MELF Kindergarten Follow Up
Preliminary Report

MINNESOTA EARLY LEARNING FOUNDATION RESEARCH CONSORTIUM

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Project Overview

For the past 3 years, the Minnesota Early Learning Foundation (MELF), in partnership with state and local agencies, has funded a number of innovative approaches to early care and education. The first cohort of children who participated in these programs moved out of early care and education settings and into the K-12 system in fall 2009; this provided a unique opportunity to examine the relation between early care and later school success for a significant, at-risk sample of children in this state.

Evaluation Questions

The purpose of this study is to answer the following evaluation questions:

1. What are the characteristics and qualities of the Pre-K and Kindergarten classrooms and kindergarten teachers for this sample of children? To what extent were children enrolled in high quality settings?
2. To what extent did children in this study experience continuity in quality in their Pre-K and kindergarten years?
3. To what extent did children's readiness at the beginning and end of their Pre-K year predict their achievement in Kindergarten? Which classroom and child factors were the most powerful determinants of children's early elementary achievement?

Methods

Children who were entering Kindergarten in the fall of 2009 and who had participated in two MELF evaluations, Parent Aware and Bloomington Pre-K, during their Pre-K year were recruited to participate in the Kindergarten Follow-Up Study. In the Parent Aware pilot study, programs in specific geographic areas were invited to go through a comprehensive rating system, including the use of the Early Childhood Environment Rating Scale - Revised (ECERS-R). As part of this study, 4 children in each rated classroom were selected to be assessed using the MELF school readiness assessment battery at the beginning and end of their Pre-K year (See Child Trend's Year 3 Evaluation Report of Parent Aware at www.melf.us for a full description of the complete battery and evaluation). The MELF Bloomington Pre-K provided a half day Pre-K program targeted primarily to children whose home language was not English. Quality was assessed in all classrooms using the ECERS-R, and all children completed the MELF school readiness assessment battery as well (See The Center for Early Education and Development's Final Evaluation Report at www.melf.us for a full description of the evaluation).

Of the 250 eligible children, 116 families consented to participate in the kindergarten follow up (41 were from the MELF Bloomington Pre-K, and 75 were from the Parent Aware evaluation). These 116 children came from 35 Pre-K classrooms. We assessed children at the beginning of Pre-K, the end of Pre-K, and the end of kindergarten using the full MELF battery. For the purposes of this report, we focus on the measures of language, literacy and quantitative reasoning (math) skills. We also conducted in-class observations to determine the quality of the classroom environment, using the Classroom Assessment Scoring System (CLASS) in kindergarten and the ECERS-R in Pre-K. Teachers completed a survey of the class demographics and instructional practices. In addition, 92 parents completed an interview from which we gathered demographic information at the beginning of the Pre-K year.

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Sample Description

116 children were assessed in kindergarten:

- 58 girls, 58 boys
- Average age at start of K: 5.56 years
- Ethnicity: 34% White, 28% Hispanic/Latino, 16% Black/African-American, 6% African, 5% American Indian or Alaskan Native, 4% Asian, 7% Other
- 32% were below poverty and 60% were less than 100% of Federal Poverty guidelines
- 14% were English-Language Learners
- Maternal education:
  - Less than high school: 15%
  - High school: 29%
  - AA/Vo-Tech degree: 14%
  - Bachelor's degree: 28%
  - Graduate degree: 12%

Evaluation Question 1

What are the characteristics and qualities of the Pre-K and Kindergarten classrooms and kindergarten teachers for this sample of children? To what extent were children enrolled in high quality settings?

- Pre-K classrooms were rated using the Early Childhood Ratings Scales – Revised. The ECERS-R is used to rate quality broadly and items cover health and safety, developmentally appropriate materials and activities, and interactions between teachers and children; the total score was used in this study and is on a 7 point scale. According to standards set by the ECERS-R developers, scores between 1-3 indicate minimal quality, a 5 indicates good quality, and scores between 6-7 indicate excellent quality.
- Pre-K classroom characteristics:
  - Average class size: 18
  - ECERS-R Total Score: Mean = 3.8, Range = 2.8 to 5.2
    - Thus, the average quality score for the ECE classrooms was in the minimal to good range, according to standards set by the ECERS-R developers.
- The Classroom Assessment Scoring System was used to rate the quality of Kindergarten classrooms. The CLASS is used to rate the quality of the relationships and interactions between providers and children. Specifically, programs are rated on three dimensions which are on a 7-point scale: the quality of the classroom organization, instructional support, and emotional support. Scores of 1- 2 indicate low quality, 3-5 indicate moderate quality, and 6-7 indicate high quality.
- Kindergarten classroom characteristics:
  - Average class size: 19
  - CLASS Instructional support: 3.4 (National averages: 1.97)
  - CLASS Emotional support: 5.5 (National averages: 5.58)
  - CLASS Classroom organization: 5.4 (National averages: 4.65)
  - 83% of classrooms were full day; 17 % were half day

- K teacher characteristics:
  - Average years of experience: 14
  - Highest level of education achieved:
    - BA/BS: 55%
    - Masters: 45%

In summary, children who participated in the Kindergarten Follow-Up study attended ECE settings that were of somewhat low to moderate quality and kindergartens that were mostly moderate quality. The quality of the ECE settings is consistent with findings from other studies of quality in ECE settings across the country, and the quality in the kindergarten classrooms was actually higher than found in studies with nationally representative samples, at least for Instructional Support and Classroom Organization.

Evaluation Question 2
To what extent did children in this study experience continuity in quality in their Pre-K and kindergarten years?

- Children who attended high quality Pre-Ks (using a measure of global quality) were slightly more likely to attend kindergarten classes with higher quality classroom organization ($r = .24$, $p < .05$) and emotional support ($r = .24$, $p < .05$). Global quality in Pre-K was not related to the quality of instructional support in kindergarten.
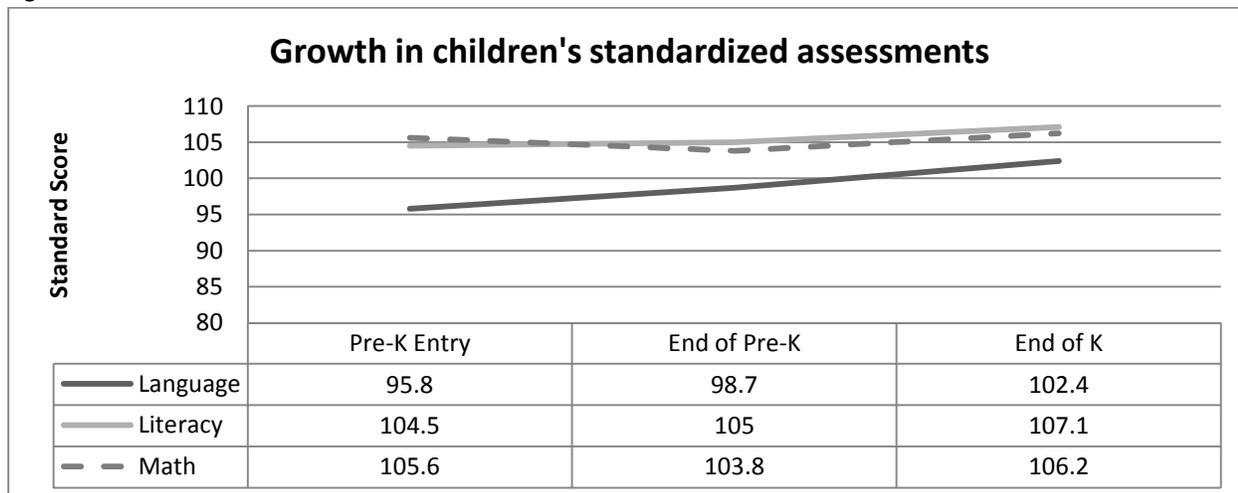
In summary, there was only a small degree of continuity in children's early care and later kindergarten environments and only in two domains of the kindergarten classroom quality measure.

Evaluation Question 3
To what extent does children's readiness at the beginning and end of their Pre-K year predict their achievement in Kindergarten? Which classroom and child factors were the most powerful determinants of children's early elementary achievement?

- Figure 1 below shows the growth all children in the sample made on standardized assessments of language, literacy and math over the course of the Pre-K and K years. Standardized tests are normed on nationally representative samples and have an "average" score of 100. Using these tests is useful because they provide one way of understanding how well children in a particular sample are doing relative to national averages. Because this particular sample is a low-income sample with several other indicators that put them at risk for school failure (e.g., low maternal education, ELL status) we would expect them to be below national averages on standardized assessments of language, literacy and math.

Figure 1

Growth in children's standardized assessments

	Pre-K Entry	End of Pre-K	End of K
Language	95.8	98.7	102.4
Literacy	104.5	105	107.1
Math	105.6	103.8	106.2

- However, as can be seen, children who participated in MELF-funded activities scored slightly above the national "average" in literacy and math at the beginning of Pre-K, even before entering the MELF programs, and continued to do well by the end of Kindergarten.

- In the language domain, on the other hand, children were doing slightly below the national average of 100 at Pre-K entry, and over the course of Pre-K and K years, demonstrated an improvement of nearly ½ of a standard deviation (SD), and were comparable to the national average of 100 at the end of K.

- However, no relation was found between change in children's scores over the Pre-K and K years and the quality of their Pre-K or K classrooms, at least as measured by the ECERS-R and the CLASS.

- To further explore what might account for these scores and to better understand if quality of Pre-K and K environments were important for the children most at-risk in the sample, we identified two groups of higher and lower performing children in the sample (based on a median split on their PPVT scores at Pre-K entry – a median split involves finding the middle number in the range of scores and then using that to split the sample into two groups) and examine how these two groups of children differed:
  - Children in the lower performing group (N = 58) had a mean standard score on the PPVT at Pre-K entry of 78.0 and the higher performing group (N = 57) had a mean standard score on the PPVT at Pre-K entry of 113.9; in other words, the lower performing group in this sample was 1.5 SDs below the national average, while the higher performing group was almost 1 SD above the national average.
  - As expected based on previous studies, children in the lower performing group were significantly more likely to be from homes where the primary language spoken at home was not English (χ^2 = 18.67, p <.001), and where parents were less educated (χ^2 = 33.19, p <.001).
  - Finally, children in the lower performing group were significantly more likely to go to lower quality ECE settings (t= -2.2, p < .05) and Kindergartens with lower quality emotional support

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(t = -2.5, p < .05); there was no relation between child performance and instructional support or organizational structure in kindergarten.

- o   Thus, the very children who may have most benefited from high quality Pre-K and K environments were the least likely to be in those environments.

- As can be seen in Figure 2 below, children in the lower performing group made good progress in closing the achievement gap in language, literacy and math; however, there is still a significant gap between the lower performing group and higher performing groups in all three domains (i.e., between 1 and 2 SDs separate the groups)

- We explored the extent to which the combination of Pre-K and Kindergarten quality may have accounted for changes in the lower performing children's gains. However, rates of growth in the three domains were not different between children who experienced lower and higher quality settings during their Pre-K and K years.

Figure 2

Growth in language, literacy, math by lower and higher performing group status
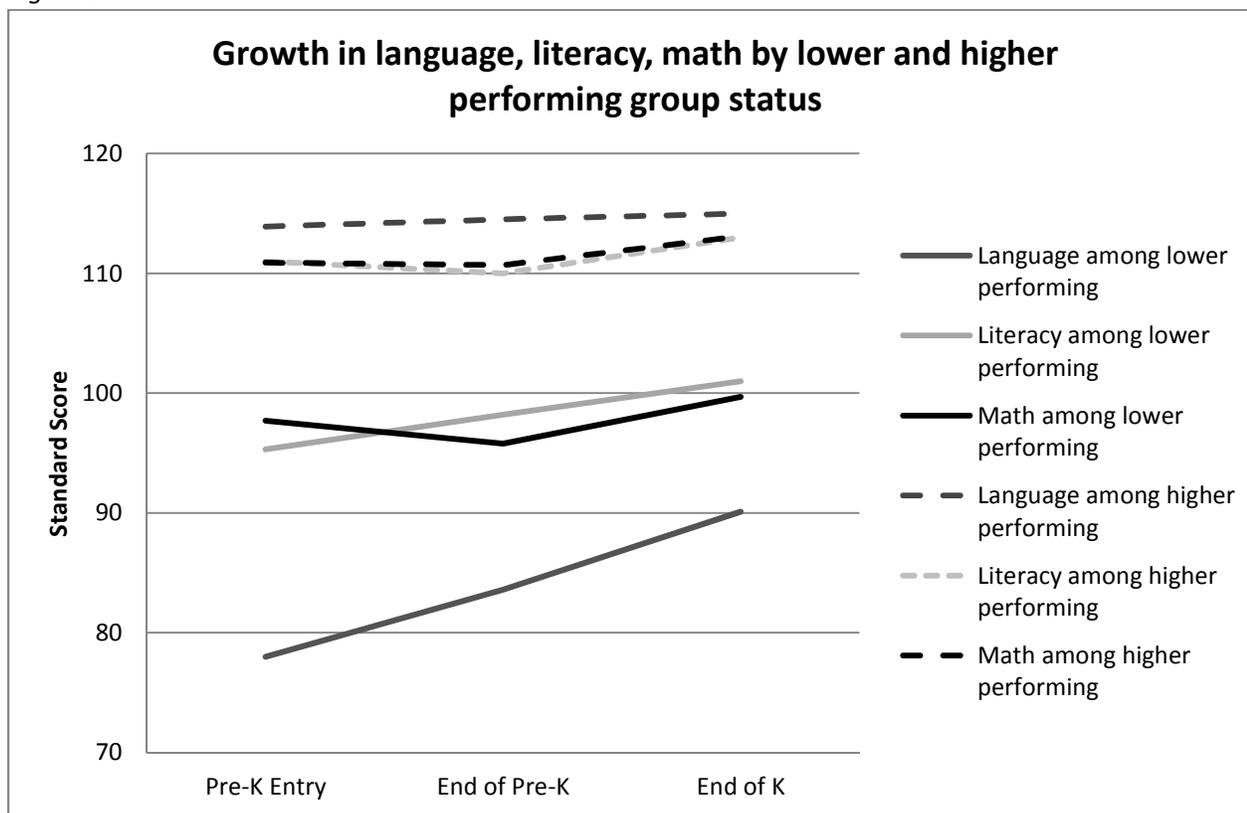
In conclusion, children in the lower performing group made progress towards closing the achievement gap; however, quality, as measured here, played no role in explaining the differential progress made by these children. A large percentage of children in the lower performing group lived in homes where the primary language spoken was not English; it is possible that exposure to the English language for children who are English language learners, even in low to moderate quality settings, is enough to help close the gap. However,

even more progress may have been made if these children had experienced high quality settings instead of the low to moderate quality settings they did experience.

Final Conclusions

- The overall quality of the Pre-K and kindergarten settings that children experienced in this sample was low to moderate.
- The strongest predictor of a child's achievement in kindergarten was how well that child was performing on standardized assessments of language, literacy and quantitative reasoning (math) skills at the beginning of Pre-K; this was true for children in both the lower and higher performing groups. Furthermore, children as a whole scored on par with national averages on standardized assessments of language, literacy and quantitative reasoning (math) skills.
- Over the course of participation in Pre-K and kindergarten, children who were identified as being lower performing prior to Pre-K made progress towards closing the achievement gap; however, there was a significant gap that remained at the end of kindergarten between the groups.
- The combined quality of the care received in Pre-K and kindergarten, as measured by the ECERS-R and CLASS, did not account for the gains made by children in the lower performing group. Given the restricted range of quality, however, it is difficult to know if children would have made even greater gains if they had experienced high quality care.
- Following this at-risk sample from Pre-K to kindergarten was challenging. When we contacted parents over a year after first making contact, the phone numbers and addresses we had on file were often wrong and, as a result, we were able to find and consent 116 of the original 250 families.
- In addition, the sample we did reach was likely a less at-risk sample than the sample we were not able to find; this difference in the sample, in combination with a relatively small sample size, does limit our ability to generalize the findings and therefore conclusions from this study may not apply to children more generally in Minnesota who experience a greater range of experiences at home and in early care and education and kindergarten settings.
- Future analyses need to explore what other indicators of quality or characteristics of the classrooms might help explain the growth children in the lower performing group made over the Pre-K and kindergarten years.