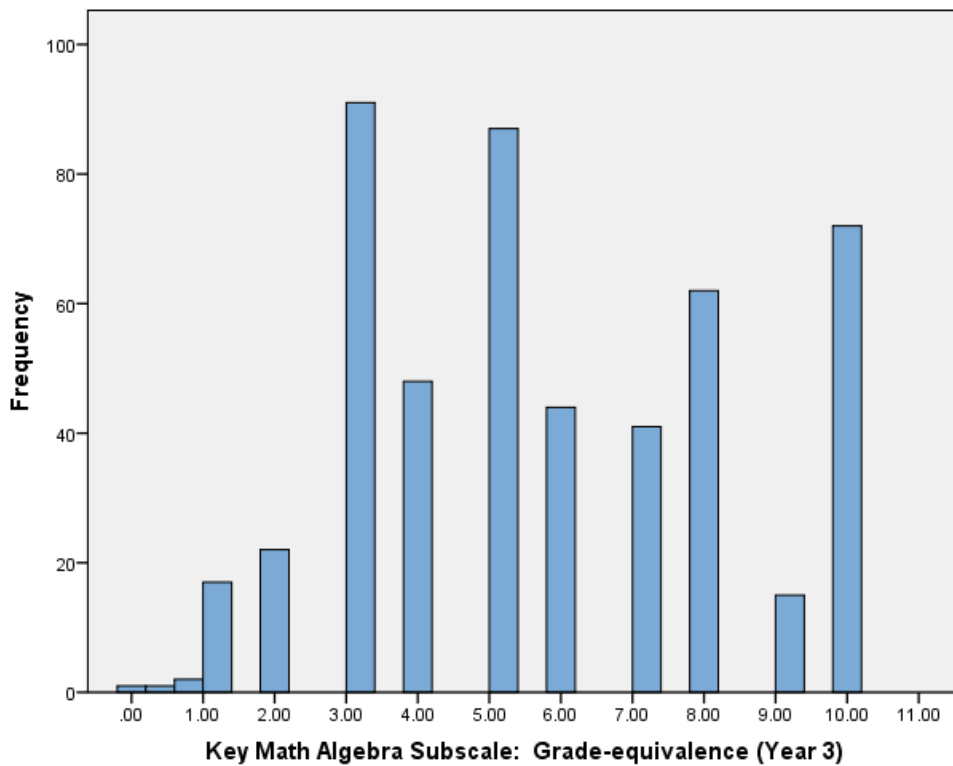
**Key Math Geometry: Age-Equivalence Distribution**



**Key Math Geometry: Grade-Equivalence Distribution**

## Student Outcomes on Key Math by Retention Status

| | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **Not Retained** | | | | | |
| **Average Age =13.07 years, Average Grade = 7.84** | | | | | |
| Key Math: Numeration | | | | | |
|     Age-Scaled Score | 415 | 1.00 | 17.00 | 8.37 | 2.81 |
|     Grade-Scaled Score | 415 | 1.00 | 17.00 | 8.16 | 2.85 |
|     Age Equivalent | 415 | 5.00 | 16.00 | 11.23 | 2.58 |
|     Grade Equivalent | 415 | 0.20 | 10.00 | 5.79 | 2.50 |
| Key Math: Algebra | | | | | |
|     Age-Scaled Score | 415 | 1.00 | 16.00 | 8.78 | 2.98 |
|     Grade-Scaled Score | 415 | 1.00 | 16.00 | 8.38 | 2.95 |
|     Age Equivalent | 415 | 5.00 | 16.00 | 11.39 | 2.73 |
|     Grade Equivalent | 415 | 0.00 | 10.00 | 6.09 | 2.60 |
| Key Math: Geometry | | | | | |
|     Age-Scaled Score | 415 | 2.00 | 15.00 | 7.96 | 2.37 |
|     Grade-Scaled Score | 415 | 1.00 | 15.00 | 7.79 | 2.35 |
|     Age Equivalent | 415 | 5.00 | 16.00 | 10.43 | 2.32 |
|     Grade Equivalent | 415 | 0.00 | 10.00 | 5.39 | 2.29 |

| | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **Retained** | | | | | |
| **Average Age = 12.96 years, Average Grade = 6.85** | | | | | |
| Key Math: Numeration | | | | | |
|     Age-Scaled Score | 88 | 2.00 | 12.00 | 5.85 | 2.14 |
|     Grade-Scaled Score | 88 | 2.00 | 11.00 | 5.43 | 2.16 |
|     Age Equivalent | 88 | 6.00 | 14.00 | 8.87 | 1.79 |
|     Grade Equivalent | 88 | 1.00 | 9.00 | 3.44 | 1.79 |
| Key Math: Algebra | | | | | |
|     Age-Scaled Score | 88 | 2.00 | 13.00 | 6.34 | 2.43 |
|     Grade-Scaled Score | 88 | 2.00 | 12.00 | 5.86 | 2.30 |
|     Age Equivalent | 88 | 6.00 | 16.00 | 9.13 | 2.04 |
|     Grade Equivalent | 88 | 1.00 | 10.00 | 3.85 | 2.04 |
| Key Math: Geometry | | | | | |
|     Age-Scaled Score | 88 | 2.00 | 12.00 | 6.48 | 2.13 |
|     Grade-Scaled Score | 88 | 2.00 | 11.00 | 6.27 | 2.15 |
|     Age Equivalent | 88 | 5.00 | 14.00 | 8.97 | 1.92 |
|     Grade Equivalent | 88 | 0.20 | 9.00 | 3.90 | 1.99 |

## Key Math Age Equivalence across Years

| Year | Mean Age | Test | N | M | SD |
|---|---|---|---|---|---|
| Year 1 | 11.01 years | Number | 517 | 9.21 | 2.04 |
| | | Algebra | 517 | 9.15 | 1.96 |
| | | Geometry | 517 | 8.61 | 1.99 |
| Year 2 | 12.01 years | Number | 513 | 10.03 | 2.23 |
| | | Algebra | 513 | 10.10 | 2.41 |
| | | Geometry | 513 | 9.51 | 2.10 |
| Year 3 | 13.05 years | Number | 503 | 10.82 | 2.62 |
| | | Algebra | 503 | 11.00 | 2.76 |
| | | Geometry | 503 | 10.17 | 2.32 |

## Key Math Grade Equivalence across Years

| Year | Mean Grade | Test | N | M | SD |
|---|---|---|---|---|---|
| Year 1 | 5.83 | Number | 517 | 4.20 | 1.98 |
| | | Algebra | 517 | 4.31 | 1.84 |
| | | Geometry | 517 | 3.90 | 1.97 |
| Year 2 | 6.84 | Number | 513 | 4.98 | 2.15 |
| | | Algebra | 513 | 5.20 | 2.25 |
| | | Geometry | 513 | 4.80 | 2.06 |
| Year 3 | 7.84 | Number | 503 | 5.38 | 2.55 |
| | | Algebra | 503 | 5.70 | 2.65 |
| | | Geometry | 503 | 5.13 | 2.31 |

# Student Outcomes:  Woodcock Johnson Subtests

|  |  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|---|
| Quantitative Concepts | W-Score | 503 | 458 | 545 | 508.17 | 13.24 |
|  | Standard Score | 503 | 42 | 118 | 86.32 | 12.27 |
| Letter Word Identification | W-Score | 503 | 427 | 563 | 516.00 | 21.57 |
|  | Standard Score | 503 | 46 | 127 | 94.17 | 12.93 |

*Note.* Letter Word Identification was only given in Year 3.



WJ Quantitative Concepts Standard Score Distribution



WJ Letter Word Standard Score Distribution
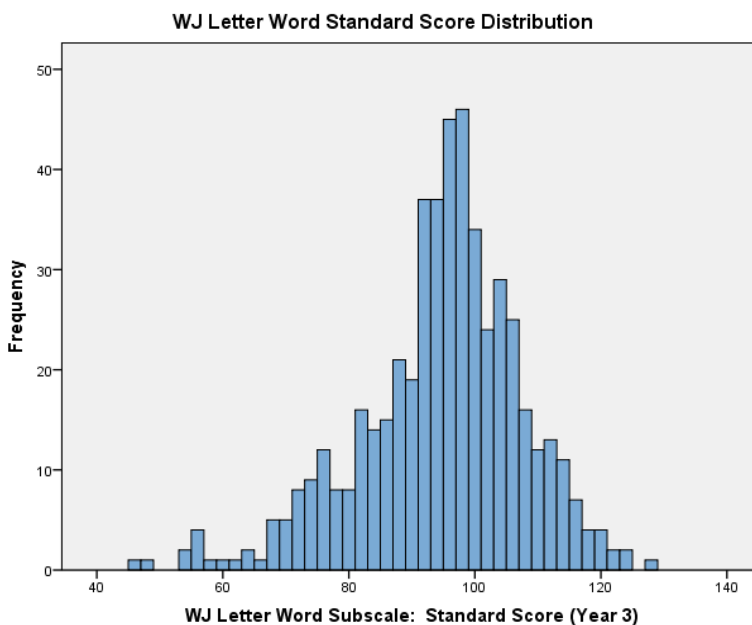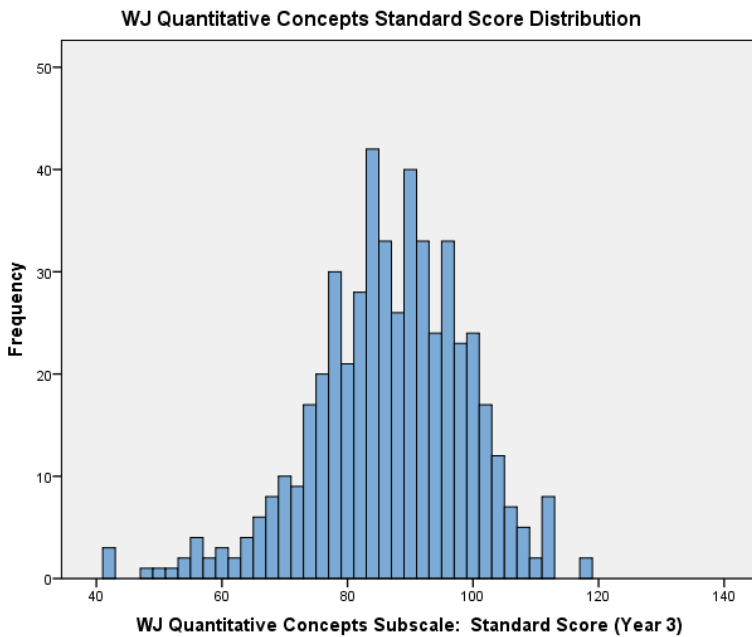
## Woodcock Johnson Scores across Years

- From the original Building Blocks study through this year, there were 7 testing time points. They were: fall of PK, spring of PK, spring of K, spring of 1st grade, spring of 5th grade, spring of 6th grade, and spring of 7th grade.
- Letter Word Identification was only given in fall of PK, spring of PK, spring of K, spring of 1st grade, and spring of 7th grade.
- The graphs below show the scores over time for those 450 students who were tested at all possible time points.

WJ W-Scores from the Beginning of PK through 7th Grade
(N=450)

WJ Standard Scores from the Beginning of PK through 7th Grade (N=450)
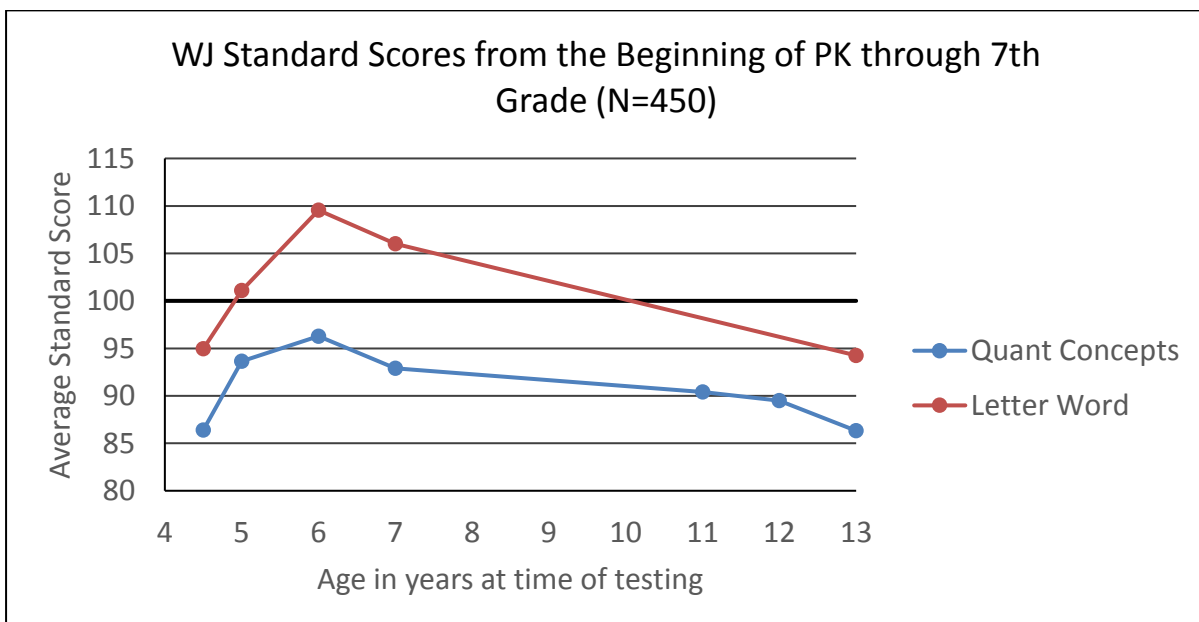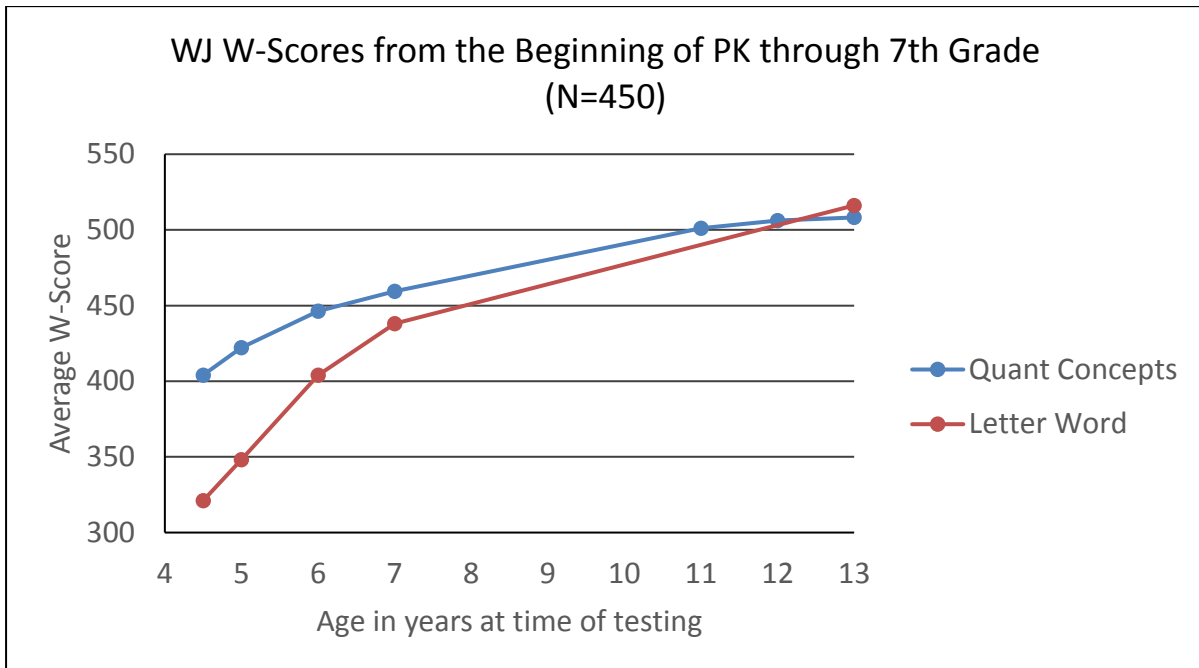
## Student Outcomes on Woodcock Johnson Subtests by Retention Status

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **Not Retained** | | | | | |
| **Average Age =13.07 years, Average Grade = 7.84** | | | | | |
| Quantitative Concepts | | | | | |
|     W-Score | 415 | 458 | 545 | 510.34 | 12.27 |
|     Standard Score | 415 | 42 | 118 | 88.22 | 11.50 |
| Letter Word Identification | | | | | |
|     W-Score | 415 | 427 | 563 | 519.62 | 19.42 |
|     Standard Score | 415 | 46 | 127 | 96.20 | 11.96 |

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **Retained** | | | | | |
| **Average Age = 12.96 years, Average Grade = 6.85** | | | | | |
| Quantitative Concepts | | | | | |
|     W-Score | 88 | 467 | 528 | 497.95 | 12.92 |
|     Standard Score | 88 | 47 | 104 | 77.34 | 11.86 |
| Letter Word Identification | | | | | |
|     W-Score | 88 | 438 | 542 | 498.91 | 23.06 |
|     Standard Score | 88 | 54 | 112 | 84.55 | 13.04 |

# Student Performance on Symbolic Number (NUM)

| | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| NUM Percent Trials Correct | 503 | 0.50 | 1.00 | 0.92 | 0.06 |
| NUM Mean RT for Correct Trials | 503 | 522.70 | 1701.88 | 810.81 | 190.83 |
| NUM Percent Trials Incorrect | 503 | 0.00 | 0.50 | 0.08 | 0.06 |
| NUM Performance Score | 503 | 582.44 | 2005.43 | 938.30 | 221.34 |

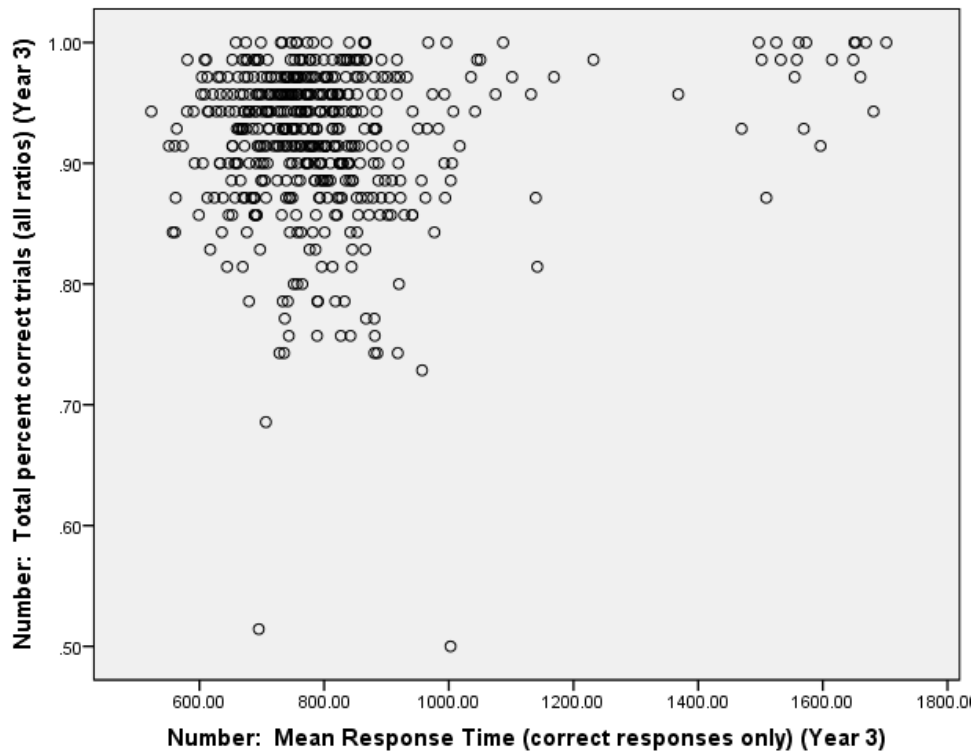*Note.* Performance Score = Response Time*(1 + 2*Percent Trials Incorrect).



Symbolic Number: Percent Correct Distribution
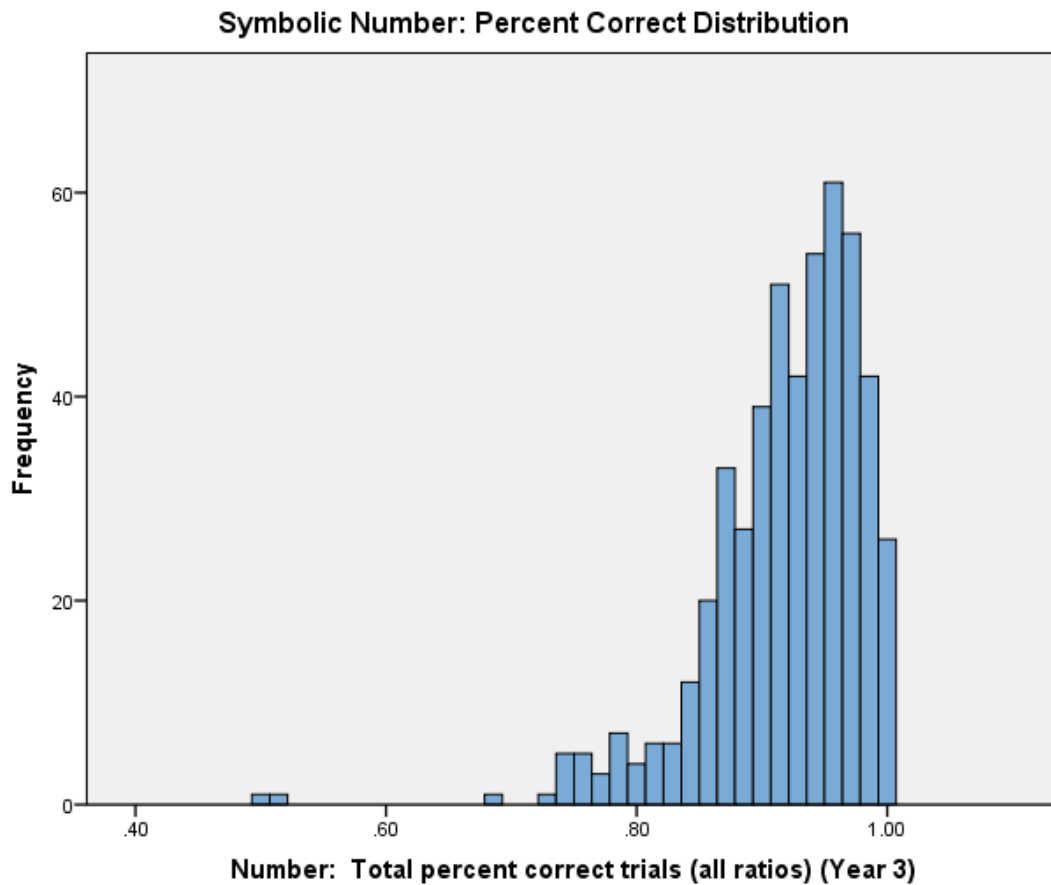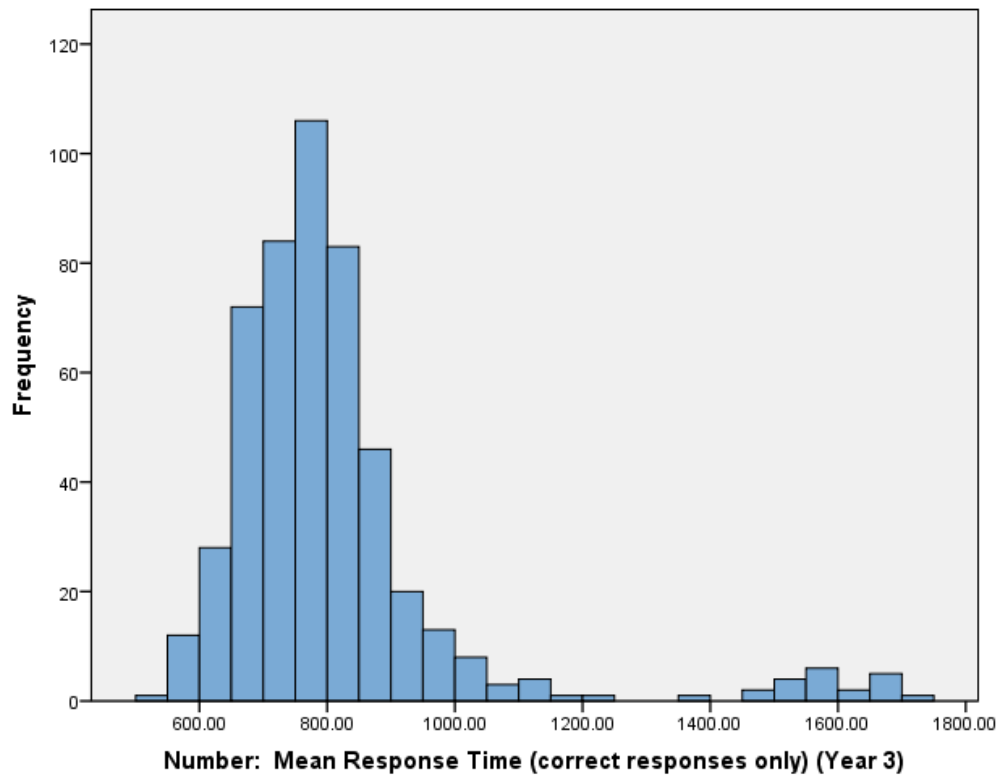
Symbolic Number: Mean Response Time Distribution



Symbolic Number: Scatterplot of Total Correct and Mean Response Time

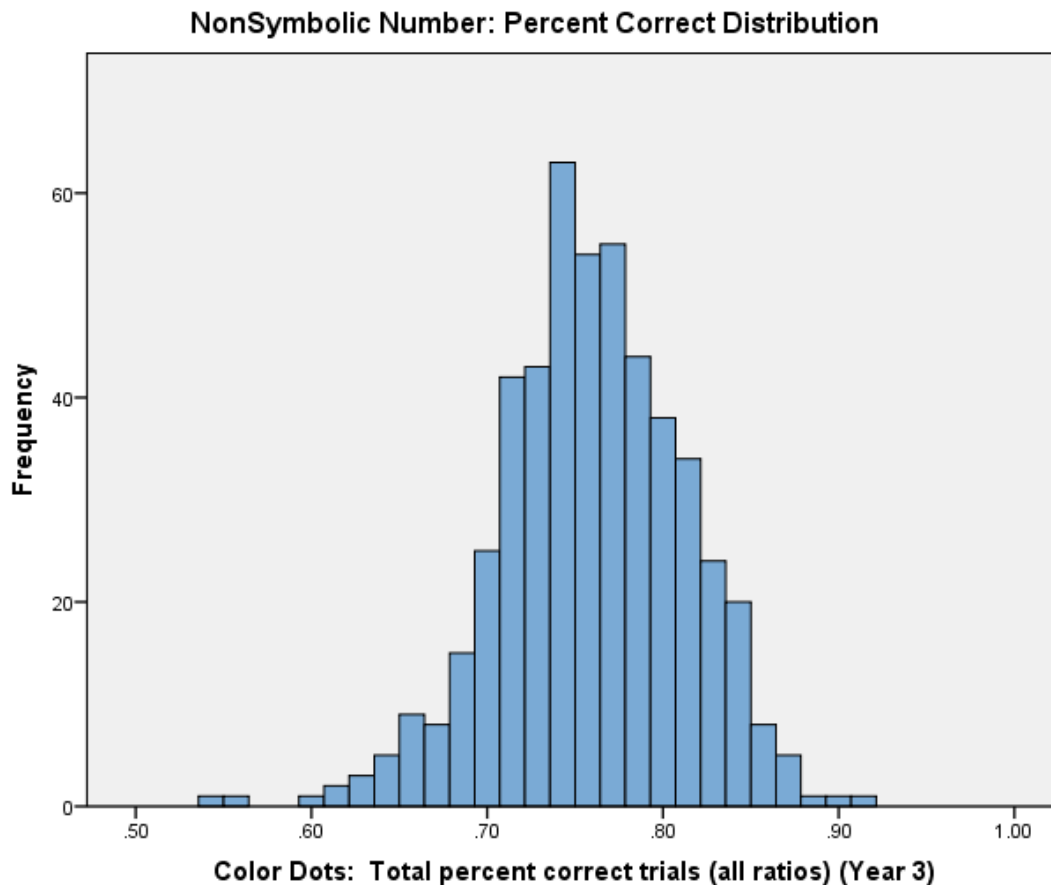**Student Performance on Symbolic Number across Years**

| Year | Measure | N | Mean | SD |
|---|---|---|---|---|
| Year 1 | NUM Percent Trials Correct | 517 | 0.95 | 0.05 |
| | NUM Mean RT for Correct Trials | 517 | 740.72 | 198.69 |
| | NUM Percent Trials Incorrect | 517 | 0.05 | 0.05 |
| | NUM Performance Score | 517 | 814.10 | 232.16 |
| | | | | |
| Year 2 | NUM Percent Trials Correct | 513 | 0.91 | 0.07 |
| | NUM Mean RT for Correct Trials | 513 | 880.65 | 228.06 |
| | NUM Percent Trials Incorrect | 513 | 0.09 | 0.07 |
| | NUM Performance Score | 513 | 1037.89 | 259.45 |
| Year 3 | NUM Percent Trials Correct | 503 | 0.92 | 0.06 |
| | NUM Mean RT for Correct Trials | 503 | 810.81 | 190.83 |
| | NUM Percent Trials Incorrect | 503 | 0.08 | 0.06 |
| | NUM Performance Score | 503 | 938.30 | 221.34 |

*Note*. The symbolic number task changed from Year 1 to Year 2.

# Student Performance on NonSymbolic Number (Color Dots)

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| CD Percent Trials Correct | 503 | 0.54 | 0.91 | 0.76 | 0.05 |
| CD Mean RT for Correct Trials | 503 | 490.96 | 1767.65 | 771.94 | 184.43 |
| CD Percent Trials Incorrect | 503 | 0.09 | 0.46 | 0.24 | 0.05 |
| CD Performance Score | 503 | 679.91 | 2525.21 | 1141.58 | 266.77 |

*Note*. Performance Score = Response Time*(1 + 2*Percent Trials Incorrect).



NonSymbolic Number: Percent Correct Distribution
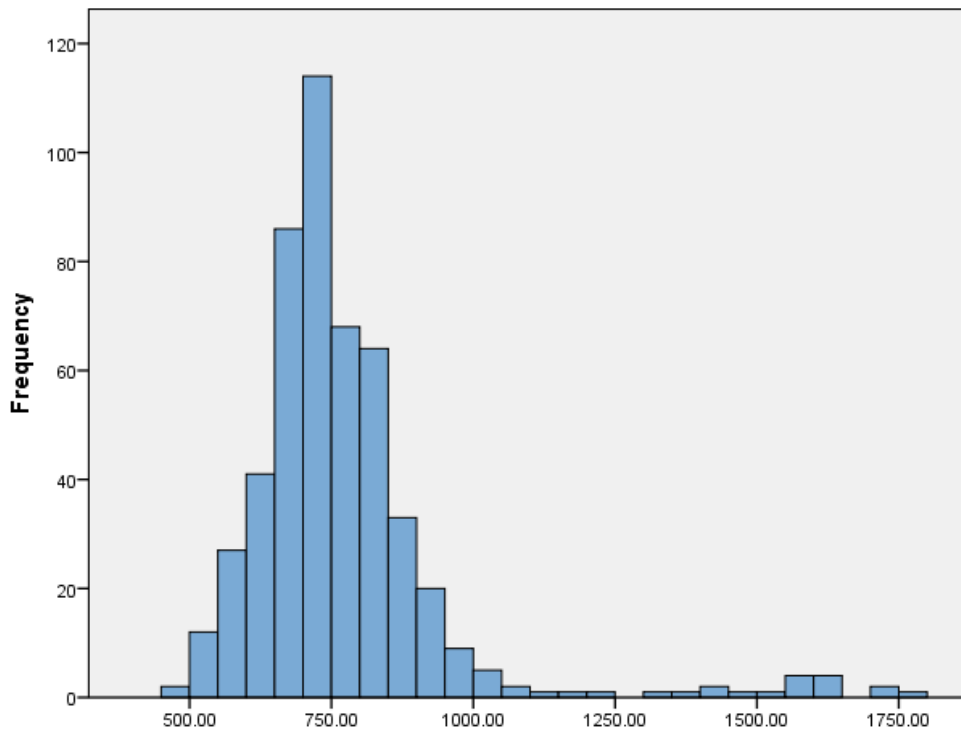
Color Dots: Total percent correct trials (all ratios) (Year 3)

NonSymbolic Number: Mean Response Time Distribution



NonSymbolic Number: Scatterplot of Total Correct and Mean Response Time

## Student Performance on NonSymbolic Number across Years

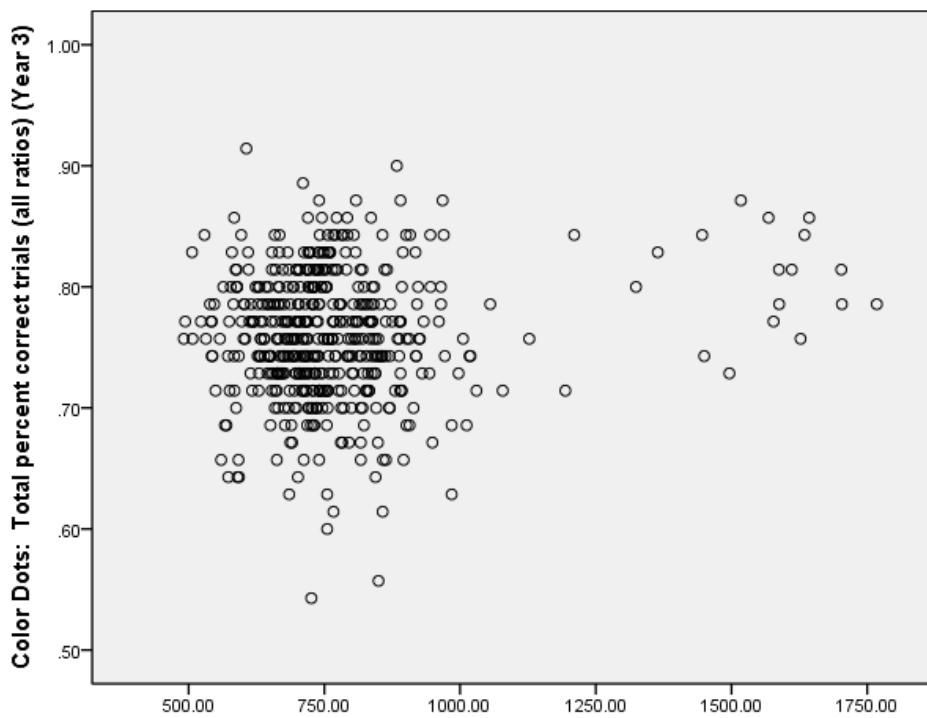| Year | Measure | N | Mean | SD |
|------|---------|---|------|-----|
| Year 1 | CD Percent Trials Correct | 291 | 0.75 | 0.05 |
| | CD Mean RT for Correct Trials | 291 | 861.65 | 181.91 |
| | CD Percent Trials Incorrect | 291 | 0.25 | 0.05 |
| | CD Performance Score | 291 | 1294.31 | 265.81 |
| Year 2 | CD Percent Trials Correct | 513 | 0.75 | 0.05 |
| | CD Mean RT for Correct Trials | 513 | 839.77 | 220.70 |
| | CD Percent Trials Incorrect | 513 | 0.25 | 0.05 |
| | CD Performance Score | 513 | 1257.32 | 328.62 |
| Year 3 | CD Percent Trials Correct | 503 | 0.76 | 0.05 |
| | CD Mean RT for Correct Trials | 503 | 771.94 | 184.43 |
| | CD Percent Trials Incorrect | 503 | 0.24 | 0.05 |
| | CD Performance Score | 503 | 1141.58 | 266.77 |

*Note*. The Color Dots task was added after Year 1 data collection was already partially completed.

# Student Performance on Mapping Task Comparison

| | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| MAP Overall Percent Trials Correct | 502 | 0.46 | 0.88 | 0.69 | 0.08 |
| MAP Overall Mean RT for Correct Trials | 502 | 630.42 | 2516.29 | 1230.14 | 263.22 |
| MAP Overall Percent Trials Incorrect | 502 | 0.12 | 0.54 | 0.31 | 0.08 |
| MAP Overall Performance Score | 502 | 1005.68 | 3919.06 | 1982.66 | 380.59 |
| MAP Digits to Dots Percent Trials Correct | 502 | 0.40 | 0.93 | 0.71 | 0.09 |
| MAP Digits to Dots Mean RT for Correct Trials | 502 | 693.43 | 2489.44 | 1220.33 | 258.08 |
| MAP Digits to Dots Percent Trials Incorrect | 502 | 0.07 | 0.60 | 0.29 | 0.09 |
| MAP Digits to Dots Performance Score | 502 | 1089.68 | 3702.91 | 1924.82 | 394.91 |
| MAP Dots to Digits Percent Trials Correct | 502 | 0.38 | 0.90 | 0.67 | 0.09 |
| MAP Dots to Digits Mean RT for Correct Trials | 502 | 565.24 | 2562.28 | 1238.52 | 289.57 |
| MAP Dots to Digits Percent Trials Incorrect | 502 | 0.10 | 0.62 | 0.33 | 0.09 |
| MAP Dots to Digits Performance Score | 502 | 915.15 | 4148.45 | 2036.08 | 425.91 |

*Note*. Performance Score = Response Time*(1 + 2*Percent Trials Incorrect). 1 student did not pass the practice trials and thus had no non-practice data. New task only given in Year 3; no earlier comparison data available.



Mapping: Percent Correct Distribution

Mapping: Total percent correct trials (all ratios) (Year 3)
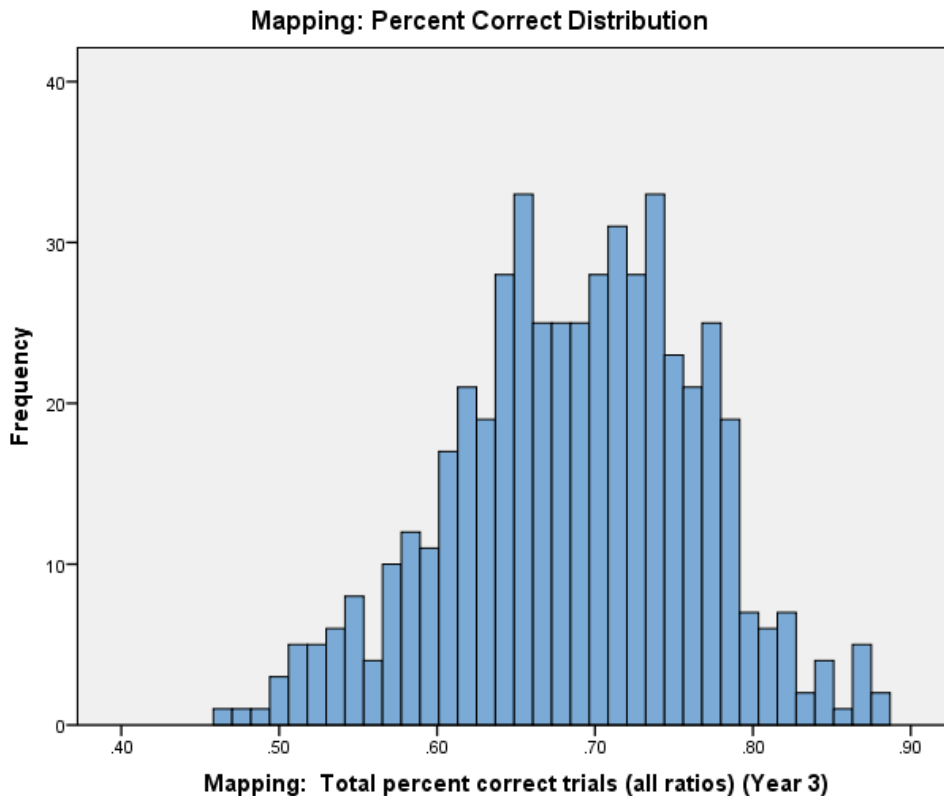
## Mapping: Mean Response Time Distribution



## Mapping: Scatterplot of Total Correct and Mean Response Time

# Student Performance on Directional Stroop Task (Hearts and Flowers)

|  | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| Congruent Trials Presented Alone |  |  |  |  |  |
| Percent trials correct | 503 | 0.75 | 1.00 | 0.98 | 0.05 |
| Mean response time per trial | 503 | 230.75 | 689.08 | 353.18 | 59.16 |
| Incongruent Trials Presented Alone |  |  |  |  |  |
| Percent trials correct | 502 | 0.00 | 1.00 | 0.93 | 0.13 |
| Mean response time per trial | 502 | 266.42 | 621.25 | 396.45 | 64.66 |
| Mixed Trials |  |  |  |  |  |
| Percent trials correct | 502 | 0.38 | 1.00 | 0.76 | 0.14 |
| Mean response time per trial | 502 | 328.42 | 716.98 | 521.59 | 64.23 |
| Fixed Trials |  |  |  |  |  |
| Percent trials correct | 503 | 0.50 | 1.00 | 0.96 | 0.07 |
| Mean response time per trial | 503 | 257.04 | 613.75 | 374.92 | 53.45 |

*Note.* Response time includes both correct and incorrect responses. Also, one student only had non-practice data for congruent fixed trials.

**Mean % Accuracy per Block Type**



**Mean Response Time per Block Type**
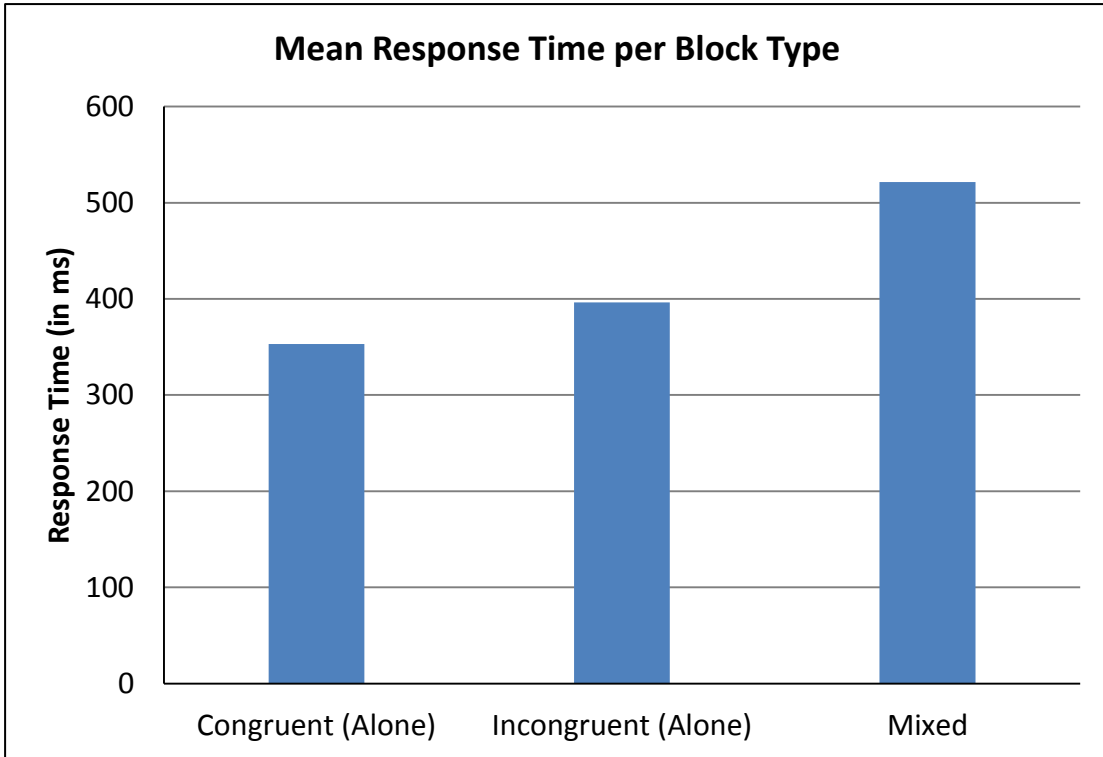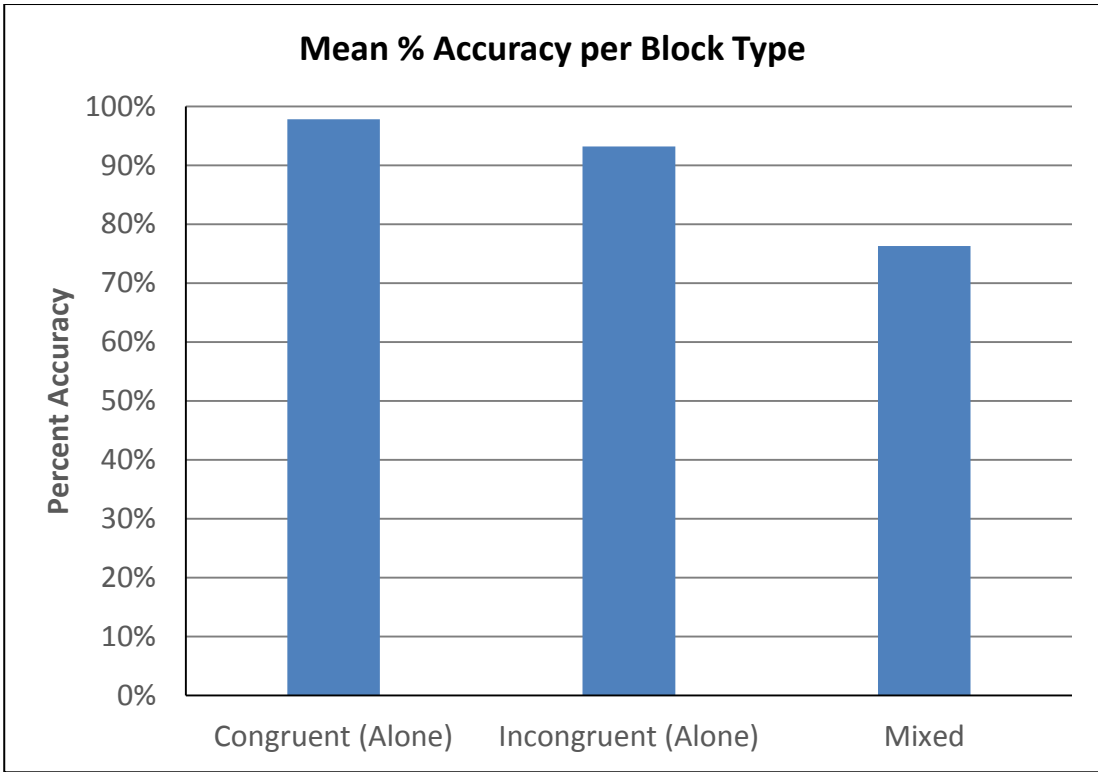
# Student Performance on Directional Stroop Task across Years by Block Type

**Fixed Congruent Block**

| Year | Measure | N | Mean | SD |
|---|---|---|---|---|
| Year 1 | HAF Percent Trials Correct | 516 | 0.97 | 0.07 |
| | HAF Mean RT per Trial | 516 | 383.86 | 70.52 |
| Year 2 | HAF Percent Trials Correct | 512 | 0.97 | 0.06 |
| | HAF Mean RT per Trial | 512 | 368.17 | 65.83 |
| Year 3 | HAF Percent Trials Correct | 503 | 0.98 | 0.05 |
| | HAF Mean RT per Trial | 503 | 353.18 | 59.16 |

**Fixed Incongruent Block**

| Year | Measure | N | Mean | SD |
|---|---|---|---|---|
| Year 1 | HAF Percent Trials Correct | 485 | 0.88 | 0.18 |
| | HAF Mean RT per Trial | 481 | 454.24 | 92.85 |
| Year 2 | HAF Percent Trials Correct | 511 | 0.90 | 0.16 |
| | HAF Mean RT per Trial | 508 | 428.24 | 91.02 |
| Year 3 | HAF Percent Trials Correct | 502 | 0.93 | 0.13 |
| | HAF Mean RT per Trial | 502 | 396.45 | 64.66 |

*Note.* Some students did not pass the practice trials and did not have Incongruent Block data.

**Mixed Block**

| Year | Measure | N | Mean | SD |
|---|---|---|---|---|
| Year 1 | HAF Percent Trials Correct | 485 | 0.66 | 0.14 |
| | HAF Mean RT per Trial | 485 | 573.32 | 84.80 |
| Year 2 | HAF Percent Trials Correct | 511 | 0.73 | 0.15 |
| | HAF Mean RT per Trial | 511 | 555.13 | 75.02 |
| Year 3 | HAF Percent Trials Correct | 502 | 0.76 | 0.14 |
| | HAF Mean RT per Trial | 502 | 521.59 | 64.23 |

*Note.* Some students did not pass the practice trials and did not have Mixed Block data.

# Correlations among 7th Grade Measures

| | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | XIII | XIV | XV | XVI | XVII |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I.  KM Number (Age-Scaled) | | | | | | | | | | | | | | | | | |
| II.  KM Algebra (Age-Scaled) | .86 | | | | | | | | | | | | | | | | |
| III.  KM Geometry (Age-Scaled) | .71 | .70 | | | | | | | | | | | | | | | |
| IV.  WJ Quant. Cpts. (Std. Score) | .78 | .79 | .62 | | | | | | | | | | | | | | |
| V.  WJ Letter Word (Std. Score) | .54 | .56 | .46 | .66 | | | | | | | | | | | | | |
| VI.  Number:  Accuracy | .38 | .38 | .29 | .41 | .29 | | | | | | | | | | | | |
| VII.  Number:  Correct RT | -.15 | -.17 | -.12 | -.13 | -.12 | .12 | | | | | | | | | | | |
| VIII.  Color Dots:  Accuracy | .16 | .16 | .13 | .10 | .09 | .32 | .07 | | | | | | | | | | |
| IX.  Color Dots:  Correct RT | .00 | -.01 | -.05 | -.01 | -.01 | .21 | .80 | .11 | | | | | | | | | |
| X.  Mapping All:  Accuracy | .43 | .41 | .34 | .43 | .33 | .53 | .11 | .31 | .24 | | | | | | | | |
| XI.  Mapping All:  Correct RT | .04 | .03 | .01 | .06 | .04 | .20 | .52 | .10 | .67 | .38 | | | | | | | |
| XII.  HAF: Accuracy (Cong.) | .19 | .15 | .15 | .21 | .08 | .32 | -.01 | .18 | .01 | .22 | .06 | | | | | | |
| XIII.  HAF: RT (Congruent) | -.11 | -.16 | -.09 | -.11 | -.13 | -.09 | .21 | -.07 | .14 | -.09 | .15 | .11 | | | | | |
| XIV.  HAF: Accuracy (Incong.) | .32 | .31 | .26 | .34 | .23 | .38 | -.05 | .08 | .00 | .28 | .01 | .16 | -.05 | | | | |
| XV.  HAF: RT (Incong.) | -.23 | -.28 | -.22 | -.25 | -.25 | -.18 | .21 | -.17 | .11 | -.19 | .13 | -.03 | .48 | -.21 | | | |
| XVI.  HAF: Accuracy (Mixed) | .44 | .42 | .36 | .42 | .33 | .43 | -.08 | .30 | .05 | .40 | .11 | .25 | -.09 | .41 | -.30 | | |
| XVII.  HAF: RT (Mixed) | -.01 | .01 | .04 | .06 | -.03 | .13 | .17 | .02 | .13 | .12 | .23 | .20 | .32 | .12 | .35 | .11 | |

*Note.* Red cells indicate correlations greater than .20. Green cells indicate correlations less than -.20.

# Correlations among 6th Grade and 7th Grade Measures

| | Year 3 (7th Grade) Outcomes | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | KM NUM | KM ALG | KM GEO | QCS | NUM Acc | NUM RT | CD Acc | CD RT | MAP Acc | MAP RT | HAF Acc (cong) | HAF RT (cong) | HAF Acc (incong) | HAF RT (incong) | HAF Acc (mix) | HAF RT (mix) |
| KM NUM | .88 | .79 | .66 | .75 | .36 | -.15 | .17 | -.02 | .43 | .04 | .14 | -.12 | .28 | -.27 | .41 | -.04 |
| KM ALG | .83 | .82 | .65 | .77 | .38 | -.16 | .15 | -.04 | .43 | .00 | .16 | -.13 | .33 | -.27 | .39 | -.01 |
| KM GEO | .70 | .67 | .72 | .65 | .27 | -.10 | .11 | .01 | .36 | .04 | .17 | -.07 | .27 | -.23 | .39 | .04 |
| QCS | .74 | .75 | .58 | .80 | .41 | -.13 | .15 | -.02 | .42 | .02 | .14 | -.13 | .32 | -.27 | .41 | .07 |
| NUM Acc | .40 | .38 | .25 | .42 | .68 | .03 | .23 | .17 | .46 | .15 | .24 | -.14 | .34 | -.19 | .36 | .09 |
| NUM RT | -.07 | -.06 | -.05 | -.07 | .07 | .63 | .03 | .57 | .12 | .38 | .00 | .12 | -.01 | .14 | -.08 | .12 |
| CD Acc | .14 | .15 | .16 | .13 | .25 | .03 | .35 | .06 | .24 | .02 | .20 | -.06 | .10 | -.17 | .24 | -.01 |
| CD RT | .06 | .05 | -.01 | .04 | .18 | .58 | .08 | .68 | .20 | .50 | .01 | .07 | .03 | .12 | .03 | .12 |
| MAP Acc | .21 | .16 | .16 | .20 | .27 | .01 | .07 | .10 | .24 | .09 | .07 | -.09 | .21 | -.07 | .21 | -.05 |
| MAP RT | .07 | .06 | .01 | .05 | .15 | .53 | .07 | .64 | .20 | .54 | -.03 | .08 | -.01 | .10 | .00 | .11 |
| HAF Acc (cong) | .20 | .24 | .13 | .20 | .23 | -.05 | .07 | .01 | .19 | .04 | .21 | -.08 | .22 | -.10 | .25 | .03 |
| HAF RT (cong) | -.14 | -.19 | -.11 | -.16 | -.10 | .11 | -.09 | .06 | -.12 | .00 | .03 | .36 | -.05 | .29 | -.11 | .15 |
| HAF Acc (incong) | .27 | .29 | .21 | .30 | .28 | -.10 | .14 | .00 | .22 | .01 | .27 | -.09 | .34 | -.23 | .41 | .06 |
| HAF RT (incong) | -.27 | -.29 | -.26 | -.29 | -.25 | .14 | -.20 | .04 | -.23 | .06 | -.12 | .35 | -.17 | .45 | -.33 | .25 |
| HAF Acc (mix) | .41 | .40 | .34 | .41 | .39 | -.11 | .21 | .01 | .33 | .02 | .24 | -.11 | .31 | -.27 | .62 | -.08 |
| HAF RT (mix) | -.02 | .00 | .01 | .00 | .12 | .09 | .03 | .02 | -.01 | .09 | .13 | .16 | .07 | .25 | .00 | .46 |

Row labels under "Year 2 (6th Grade) Outcomes".

*Note.* Red cells indicate correlations greater than .20. Green cells indicate correlations less than -.20.

## Student Survey Outcomes:  TIMSS *(Trends in International Mathematics and Science Study)*

| | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| **Confidence Scale Average** | **503** | **1.33** | **4.00** | **3.07** | **0.62** |
| I know what my math teacher expects | 503 | 1 | 4 | 3.76 | 0.51 |
| My math teacher is easy to understand | 503 | 1 | 4 | 3.13 | 0.86 |
| I usually do well in math | 503 | 1 | 4 | 3.22 | 0.83 |
| Math is more difficult for me than my classmates (reverse coded) | 503 | 1 | 4 | 2.72 | 1.06 |
| Math is not one of my strengths (reverse coded) | 503 | 1 | 4 | 2.85 | 1.15 |
| I learn quickly in math | 503 | 1 | 4 | 2.87 | 0.98 |
| Math makes me confused and nervous (reverse coded) | 503 | 1 | 4 | 2.86 | 1.03 |
| I am good at working out hard math problems | 503 | 1 | 4 | 2.74 | 0.96 |
| My teacher thinks I am good at working out hard math problems | 503 | 1 | 4 | 3.19 | 0.84 |
| My teacher tells me I am good at math | 503 | 1 | 4 | 3.29 | 0.88 |
| Math is harder for me than other subjects (reverse coded) | 503 | 1 | 4 | 2.82 | 1.14 |
| My family thinks I am good at math | 503 | 1 | 4 | 3.41 | 0.80 |
| **Value Scale Average** | **503** | **1.33** | **4.00** | **3.52** | **0.42** |
| It is important to do well in math | 503 | 1 | 4 | 3.89 | 0.39 |
| Learning math will help me in daily life | 503 | 1 | 4 | 3.76 | 0.53 |
| I need math to learn other subjects | 503 | 1 | 4 | 3.36 | 0.80 |
| I need to do well in math to get into college | 503 | 1 | 4 | 3.76 | 0.55 |
| I need to do well in math to get the job I want | 503 | 1 | 4 | 3.69 | 0.67 |
| I would like a job that uses math | 503 | 1 | 4 | 2.66 | 0.99 |
| **Like Learning Scale Average** | **503** | **1.13** | **4.00** | **3.21** | **0.60** |
| I enjoy learning math | 503 | 1 | 4 | 3.32 | 0.74 |
| I wish I did not have to study math (reverse coded) | 503 | 1 | 4 | 3.23 | 0.90 |
| Math is boring (reverse coded) | 503 | 1 | 4 | 3.03 | 0.96 |
| I learn interesting things in math | 503 | 1 | 4 | 3.62 | 0.70 |
| I like math | 503 | 1 | 4 | 3.25 | 0.93 |
| I think of things not related to the lesson (reverse coded) | 503 | 1 | 4 | 2.59 | 0.92 |
| I'm interested in what my math teacher says | 503 | 1 | 4 | 3.30 | 0.77 |
| My math teacher gives me interesting things to do | 503 | 1 | 4 | 3.34 | 0.81 |

*Note.* All negative items above were reverse coded (e.g., Math is boring) so that on all items higher scores mean more positive student ratings.

## Distributions of Student Survey Subscales in Year 3
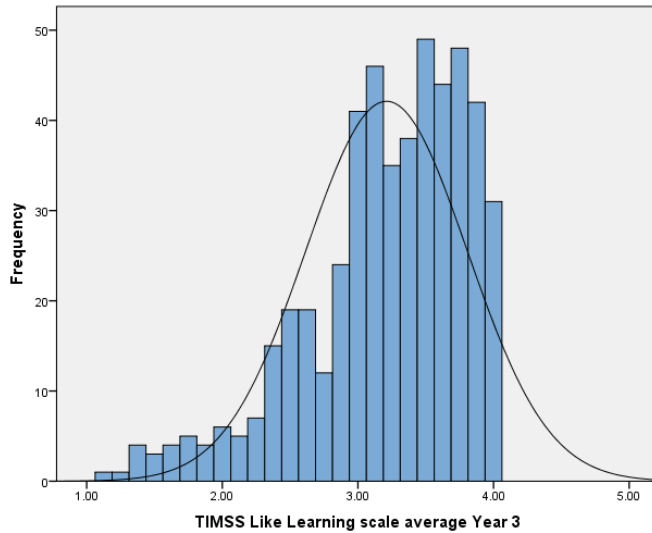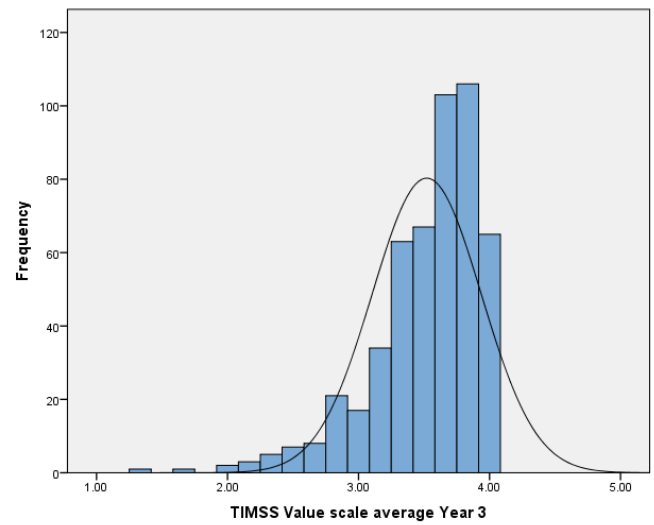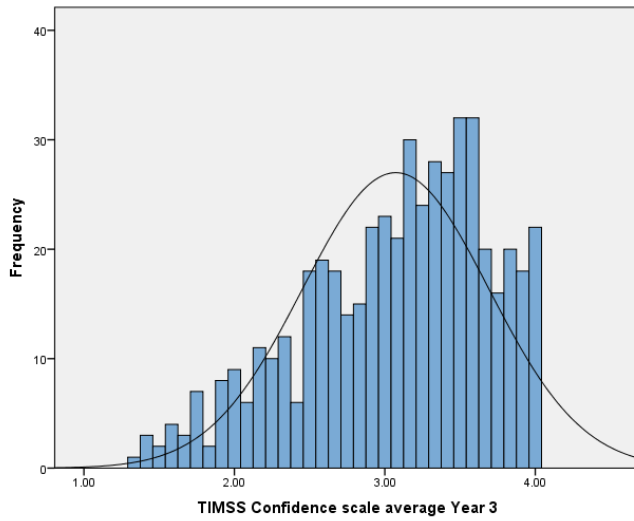






## Student Ratings for Subscales by Year

|  | Year 2 | | Year 3 | | Change | |
|---|---|---|---|---|---|---|
|  | MEAN | SD | MEAN | SD | MEAN | SD |
| Students' Confidence in Mathematics Avg | 3.22 | .58 | 3.07 | 0.62 | -0.15 | 0.50 |
| Students Value Mathematics Avg | 3.55 | .40 | 3.52 | 0.42 | -0.03 | 0.43 |
| Students Like Learning Mathematics Avg | 3.37 | .53 | 3.21 | 0.60 | -0.17 | 0.49 |

# Student Outcomes and TIMSS Ratings by School Type

| Direct Assessment Outcomes by School Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *CHARTER* | | *IZONE* | | *MIDDLE* | | *OTHER* | |
| | N | Mean | N | Mean | N | Mean | N | Mean |
| KM Number (age scaled) | 113 | 8.44 | 64 | 7.09 | 323 | 7.89 | 3 | 10.00 |
| KM Algebra (age scaled) | 113 | 8.98 | 64 | 7.58 | 323 | 8.27 | 3 | 10.33 |
| KM Geometry (age scaled) | 113 | 8.00 | 64 | 7.17 | 323 | 7.68 | 3 | 9.67 |
| WJ Quant. Concepts (standard score) | 113 | 88.35 | 64 | 83.66 | 323 | 86.11 | 3 | 88.00 |
| WJ Letter Word (standard score) | 113 | 94.98 | 64 | 89.66 | 323 | 94.71 | 3 | 101.33 |
| Number: Accuracy | 113 | 0.92 | 64 | 0.91 | 323 | 0.92 | 3 | 0.92 |
| Number: Correct RT | 113 | 817.58 | 64 | 855.25 | 323 | 799.90 | 3 | 782.73 |
| Color Dots: Accuracy | 113 | 0.76 | 64 | 0.76 | 323 | 0.76 | 3 | 0.75 |
| Color Dots: Correct RT | 113 | 780.34 | 64 | 806.94 | 323 | 762.91 | 3 | 681.29 |
| Mapping: Accuracy | 112 | 0.70 | 64 | 0.68 | 323 | 0.69 | 3 | 0.74 |
| Mapping: Correct RT | 112 | 1231.57 | 64 | 1231.58 | 323 | 1229.47 | 3 | 1217.00 |
| HAF: Accuracy (congruent) | 113 | 0.98 | 64 | 0.97 | 323 | 0.98 | 3 | 0.92 |
| HAF: RT (congruent) | 113 | 351.87 | 64 | 342.08 | 323 | 356.08 | 3 | 327.25 |
| HAF: Accuracy (incongruent) | 113 | 0.94 | 64 | 0.91 | 322 | 0.93 | 3 | 1.00 |
| HAF: RT (incongruent) | 113 | 401.16 | 64 | 396.19 | 322 | 395.14 | 3 | 364.89 |
| HAF: Accuracy (mixed) | 113 | 0.77 | 64 | 0.73 | 322 | 0.77 | 3 | 0.78 |
| HAF: RT (mixed) | 113 | 523.01 | 64 | 513.98 | 322 | 522.63 | 3 | 519.14 |

| Student Ratings by School Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *CHARTER* | | *IZONE* | | *MIDDLE* | | *OTHER* | |
| | N | Mean | N | Mean | N | Mean | N | Mean |
| TIMSS: Confidence | 113 | 3.08 | 64 | 3.17 | 323 | 3.05 | 3 | 3.22 |
| TIMSS: Value | 113 | 3.53 | 64 | 3.58 | 323 | 3.51 | 3 | 3.78 |
| TIMSS: Liking | 113 | 3.21 | 64 | 3.32 | 323 | 3.18 | 3 | 3.79 |
| TIMSS: Total | 113 | 83.87 | 64 | 85.98 | 323 | 83.07 | 3 | 91.67 |

| Student Ratings if Attended an Alternative School | | | | | | |
|---|---|---|---|---|---|---|
| | *Attended Alternative School* | | | *Didn't Attend Alternative School* | | |
| | N | Mean | SD | N | Mean | SD |
| TIMSS: Confidence | 16 | 3.20 | 0.50 | 487 | 3.07 | 0.62 |
| TIMSS: Value | 16 | 3.43 | 0.50 | 487 | 3.52 | 0.41 |
| TIMSS: Liking | 16 | 3.11 | 0.44 | 487 | 3.21 | 0.60 |
| TIMSS: Total | 16 | 83.81 | 10.32 | 487 | 83.67 | 12.68 |

# Teacher Survey and Ratings of Students (TSSR)

- The TSSR includes:
  - Section with teacher-specific questions (demographics, education, experience)
  - Section with student-specific questions (each consented student's math abilities, work habits, etc.) and classroom-specific questions (for math classes taught that include consented students, regarding textbook use, enrollment by ethnicity, etc.)
- We sent out 144 TSSRs to teachers with at least 1 consented student.
- One teacher did **not** complete the section with teacher-specific questions but did complete the section with student-specific questions
- **We have 132 <u>fully</u> completed and checked TSSR's (includes 481 students, 93% of consented student sample).**

# Teacher Survey Information

**Information from the 132 completed teacher surveys**

- Gender
    - 97 females (74%), 35 males (27%)
- Grades Taught
    - 1 teaches 5th grade (1%), 41 teach 6th grade (31%), 73 teach 7th grade (55%), 17 teach multiple grades (13%)
- Preferred Grade To Teach
    - 12 teachers (9%) reported that they would prefer to teach younger students than their current grade(s) level
    - 105 teachers (80%) reported that their current grade(s) level is just right
    - 15 teachers (11%) reported that they would prefer to teach older students than their current grade(s) level
- Math Taught
    - 102 teachers (77%) currently only teach math, while 30 teachers (23%) also teach other subjects
- Experience
    - Years as a teacher
        - This is 1st year:  14 (11%)
        - 2-4 years: 47 (36%)
        - 5-10 years: 31 (24%)
        - More than 10 years: 40 (30%)
    - Years at current school
        - This is 1st year:  43 (33%)
        - 2-4 years: 53 (40%)
        - 5-10 years: 23 (17%)
        - More than 10 years: 13 (10%)
    - Years teaching middle grades math
        - This is 1st year:  24 (18%)
        - 2-4 years: 54 (41%)
        - 5-10 years: 29 (22%)
        - More than 10 years: 25 (19%)

- Licensure (categories add up to more than 100%)
  - Early Childhood license (at least): 5 (4%)
  - Elementary license (at least): 46 (35%)
  - Middle Grades license (at least): 71 (54%)
  - Secondary license (at least): 26 (20%)
  - Special Education license (at least): 18 (14%)
  - Transitional license (at least): 4 (3%)
- Education
  - Highest degree earned
    - Bachelor's degree: 57 (43%)
    - Master's degree: 56 (42%)
    - Master's degree + 30: 18 (14%)
    - Doctoral degree: 1 (1%)
  - Majored in math in undergraduate program
    - Yes: 21 (16%)
    - No: 111 (84%)
  - Minored in math in undergraduate program
    - Yes: 14 (11%)
    - No: 99 (75%)
    - No minor (NA): 19 (14%)
  - Majored in math in graduate school
    - Yes: 18 (14%)
    - No: 81 (61%)
    - No grad school (NA): 33 (25%)
- Name of math textbook used
  - Glencoe Math Built to the Common Core: 74 (56%)
  - None: 35 (27%)
  - College Preparatory Mathematics/Core Connections: 6 (5%)
  - Carnegie Learning: 5 (4%)
  - Glencoe Math ConnectEd: 5 (4%)
  - Other: 7 (5%)
- How much you supplement the textbook with other materials
  - Almost never:  4 (3%)
  - A little:  16 (12%)
  - Somewhat:  37 (28%)
  - A lot:  54 (41%)
  - NA (no math textbook used):  21 (16%)
  - Note that 14 teachers who said they had no textbook said they supplemented the textbook a lot, and 1 teacher who said she had no textbook said she supplemented the textbook a little.

# Teacher Ratings of Students

**Information from the 481 completed teacher-rated students**

- Does student receive individual tutoring in math?
    - Yes: 49 (10%)
    - No: 432 (90%)
- Does student receive pullout small group instruction in math?
    - Yes: 140 (29%)
    - No: 341 (71%)
- Does student participate in gifted/talented programs in math?
    - Yes: 6 (1%)
    - No: 475 (99%)
- Does student participate in a Title 1 program in math?
    - Yes: 96 (20%)
    - No: 385 (80%)
- Is ability grouping used within this student's grade?
    - Yes: 185 (38%)
    - No: 296 (62%)
- If there is ability grouping, how do the students in this student's class compare to typical students in this grade at this school?
    - Less skilled: 67 (14%)
    - About the same: 90 (19%)
    - More advanced: 28 (6%)
    - Not applicable (no ability grouping): 296 (62%)
- Does the teacher use ability grouping in this student's class?
    - Yes: 189 (39%)
    - No: 292 (61%)
- If there is ability grouping, how does this student compare to others in the class?
    - Less skilled: 64 (13%)
    - About the same: 74 (15%)
    - More advanced: 51 (11%)
    - Not applicable (no ability grouping): 292 (61%)
- How often does this student work to the best of his/her ability in math?
    - Always: 68 (14%)
    - Usually: 186 (39%)
    - Erratic: 137 (28%)
    - Seldom: 79 (16%)
    - Never: 11 (2%)

- How does this student's math skills compare to others in his/her grade?
    - Far above average: 21 (4%)
    - Above average: 105 (22%)
    - Average: 178 (37%)
    - Below average: 123 (26%)
    - Far below average: 54 (11%)
- How does this student's interest in math compare to others in his/her grade?
    - Far above average: 15 (3%)
    - Above average: 98 (20%)
    - Average: 230 (48%)
    - Below average: 100 (21%)
    - Far below average: 38 (8%)
- How prepared is this student for the next level in math?
    - Highly prepared: 41 (9%)
    - Mostly prepared: 118 (25%)
    - May struggle but is prepared: 150 (31%)
    - Somewhat unlikely to be prepared: 93 (19%)
    - Very unlikely to be prepared: 79 (16%)
- How long has the teacher taught this student math this year?
    - More than 6 months:  394 (82%)
    - 4-6 months: 73 (15%)
    - 1-3 months: 12 (2%)
    - Less than 1 month: 2 (1%)
- This student concentrates well and is not easily distracted when doing a task.
    - Strongly agree: 60 (13%)
    - Agree: 167 (35%)
    - Disagree: 159 (33%)
    - Strongly disagree: 95 (20%)
- This student easily plans and carries out activities that have several steps.
    - Strongly agree: 62 (13%)
    - Agree: 185 (39%)
    - Disagree: 156 (32%)
    - Strongly disagree: 78 (16%)
- This student finishes tasks and activities.
    - Strongly agree: 80 (17%)
    - Agree: 212 (44%)
    - Disagree: 133 (28%)
    - Strongly disagree: 56 (12%)

- This student actively uses resources for help and information.
  - Strongly agree: 67 (14%)
  - Agree: 208 (43%)
  - Disagree: 154 (32%)
  - Strongly disagree: 52 (11%)
- Does this student have math-specific difficulties?
  - Yes: 44 (9%)
  - No: 437 (91%)
    - Responses (and frequency) if "Yes":

| | |
|---|---|
| Functionally Delayed/Specific Learning Disability | 13 |
| ADHD/ADD | 5 |
| Computations and applications | 5 |
| Very low basic math skills | 5 |
| IEP | 4 |
| IEP for math | 4 |
| Speech or Language Impairments | 2 |
| Linguistic or reading disability that makes word problems difficult | 2 |
| Receives accommodations for math | 1 |
| Other health impairment | 1 |
| Not diagnosed at this time and referred for testing | 2 |

## Teacher Ratings of Students by Year

| | Year 1 (N=463) | | Year 2 (N=503) | | Year 3 (N=481) | |
|---|---|---|---|---|---|---|
| | MEAN | SD | MEAN | SD | MEAN | SD |
| Works to best of ability in math | 3.68 | 0.97 | 3.46 | 0.99 | 3.46 | 1.00 |
| Math skills compared to others | 2.93 | 1.05 | 2.74 | 1.02 | 2.83 | 1.03 |
| Interest in math compared to others | 2.97 | 0.87 | 2.92 | 0.89 | 2.90 | 0.92 |
| Prepared for next level in math | 3.26 | 1.18 | 2.94 | 1.21 | 2.89 | 1.20 |

*Note.* These ratings were on a scale from 1 to 5 so 3 would be an average rating.

# Teacher Ratings of Students by School Type

**Ratings of Student Skills**

| | Range | CHARTER (N=108) | IZONE (N=61) | MIDDLE (N=309) | OTHER (N=3) |
|---|---|---|---|---|---|
| Works to best of ability in math | 1 to 5 | 3.48 (1.08) | 3.46 (1.01) | 3.45 (0.97) | 3.67 (1.16) |
| Math skills compared to others | 1 to 5 | 2.88 (1.09) | 2.66 (0.98) | 2.83 (1.03) | 3.33 (0.58) |
| Interest in math compared to others | 1 to 5 | 2.92 (0.88) | 2.80 (0.85) | 2.91 (0.95) | 3.33 (0.58) |
| Prepared for next level in math | 1 to 5 | 2.94 (1.29) | 2.84 (1.11) | 2.88 (1.18) | 3.67 (1.53) |
| Concentrates well/not easily distracted | 1 to 4 | 2.43 (0.98) | 2.41 (0.86) | 2.38 (0.95) | 3.00 (1.00) |
| Easily plans and carries out activities that have several steps | 1 to 4 | 2.44 (0.89) | 2.36 (0.86) | 2.51 (0.93) | 3.00 (1.00) |
| Finishes tasks and activities | 1 to 4 | 2.62 (0.95) | 2.59 (0.78) | 2.68 (0.89) | 3.33 (0.58) |
| Actively uses resource for help and information | 1 to 4 | 2.56 (0.87) | 2.64 (0.78) | 2.61 (0.87) | 3.33 (0.58) |

*Note.* Green cells indicate the highest overall rating for that item excluding the "Other" school type.

- Teachers at "Other" schools rated their students the highest. However, there were only 3 students in this category, with 1 student always receiving high ratings and two students receiving average or slightly below average ratings.
- Excluding the "Other" school type that had a low N, teachers at Charter schools were most likely to rate their students the highest, although Izone and Middle school teachers did rate their students the highest on at least one item.

Math Textbook Used (Percentages of teachers)

|  | CHARTER | IZONE | MIDDLE | OTHER |
|---|---|---|---|---|
| Glencoe Math Built to the Common Core | 0.0 | 75.0 | 66.7 | 33.3 |
| None | 71.4 | 16.7 | 17.7 | 33.3 |
| College Preparatory Mathematics/Core Connections | 28.6 | 0.0 | 0.0 | 0.0 |
| Carnegie Learning | 0.0 | 0.0 | 5.2 | 0.0 |
| Glencoe Math ConnectEd | 0.0 | 0.0 | 5.2 | 0.0 |
| Other | 0.0 | 8.3 | 5.2 | 33.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

How Much Textbook is Supplemented (Percentages of teachers)

|  | CHARTER | IZONE | MIDDLE | OTHER |
|---|---|---|---|---|
| Almost Never | 4.8 | 0.0 | 3.1 | 0.0 |
| A Little | 4.8 | 16.7 | 12.5 | 33.3 |
| Somewhat | 9.5 | 25.0 | 32.3 | 33.3 |
| A Lot | 23.8 | 50.0 | 44.8 | 0.0 |
| Not Applicable | 57.1 | 8.3 | 7.3 | 33.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

# Correlations among 7th Grade Student Outcomes and Teacher Ratings

**Zero-Order Correlations**

| Direct Assessment | TSSR: Math skills compared to others | TSSR: Interest in math compared to others | TSSR: Prepared for next level in math | TSSR: Self-Reg Items (Mean) |
|---|---|---|---|---|
| KM Number (Age-Scaled) | .58 | .34 | .56 | .37 |
| KM Algebra (Age-Scaled) | .57 | .36 | .57 | .39 |
| KM Geometry (Age-Scaled) | .47 | .30 | .48 | .35 |
| WJ Quant. Cpts. (Std Score) | .54 | .35 | .55 | .35 |
| WJ Letter Word (Std Score) | .37 | .20 | .36 | .24 |
| TIMSS Confidence Subscale | .42 | .40 | .46 | .36 |
| TIMSS Value of Math Subscale | -.02 | .06 | .00 | .03 |
| TIMSS Like Math Subscale | .22 | .29 | .24 | .25 |
| TIMSS Total Score | .32 | .35 | .37 | .31 |
| Number: Accuracy | .28 | .23 | .27 | .26 |
| Number: Correct RT | -.12 | -.13 | -.14 | -.12 |
| Color Dots: Accuracy | .11 | .14 | .13 | .14 |
| Color Dots: Correct RT | .00 | -.05 | -.02 | -.02 |
| Mapping: Accuracy | .33 | .26 | .32 | .31 |
| Mapping: Correct RT | .05 | .05 | .02 | .04 |
| HAF: Accuracy (Congruent) | .15 | .14 | .18 | .17 |
| HAF: RT (Congruent) | -.08 | -.10 | -.11 | -.13 |
| HAF: Accuracy (Incongruent) | .25 | .21 | .26 | .25 |
| HAF: RT (Incongruent) | -.20 | -.18 | -.20 | -.19 |
| HAF: Accuracy (Mixed) | .27 | .19 | .29 | .24 |
| HAF: RT (Mixed) | .02 | .02 | .02 | .06 |

*Note.* Red cells indicate correlations greater than .20. Green cells indicate correlations less than -.20.

# Outcomes by Pre-K Curriculum Condition

| Student Outcomes in Year 3 by Pre-K Curriculum | | | | | | |
|---|---|---|---|---|---|---|
| | *Building Blocks* | | | *Control* | | |
| | N | Mean | SD | N | Mean | SD |
| KM Number (age scaled) | 304 | 7.85 | 2.96 | 190 | 8.16 | 2.89 |
| KM Algebra (age scaled) | 304 | 8.21 | 3.38 | 190 | 8.62 | 3.20 |
| KM Geometry (age scaled) | 304 | 7.71 | 2.21 | 190 | 7.70 | 2.22 |
| WJ Quant. Concepts (standard score) | 304 | 85.73 | 12.61 | 190 | 87.28 | 12.17 |
| WJ Letter Word (standard score) | 304 | 93.66 | 13.74 | 190 | 95.00 | 13.25 |
| Number: Accuracy | 309 | 0.92 | 0.06 | 194 | 0.92 | 0.07 |
| Number: Correct RT | 309 | 799.60 | 186.94 | 194 | 828.67 | 196.04 |
| Color Dots: Accuracy | 309 | 0.76 | 0.05 | 194 | 0.76 | 0.05 |
| Color Dots: Correct RT | 309 | 762.30 | 169.94 | 194 | 787.29 | 204.95 |
| Mapping: Accuracy | 309 | 0.69 | 0.08 | 193 | 0.69 | 0.08 |
| Mapping: Correct RT | 309 | 1230.07 | 261.95 | 193 | 1230.24 | 265.93 |
| HAF: Accuracy (congruent) | 309 | 0.98 | 0.05 | 194 | 0.98 | 0.05 |
| HAF: RT (congruent) | 309 | 350.32 | 59.22 | 194 | 357.73 | 58.93 |
| HAF: Accuracy (incongruent) | 309 | 0.95 | 0.09 | 193 | 0.91 | 0.17 |
| HAF: RT (incongruent) | 309 | 395.00 | 66.32 | 193 | 398.78 | 62.00 |
| HAF: Accuracy (mixed) | 309 | 0.77 | 0.13 | 193 | 0.76 | 0.16 |
| HAF: RT (mixed) | 309 | 524.51 | 62.84 | 193 | 516.91 | 66.28 |

*Note.* Key Math and WJ means were covariate-adjusted to account for differences between conditions at the beginning of Pre-K. 9 students were missing at least one covariate.

| Student Ratings in Year 3 by Pre-K Curriculum | | | | | | |
|---|---|---|---|---|---|---|
| | *Building Blocks* | | | *Control* | | |
| | N | Mean | SD | N | Mean | SD |
| TIMSS: Confidence | 309 | 3.09 | 0.61 | 194 | 3.05 | 0.64 |
| TIMSS: Value | 309 | 3.52 | 0.41 | 194 | 3.53 | 0.43 |
| TIMSS: Liking | 309 | 3.22 | 0.58 | 194 | 3.20 | 0.62 |
| TIMSS: Total | 309 | 83.87 | 12.25 | 194 | 83.35 | 13.18 |

| Teacher Ratings in Year 3 by Pre-K Curriculum | | | | | | |
|---|---|---|---|---|---|---|
| | *Building Blocks* | | | *Control* | | |
| | N | Mean | SD | N | Mean | SD |
| Works to best of ability in math | 293 | 3.49 | 1.02 | 188 | 3.41 | 0.96 |
| Math skills compared to others | 293 | 2.85 | 1.02 | 188 | 2.78 | 1.06 |
| Interest in math compared to others | 293 | 2.97 | 0.93 | 188 | 2.79 | 0.90 |
| Prepared for next level in math | 293 | 2.95 | 1.14 | 188 | 2.81 | 1.27 |
| Concentrates well/not easily distracted | 293 | 2.49 | 0.92 | 188 | 2.25 | 0.95 |
| Easily plans and carries out activities that have several steps | 293 | 2.53 | 0.89 | 188 | 2.40 | 0.95 |
| Finishes tasks and activities | 293 | 2.72 | 0.86 | 188 | 2.56 | 0.93 |
| Actively uses resources for help and information | 293 | 2.68 | 0.84 | 188 | 2.49 | 0.88 |

# Outcomes by Pre-K System

| Student Outcomes in Year 3 by Pre-K System | | | | | | |
|---|---|---|---|---|---|---|
| | *Head Start* | | | *MNPS Pre-K* | | |
| | N | Mean | SD | N | Mean | SD |
| KM Number (age scaled) | 201 | 7.79 | 2.82 | 293 | 8.09 | 2.94 |
| KM Algebra (age scaled) | 201 | 8.32 | 3.18 | 293 | 8.40 | 3.35 |
| KM Geometry (age scaled) | 201 | 7.62 | 2.18 | 293 | 7.76 | 2.19 |
| WJ Quant. Concepts (standard score) | 201 | 86.13 | 12.05 | 293 | 86.46 | 12.50 |
| WJ Letter Word (standard score) | 201 | 93.67 | 13.13 | 293 | 94.52 | 13.63 |
| Number: Accuracy | 206 | 0.92 | 0.06 | 297 | 0.92 | 0.06 |
| Number: Correct RT | 206 | 799.55 | 169.83 | 297 | 818.62 | 204.05 |
| Color Dots: Accuracy | 206 | 0.76 | 0.05 | 297 | 0.76 | 0.05 |
| Color Dots: Correct RT | 206 | 767.17 | 168.15 | 297 | 775.25 | 195.15 |
| Mapping: Accuracy | 205 | 0.69 | 0.08 | 297 | 0.69 | 0.08 |
| Mapping: Correct RT | 205 | 1232.94 | 262.49 | 297 | 1228.20 | 264.15 |
| HAF: Accuracy (congruent) | 206 | 0.98 | 0.04 | 297 | 0.98 | 0.05 |
| HAF: RT (congruent) | 206 | 355.88 | 62.90 | 297 | 351.31 | 56.45 |
| HAF: Accuracy (incongruent) | 205 | 0.94 | 0.13 | 297 | 0.93 | 0.12 |
| HAF: RT (incongruent) | 205 | 395.50 | 63.70 | 297 | 397.11 | 65.42 |
| HAF: Accuracy (mixed) | 205 | 0.77 | 0.14 | 297 | 0.76 | 0.14 |
| HAF: RT (mixed) | 205 | 514.22 | 62.20 | 297 | 526.67 | 65.21 |

*Note.* Key Math and WJ means were covariate-adjusted to account for differences between systems at the beginning of Pre-K. 9 students were missing at least one covariate.

| Student Ratings in Year 3 by Pre-K System | | | | | | |
|---|---|---|---|---|---|---|
| | *Head Start* | | | *MNPS Pre-K* | | |
| | N | Mean | SD | N | Mean | SD |
| TIMSS: Confidence | 206 | 3.06 | 0.64 | 297 | 3.08 | 0.61 |
| TIMSS: Value | 206 | 3.52 | 0.41 | 297 | 3.52 | 0.42 |
| TIMSS: Liking | 206 | 3.19 | 0.64 | 297 | 3.22 | 0.57 |
| TIMSS: Total | 206 | 83.32 | 13.06 | 297 | 83.92 | 12.30 |

| Teacher Ratings in Year 3 by Pre-K System | | | | | | |
|---|---|---|---|---|---|---|
| | *Head Start* | | | *MNPS Pre-K* | | |
| | N | Mean | SD | N | Mean | SD |
| Works to best of ability in math | 192 | 3.47 | 1.02 | 289 | 3.45 | 0.99 |
| Math skills compared to others | 192 | 2.84 | 0.96 | 289 | 2.81 | 1.08 |
| Interest in math compared to others | 192 | 2.94 | 0.95 | 289 | 2.87 | 0.90 |
| Prepared for next level in math | 192 | 2.88 | 1.15 | 289 | 2.90 | 1.23 |
| Concentrates well/not easily distracted | 192 | 2.46 | 0.95 | 289 | 2.36 | 0.93 |
| Easily plans and carries out activities that have several steps | 192 | 2.52 | 0.90 | 289 | 2.46 | 0.92 |
| Finishes tasks and activities | 192 | 2.72 | 0.88 | 289 | 2.62 | 0.89 |
| Actively uses resources for help and information | 192 | 2.65 | 0.86 | 289 | 2.57 | 0.86 |

# Low-Scoring Students

- Students were selected who were below a fifth-grade level this past year on all 3 Key Math subscales. This ended up being about 25% of the current sample.

| | Descriptive Statistics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | At or Above 5th-grade level on Key Math | | | | | Below 5th-grade level on 3 Key Math scales | | | | |
| | N | Min | Max | Mean | SD | N | Min | Max | Mean | SD |
| WJ Quant. Cpts. (Std Score) | 374 | 47.00 | 118.00 | 90.54 | 9.57 | 129 | 42.00 | 93.00 | 74.07 | 10.97 |
| WJ Letter Word (Std Score) | 374 | 56.00 | 127.00 | 97.44 | 11.15 | 129 | 46.00 | 107.00 | 84.67 | 13.06 |
| TIMSS (Total) | 374 | 45.00 | 104.00 | 85.03 | 12.30 | 129 | 42.00 | 102.00 | 79.72 | 12.71 |
| Number: Accuracy | 374 | 0.76 | 1.00 | 0.93 | 0.05 | 129 | 0.50 | 1.00 | 0.88 | 0.08 |
| Number: Correct RT | 374 | 522.70 | 1701.88 | 800.79 | 193.96 | 129 | 556.90 | 1681.35 | 839.88 | 179.04 |
| Color Dots: Accuracy | 374 | 0.54 | 0.91 | 0.76 | 0.05 | 129 | 0.56 | 0.86 | 0.75 | 0.05 |
| Color Dots: Correct RT | 374 | 490.96 | 1767.65 | 772.66 | 192.08 | 129 | 506.32 | 1703.41 | 769.85 | 160.91 |
| Mapping: Accuracy | 374 | 0.48 | 0.88 | 0.70 | 0.07 | 128 | 0.46 | 0.82 | 0.65 | 0.08 |
| Mapping: Correct RT | 374 | 630.42 | 2516.29 | 1238.12 | 267.36 | 128 | 654.70 | 2371.83 | 1206.82 | 250.30 |
| HAF: Accuracy (Congruent) | 374 | 0.75 | 1.00 | 0.98 | 0.04 | 129 | 0.75 | 1.00 | 0.96 | 0.06 |
| HAF: RT (Congruent) | 374 | 230.75 | 603.42 | 349.78 | 55.57 | 129 | 263.75 | 689.08 | 363.05 | 67.78 |
| HAF: Accuracy (Incong.) | 374 | 0.08 | 1.00 | 0.95 | 0.09 | 128 | 0.00 | 1.00 | 0.87 | 0.19 |
| HAF: RT (Incongruent) | 374 | 266.42 | 617.83 | 387.67 | 59.77 | 128 | 296.50 | 621.25 | 422.11 | 71.49 |
| HAF: Accuracy (Mixed) | 374 | 0.42 | 1.00 | 0.79 | 0.13 | 128 | 0.38 | 0.96 | 0.67 | 0.15 |
| HAF: RT (Mixed) | 374 | 332.83 | 708.85 | 523.42 | 59.07 | 128 | 328.42 | 716.98 | 516.24 | 77.38 |

# Characteristics of Low-Scoring Students

| | Low-Scoring | | Not Low-Scoring | |
|---|---|---|---|---|
| | **Freq** | **Pct** | **Freq** | **Pct** |
| Ethnicity | | | | |
|     Black | 109 | 84.5 | 287 | 76.7 |
|     White | 11 | 8.5 | 33 | 8.8 |
|     Hispanic | 7 | 5.4 | 34 | 9.1 |
|     Other | 2 | 1.6 | 19 | 5.1 |
| Gender | | | | |
|     Male | 53 | 41.1 | 166 | 44.4 |
|     Female | 76 | 58.9 | 208 | 55.6 |
| ELL in Pre-K Year | | | | |
|     ELL | 6 | 4.7 | 39 | 10.4 |
|     Not ELL | 123 | 95.3 | 334 | 89.3 |
| Pre-K Curriculum Condition | | | | |
|     Building Blocks | 75 | 58.1 | 234 | 62.6 |
|     Control | 54 | 41.9 | 140 | 37.4 |
| Pre-K School System | | | | |
|     Head Start | 55 | 42.6 | 151 | 40.4 |
|     MNPS Pre-K | 74 | 57.4 | 223 | 59.6 |
| Year 1 School Type | | | | |
|     Charter | 21 | 16.3 | 84 | 22.5 |
|     Izone | 25 | 19.4 | 53 | 14.2 |
|     Middle | 48 | 37.2 | 203 | 54.3 |
|     Other | 0 | 0.0 | 1 | 0.3 |
|     Elementary | 35 | 27.1 | 33 | 8.8 |
| Year 2 School Type | | | | |
|     Charter | 26 | 20.2 | 95 | 25.4 |
|     Izone | 22 | 17.1 | 51 | 13.6 |
|     Middle | 80 | 62.0 | 225 | 60.2 |
|     Other | 1 | 0.8 | 3 | 0.8 |
| Year 3 School Type | | | | |
|     Charter | 22 | 17.1 | 91 | 24.3 |
|     Izone | 22 | 17.1 | 42 | 11.2 |
|     Middle | 85 | 65.9 | 238 | 63.6 |
|     Other | 0 | 0.0 | 3 | 0.8 |

# Comparing Lowest Groups throughout Years 1 to 3

- Each year the low group of students was defined as scoring 2 years or more behind their grade level on all 3 Key Math measures.

| Pattern of Grouping | Frequency | Percent |
|---|---|---|
| Never in low group | 337 | 67.0 |
| In low group Year 1 only | 5 | 1.0 |
| In low group Year 2 only | 25 | 5.0 |
| In low group Year 3 only | 46 | 9.1 |
| In low group Years 1 and 2 | 5 | 1.0 |
| In low group Years 2 and 3 | 37 | 7.4 |
| In low group Years 1 and 3 | 3 | 0.6 |
| In low group Years 1, 2, and 3 | 43 | 8.5 |
| Missing Year 1, in low group Year 2, not in low group Year 3 | 1 | 0.2 |
| Missing Year 1, not in low group any other years | 1 | 0.2 |
| Total | 503 | 100.0 |

| KM Grade Equivalence | Year 1 | | | Year 2 | | | Year 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Num | Alg | Geo | Num | Alg | Geo | Num | Alg | Geo |
| Never in low group | 5.03 | 5.10 | 4.59 | 6.01 | 6.23 | 5.71 | 6.63 | 6.98 | 6.12 |
| In low group Year 1 only | 2.00 | 1.94 | 1.10 | 2.94 | 3.66 | 4.70 | 3.00 | 3.40 | 5.80 |
| In low group Year 2 only | 3.16 | 3.55 | 3.46 | 3.16 | 3.51 | 2.86 | 3.88 | 4.56 | 4.24 |
| In low group Year 3 only | 3.10 | 3.41 | 3.12 | 3.71 | 3.92 | 3.85 | 3.11 | 3.35 | 3.13 |
| In low group Years 1 and 2 | 1.88 | 1.96 | 1.32 | 2.70 | 2.90 | 2.68 | 3.00 | 4.40 | 5.00 |
| In low group Years 2 and 3 | 2.52 | 2.93 | 2.82 | 2.75 | 3.00 | 2.66 | 2.70 | 2.62 | 2.70 |
| In low group Years 1 and 3 | 2.40 | 1.97 | 2.03 | 3.60 | 3.70 | 4.07 | 2.67 | 3.33 | 3.33 |
| In low group Years 1, 2, and 3 | 1.67 | 1.66 | 1.46 | 2.13 | 2.25 | 2.17 | 1.93 | 2.07 | 2.09 |
| Missing Year 1, in low group Year 2, not in low group Year 3 | -- | -- | -- | 2.50 | 3.80 | 2.20 | 2.00 | 4.00 | 5.00 |
| Missing Year 1, not in low group any other years | -- | -- | -- | 5.50 | 5.80 | 5.20 | 6.00 | 5.00 | 7.00 |

*Note.* Of the 43 children in the low group in Years 1, 2, and 3, 28 had an IEP in Year 1 and 32 had an IEP in Year 2. The most common IEPs were for Specific Learning Disability, Functional Delay, and Other Health Impairments.

# High-Scoring Students

- Students were selected who were above a seventh-grade level this past year on all 3 Key Math subscales. This ended up being about 9% of the current sample.

| | Descriptive Statistics | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | At or Below 7th-grade level on Key Math | | | | | Above 7th-grade level on Key Math | | | | |
| | N | Min | Max | Mean | SD | N | Min | Max | Mean | SD |
| WJ Quant. Cpts. (Std Score) | 455 | 42.00 | 112.00 | 84.83 | 11.65 | 48 | 78.00 | 118.00 | 100.44 | 8.52 |
| WJ Letter Word (Std Score) | 455 | 46.00 | 123.00 | 92.91 | 12.47 | 48 | 75.00 | 127.00 | 106.08 | 11.07 |
| TIMSS (Total) | 455 | 42.00 | 104.00 | 83.04 | 12.53 | 48 | 62.00 | 103.00 | 89.69 | 11.83 |
| Number: Accuracy | 455 | 0.50 | 1.00 | 0.92 | 0.06 | 48 | 0.81 | 1.00 | 0.94 | 0.04 |
| Number: Correct RT | 455 | 522.70 | 1701.88 | 817.03 | 193.07 | 48 | 550.92 | 1497.53 | 751.90 | 157.99 |
| Color Dots: Accuracy | 455 | 0.54 | 0.91 | 0.76 | 0.05 | 48 | 0.64 | 0.89 | 0.78 | 0.05 |
| Color Dots: Correct RT | 455 | 490.96 | 1767.65 | 774.52 | 185.19 | 48 | 507.22 | 1634.37 | 747.47 | 177.07 |
| Mapping: Accuracy | 454 | 0.46 | 0.87 | 0.68 | 0.08 | 48 | 0.50 | 0.88 | 0.74 | 0.08 |
| Mapping: Correct RT | 454 | 654.70 | 2493.95 | 1229.66 | 257.16 | 48 | 630.42 | 2516.29 | 1234.61 | 318.06 |
| HAF: Accuracy (Congruent) | 455 | 0.75 | 1.00 | 0.98 | 0.05 | 48 | 0.83 | 1.00 | 0.99 | 0.04 |
| HAF: RT (Congruent) | 455 | 230.75 | 689.08 | 354.93 | 60.47 | 48 | 261.42 | 438.83 | 336.57 | 41.77 |
| HAF: Accuracy (Incong.) | 454 | 0.00 | 1.00 | 0.93 | 0.13 | 48 | 0.67 | 1.00 | 0.97 | 0.06 |
| HAF: RT (Incongruent) | 454 | 266.42 | 621.25 | 399.37 | 65.45 | 48 | 299.50 | 505.83 | 368.88 | 49.22 |
| HAF: Accuracy (Mixed) | 454 | 0.38 | 1.00 | 0.76 | 0.15 | 48 | 0.50 | 0.98 | 0.84 | 0.10 |
| HAF: RT (Mixed) | 454 | 328.42 | 716.98 | 522.39 | 64.09 | 48 | 332.83 | 708.85 | 513.98 | 65.75 |

# Characteristics of High-Scoring Students

| | High-Scoring | | Not High-Scoring | |
|---|---|---|---|---|
| | Freq | Pct | Freq | Pct |
| Ethnicity | | | | |
|     Black | 31 | 64.6 | 365 | 80.2 |
|     White | 7 | 14.6 | 37 | 8.1 |
|     Hispanic | 5 | 10.4 | 36 | 7.9 |
|     Other | 5 | 10.4 | 16 | 3.5 |
| Gender | | | | |
|     Male | 22 | 45.8 | 197 | 43.3 |
|     Female | 26 | 54.2 | 258 | 56.7 |
| ELL in Pre-K Year | | | | |
|     ELL | 7 | 14.6 | 38 | 8.4 |
|     Not ELL | 41 | 85.4 | 416 | 91.6 |
| Pre-K Curriculum Condition | | | | |
|     Building Blocks | 26 | 54.2 | 283 | 62.2 |
|     Control | 22 | 45.8 | 172 | 37.8 |
| Pre-K School System | | | | |
|     Head Start | 15 | 31.3 | 191 | 42.0 |
|     MNPS Pre-K | 33 | 68.8 | 264 | 58.0 |
| Year 1 School Type | | | | |
|     Charter | 17 | 35.4 | 88 | 19.3 |
|     Izone | 3 | 6.3 | 75 | 16.5 |
|     Middle | 25 | 52.1 | 226 | 49.7 |
|     Other | 0 | 0.0 | 1 | 0.2 |
|     Elementary | 3 | 6.3 | 65 | 14.3 |
| Year 2 School Type | | | | |
|     Charter | 15 | 31.3 | 106 | 23.3 |
|     Izone | 2 | 4.2 | 71 | 15.6 |
|     Middle | 30 | 62.5 | 275 | 60.4 |
|     Other | 1 | 2.1 | 3 | 0.7 |
| Year 3 School Type | | | | |
|     Charter | 15 | 31.3 | 98 | 21.5 |
|     Izone | 0 | 0.0 | 64 | 14.1 |
|     Middle | 31 | 64.6 | 292 | 64.2 |
|     Other | 2 | 4.2 | 1 | 0.2 |

# Early Correlates of Later Skills

| | Fall PK QC | Spring PK QC | Spring K QC | Spring G1 QC | Fall PK AP | Spring PK AP | Spring K AP | Spring G1 AP | Fall PK REMA NUM | Spring PK REMA NUM | Spring K REMA NUM | Spring G1 REMA NUM | Fall PK REMA GEO | Spring PK REMA GEO | Spring K REMA GEO | Spring G1 REMA GEO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Zero-Order Correlations: All Students** | | | | | | | | | | | | | | | | |
| KM Number (Age-Scaled) | .45 | .55 | .55 | .56 | .38 | .52 | .56 | .62 | .37 | .53 | .60 | .61 | .29 | .45 | .41 | .43 |
| KM Algebra (Age-Scaled) | .44 | .52 | .53 | .54 | .33 | .46 | .52 | .59 | .36 | .48 | .55 | .59 | .28 | .41 | .38 | .40 |
| KM Geometry (Age-Scaled) | .41 | .47 | .47 | .45 | .36 | .46 | .48 | .53 | .40 | .44 | .52 | .53 | .33 | .44 | .44 | .44 |
| WJ Quant. Cpts. (Std Score) | .47 | .55 | .60 | .58 | .38 | .53 | .56 | .58 | .37 | .47 | .57 | .62 | .28 | .42 | .38 | .35 |
| WJ Letter Word (Std Score) | .41 | .47 | .51 | .50 | .35 | .45 | .43 | .50 | .26 | .35 | .44 | .51 | .26 | .34 | .29 | .32 |
| TIMSS (Total) | .06 | .03 | .09 | .15 | .01 | .04 | .19 | .17 | .08 | .10 | .17 | .18 | .06 | .06 | .08 | .08 |
| Number: Accuracy | .21 | .27 | .26 | .30 | .20 | .24 | .26 | .31 | .23 | .27 | .33 | .38 | .15 | .24 | .20 | .17 |
| Number: Correct RT | -.08 | -.05 | -.09 | -.09 | -.03 | -.12 | -.14 | -.14 | -.10 | -.14 | -.08 | -.18 | -.03 | -.07 | -.11 | .01 |
| Color Dots: Accuracy | .07 | .09 | .12 | .16 | .02 | .06 | .07 | .18 | .04 | .13 | .10 | .13 | .11 | .17 | .04 | .11 |
| Color Dots: Correct RT | -.01 | -.01 | -.01 | -.02 | -.01 | -.08 | -.08 | -.06 | -.06 | -.07 | -.02 | -.09 | -.01 | -.05 | -.03 | .01 |
| Mapping: Accuracy | .29 | .30 | .26 | .33 | .19 | .25 | .29 | .37 | .27 | .28 | .34 | .39 | .25 | .31 | .19 | .22 |
| Mapping: Correct RT | .04 | .04 | .02 | .06 | .03 | .04 | -.01 | .03 | .01 | -.03 | .01 | -.01 | .03 | -.01 | -.03 | .04 |
| HAF: Accuracy (Congruent) | .11 | .11 | .09 | .12 | .09 | .14 | .11 | .12 | .12 | .14 | .13 | .13 | .10 | .12 | .06 | .11 |
| HAF: RT (Congruent) | -.07 | -.14 | -.09 | -.08 | .01 | -.05 | -.08 | -.14 | -.07 | -.09 | -.11 | -.17 | -.04 | -.12 | -.11 | -.08 |
| HAF: Accuracy (Incong.) | .26 | .30 | .28 | .27 | .25 | .30 | .28 | .28 | .18 | .26 | .29 | .31 | .15 | .17 | .24 | .14 |
| HAF: RT (Incongruent) | -.19 | -.19 | -.21 | -.20 | -.12 | -.17 | -.23 | -.24 | -.23 | -.20 | -.22 | -.29 | -.15 | -.23 | -.18 | -.11 |
| HAF: Accuracy (Mixed) | .28 | .32 | .33 | .30 | .24 | .24 | .32 | .32 | .26 | .27 | .36 | .37 | .22 | .20 | .24 | .20 |
| HAF: RT (Mixed) | -.01 | .05 | .05 | .07 | .04 | .03 | .04 | .02 | .00 | .00 | .03 | -.02 | .00 | .00 | .01 | .02 |

*Note.* Red cells indicate correlations > .20. Green cells indicate correlations < -.20.