# Assessing the Effectiveness of Tennessee's Pre-Kindergarten Program: Final Report

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# Project Overview

➢ Long-term study (2007-2011) of multiple cohorts of students who participated in Tennessee's Pre-K program since 1998.

➢ Key research question:

  Do students who attended state-funded Pre-K perform better academically in the short and long term than a comparable group of peers who did not attend Tennessee's Pre-K program?

  ▪ "Short term" is defined as Grades K-2; "long term" is defined as Grades 3-5.

  ▪ "Academic performance" is measured using TN standardized assessment test scores.

# Report Deliverables

➢ Preliminary Report, Three Interim Reports, Two Annual Reports, and a Final Report

➢ Reports covered one or multiple years of data as they were available.

➢ Value of the Final Report:

   ▪ Maximize availability of student records across several years.

   ▪ Confirm consistency of findings across reports.

# Final Report: Time Period Under Study

| | 98-99 | 99-00 | 00-01 | 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cohort 1** | PK | K | 1st | 2nd | 3rd | 4th | 5th | | | | |
| **Cohort 2** | | PK | K | 1st | 2nd | 3rd | 4th | 5th | | | |
| **Cohort 3** | | | PK | K | 1st | 2nd | 3rd | 4th | 5th | | |
| **Cohort 4** | | | | PK | K | 1st | 2nd | 3rd | 4th | 5th | |
| **Cohort 5** | | | | | PK | K | 1st | 2nd | 3rd | 4th | 5th |
| **Cohort 6** | | | | | | PK | K | 1st | 2nd | 3rd | 4th |
| **Cohort 7** | | | | | | | PK | K | 1st | 2nd | 3rd |
| **Cohort 8** | | | | | | | | PK | K | 1st | 2nd |
| **Cohort 9** | | | | | | | | | PK | K | 1st |
| **Cohort 10** | | | | | | | | | | PK | K |

SRG was contracted to conduct the evaluation using existing data.

Three data sources:

➤ Pre-Kindergarten Demographic File

- Identified Pre-K students from 1998 through 2005.

➤ Education Information System (EIS) data

- Complete starting in 2005 for Grades K and higher; complete for Pre-K students starting in 2006.

# Data Sources

➢ **Standardized student assessment data.**

  ▪ Two types of assessments – Norm Referenced Tests (NRTs) and Criterion Referenced Tests (CRTs).

  ▪ Before 2003, all assessments were NRTs; starting in 2003, NRTs for Grades K-2 and CRTs for Grades 3-5.

➢ **Note: School systems are not required to administer assessments in Grades K-2.**

# Methodology

➢ Once Pre-K students were identified, the next step was to select a sample of students who had not attended state-funded Pre-K.

‣ Why sample and not include all "non-Pre-K" students?

‣ In order to achieve comparability in terms of group size and key characteristics.

➢ We identified the grade and year Pre-K students were first assessed and found non-Pre-K "matches."

Example:

| 01-02 | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 |
|-------|---------|---------|---------|---------|---------|---------|
| Pre-K | Grade K | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 |

➢ This strategy allows us to track matched students over multiple assessment points.

# Methodology

➢ We identified non-Pre-K students who matched the Pre-K students on:

School/school system, Free/Reduced Price Lunch status (FRPL), gender, and race/ethnicity.

➢ This approach yields a non-Pre-K sample of students who "look like" the Pre-K students based on measurable characteristics.

- ➢ Used a type of regression analysis called mixed effects or hierarchical linear regression.

- ➢ This method controls for dependencies in the data that result from "nesting".

- ➢ Things nested within a higher-order group (kids within a school) are generally more alike than things nested in different groups.

- ➢ Nesting can bias our tests of parameter estimates (e.g., the effect of Pre-K).

- ➢ These methods allow us to obtain proper tests of our parameter estimates.

- ➢ All available complete data were used for the analyses.

- ➢ The models examined test scores over all available years and grades.

- ➢ All models controlled for the main effects of:

  - ➢ FRPL, Gender, Ethnicity, Special Education status, whether or not a child was held back, and English as a primary language.

- ➢ All models also included interactions between:

  - ➢ Pre-K and FRPL, gender and ethnicity

- ➢ All aforementioned main effect and interaction variables were also examined over grade-level.

# Overview of Key Findings

➢ Presentation of the findings focuses on the following comparisons:

  1. Pre-K vs. Non-Pre-K students

  2. Pre-K vs. Non-Pre-K students who were FRPL-eligible

  3. Pre-K vs. Non-Pre-K students who were not FRPL-eligible

➢ **Kindergarten:**

▪ Overall, Pre-K students scored higher on reading and math compared to non-Pre-K students.

▪ More specifically, among those eligible for FRPL, Pre-K students scored higher on reading, language arts, and math than non-Pre-K students.

➢ **First Grade:**

▪ Although no overall differences, among students who were eligible for FRPL, those who attended Pre-K scored higher than non-Pre-K students on language arts, math, social studies, and science.

➢ **Second Grade:**

▪ Overall, Pre-K students didn't score higher than non-Pre-K students on any assessments.

▪ Among students eligible for FRPL, Pre-K students scored higher than non-Pre-K students on language arts and math.

▪ For a few assessments, Pre-K students who were not eligible for FRPL scored lower than their non-Pre-K counterparts.

➢ **Grades 3-5:**

▪ No instances where Pre-K students scored higher than non-Pre-K students. Instead, a number of instances where Pre-K students scored lower.

# Findings in Context

➤ The short-term advantage of Pre-K – especially in Kindergarten and for FRPL-eligible students – is consistent with short-term findings from other research.

➤ The positive impact of Pre-K on assessment scores in Kindergarten has been shown consistently across years.

➢ The lack of long-term advantage is generally consistent with findings of other studies of this type.

➢ Why are we not finding a long-term advantage?

As students progress, they may become more different in ways that we are not able to measure. For example, exposure to other types of interventions.

Need to consider that because of the timeframe of this study, all of the students in Grades 3-5 participated in Pre-K before 05-06 (i.e., before expansion and curricular alignment).

# Final Report: Time Period Under Study

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➢ Also need to consider that we are only looking at assessment scores. There are other types of outcomes that we can't account for in this study.

# Conclusion

➢ With the information we had available, findings have consistently shown a short-term advantage of Pre-K.

➢ Long-term results have been less consistent.

➢ These findings provide support that the objective of the Pre-K program – school readiness – is being met.

Questions?