Early Learning Network Impact Areas

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The Early Learning Network is funded by the Institute of Education Sciences.

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RESEARCH BRIEFS:

Early Learning Network Impact Areas

For many reasons, opportunity gaps persist in education. What can be done to narrow these gaps and promote equity among all children? What factors can we influence through policy and practice decisions to help children maintain early gains and build upon their academic and social skills in the long-term?

The Early Learning Network is interested in these questions and has explored potential ways to ensure all children, especially those from historically marginalized groups, can be provided optimal learning experiences as they transition from prekindergarten (pre-K) to the early elementary grades and beyond. Geographically diverse research teams working with schools in Boston, California, Nebraska, North Carolina, Ohio and Virginia have gathered educational policy, classroom observation and longitudinal student data (2016-2021) across pre-K to third grade. Sites differed markedly in student composition and educational structures (see Site Features).

The goal of this work is to gain a better understanding of malleable factors — areas that are open to change or improvement — to inform practice and policy decisions that support equitable and effective early learning opportunities.

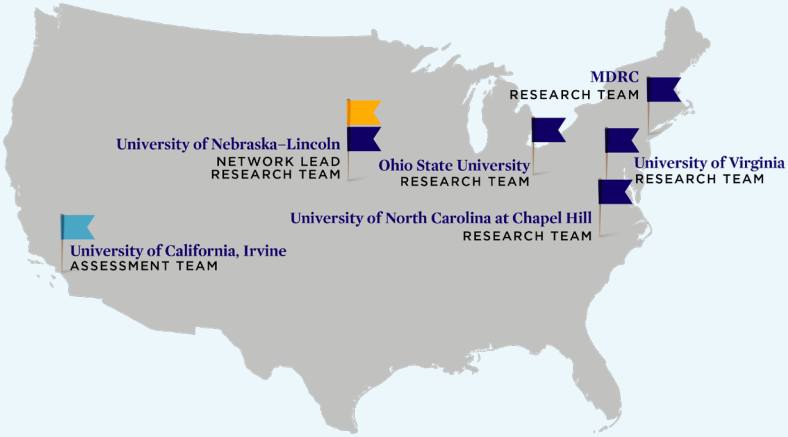
Areas of Impact

Based on ELN research to date, our findings have been organized into four areas with potential to positively contribute to young children's learning and development.

- Pre-K Participation
- Classroom Experiences & Learning Opportunities
- Relationships
- Sustained High-Quality Experiences

Site Features

It is important to consider the context of each ELN research site that may influence the learning environments and opportunities offered to children.



UNIVERSITY OF CALIFORNIA, IRVINE

- Orange County, CA and other ELN partner sites / urban and suburban / multiple school districts
- 1,410 total child participants
- 67% primarily English-speaking students

MDRC (BOSTON PUBLIC SCHOOLS)

- Boston, MA / urban community / single school district
- 571 total child participants
- 49% Dual Language Learners (English-Spanish; English-Other languages)
- Preschool program operates mostly in public school settings and children then transition into kindergarten (typically) in the same school; a sub-sample of children (N = 78) attended the program (with the same curriculum) in local community-based organizations partnering with the school district
- Use a pre-K – 2nd aligned curriculum in public school settings: Focus on Early Learning

UNIVERSITY OF NEBRASKA–LINCOLN

- Rural and urban communities in Nebraska / multiple school districts
- 341 total child participants
- 78% primarily English-speaking students
- Wide variation in school district size (274 to 51,914 students)
- State standards guide instruction at all levels; no universal pre-K – grade 3 curriculum

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

- Rural communities in North Carolina / multiple school districts
- 246 total child participants
- 36% Dual Language Learners (English-Spanish)
- Roughly 50% of preschool program slots are provided in public school settings
- Programs must adhere to the state's content standards

OHIO STATE UNIVERSITY

- Rural, suburban and urban communities in Ohio / multiple school districts
- 801 total child participants
- 85% primarily English-speaking students
- Small number of state-funded pre-K classrooms in Ohio
- Ohio has state mandated reading assessment: Third Grade Reading Guarantee

UNIVERSITY OF VIRGINIA

- Northern VA / suburban community/ single school district
- 2,581 total child participants
- 80% Dual Language Learners (English-Spanish; English-Other languages)
- 48 different home languages spoken
- 80% of pre-K classrooms in public schools; 20% in Head Start or community child care centers

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IMPACT AREA:

Pre-K Participation

Why Does it Matter?

Consistent and clear evidence indicates that children who attend a formal prekindergarten (pre-K) program start school with higher levels of language, literacy, math and social-emotional skills than classmates who do not attend pre-K. The experiences and learning opportunities children are exposed to in pre-K provide them a significant boost as they enter kindergarten. Though Head Start and other public pre-K programs are available in most states, there are large, persistent gaps in general access to services based on family income, and specifically in access to high-quality pre-K services.

ELN'S CONTRIBUTION

Evidence shows that participation in pre-K can benefit children from all backgrounds. But questions remain about what learning experiences in pre-K best support children's learning and how long the "pre-K boost" lasts for different types of skills and for different groups of children. ELN researchers have expanded the field's knowledge base by exploring these questions and have identified learning experiences that have the potential to support children's academic and social-emotional skills across time. Researchers also examined policy-level factors and systems that influence pre-K access and outcomes.

What We Learned

The initial positive effects of pre-K on children's academic and social-emotional skills (pre-K boost) may diminish or disappear by the end of kindergarten. This pattern appears to be due to non-attenders quickly catching up to their peers, and not children's skills fading out over time. Findings suggest there are different levels of catch-up for different types of skills.

Pre-K gains are particularly important for dual language learners and children from families with lower incomes. The positive and sustained benefits of pre-K attendance varies based on skill type. Pre-K programs and the elementary grades should prioritize balancing instruction to include both foundational skills (e.g., counting, letter recognition) and complex skills (e.g., vocabulary, self-regulation) to promote lasting benefits of early learning programs.

SUPPORTING FINDINGS

- Pre-K attenders perform better at the start of kindergarten than non-attenders in literacy, language and math skills, and in working memory, self-regulation and social adjustment. These differences in academic skills and self-regulation were largest for students from marginalized groups, including dual language learners and those from the lowest-income families.[1, 2, 3, 4]

- By the end of kindergarten, the pre-K boost diminishes the most for foundational skills, such as knowing letters, recognizing numbers, and counting[2, 3, 4, 5] whereas the pre-K boost on more complex skills, like working memory, self-regulation and vocabulary, is more likely to be sustained through the end of kindergarten.[2, 3, 4, 5, 6]
- Type of program (e.g., public, private, home- or center-based) and the time children spend therein,[7] and variation in learning experiences within classrooms,[8] is not universally associated with children's kindergarten readiness.
- Widely used measures of children's early learning experiences do not consistently predict their learning gains. More measurement work, including measures of children's individual learning experiences, reliable measurement of environments and learning content, is needed.[3, 9, 10]

Dig Deeper

Watch a short research presentation to learn more about the Early Learning Network's findings related to pre-K participation.

To access the video, visit our media library or use your phone's camera to scan the QR code.

Presenter: Mary Bratsch-Hines, Ph.D., *University of North Carolina at Chapel Hill team*

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[1]Ansari, A., Pianta, R., Whittaker, J., Vitiello, V., & Ruzek, E. (2021). Enrollment in public-prekindergarten and school readiness skills at kindergarten entry: Differential associations by home language, income, and program characteristics. *Early Childhood Research Quarterly, 54*, 60-71.

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IMPACT AREA:

Classroom Experiences & Learning Opportunities

Why Do They Matter?

Intentional, effective experiences and learning opportunities in classroom environments allow students to access and act on information, interact with instructional content and with one another, and develop academic and social skills necessary for future success. It is important to understand aspects of the classroom environment that predict optimal student performance to help narrow opportunity gaps and ensure learning success. Intentional practices and approaches include classroom learning opportunities created and supported by adults, peer interactions, and strategies used by teachers to support the development of students' academic and social-emotional skills.

ELN'S CONTRIBUTION

ELN research has improved our understanding of associations between experiences in the classroom and gains in children's early learning outcomes. This includes associations between specific instructional practices, curriculum content, classroom environments and structures, peer relationships and a host of outcomes in the early years of schooling.

What We Learned

Targeted, positive classroom experiences, including one-on-one language exchanges, teacher-student interactions, student-student interactions, exposure to content-rich instruction and modeling/scaffolding, are associated with students' skills. Classroom learning opportunities, such as large group activities, and strategies, including behavior management and routine cues, are not consistently positively associated with student outcomes.

SUPPORTING FINDINGS

- During pre-K, teacher-child language interactions and teacher involvement in educational activities[1, 2] are associated with gains in expressive language and literacy skills.[1] More time spent in large- compared to small-group instruction is negatively associated with students' gains in expressive language and literacy skills.[1]
- Pre-K children are generally more likely to actively participate verbally when experiencing academic learning opportunities as compared to non-instructional opportunities and when their teachers engage by talking more with students.[3]
- Pre-K teachers use a variety of organizational strategies. Modeling an instructional activity through teacher demonstration appears positively related to children's math (but not other academic or executive function) skills. Behavior management organizational strategies and routine cues are not associated with gains in academic or executive function skills, perhaps because there was less frequency of use in observed classrooms.[4]

- Content-rich instruction predicts positive gains in math skills across the pre-K year regardless of students' income status, race/ethnicity or dual language learner status.[5]
- Didactic instruction and scaffolding as instructional strategies appear to differentially relate to social skill outcomes among first grade students. Higher occurrences of scaffolding, a teaching method that gradually supports students as they learn and develop a new concept, is predictive of students' positive attitudes toward learning, greater social skills and fewer problem behaviors. Alternatively, when teachers provide more didactic (e.g., direct) instruction than scaffolded experiences, students are more likely to show negative attitudes toward learning, lower attention/persistence and fewer social skills.[6]
- Teacher-report of relational victimization in classrooms, such as social exclusion or manipulation, is negatively associated with gains in children's literacy, math and social skills development across kindergarten and first grade.[7]

Dig Deeper

Watch a short research presentation to learn more about the Early Learning Network's findings related to classroom experiences and learning opportunities.

To access the video, visit our media library or use your phone's camera to scan the QR code.

Presenter: Virginia Vitiello, Ph.D., *University of Virginia team*

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[6]Boise, C., Sheridan, S. M., Knoche, L. L., Iruka, I. U., Witte, A. L., & Prokasky, A. (2021, April 7–9). Classroom approaches related to children's academic and social-emotional outcomes in early elementary school. In S. M. Sheridan (Chair), *Teacher practices and individual student experiences: Measuring influences on pre-kindergarten through third grade students* [Symposium]. Society for Research in Child Development Biennial Meeting, Virtual Conference, United States.

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IMPACT AREA:

Relationships

Why Do They Matter?

Relationships during the early school years are important for learning and development. Family engagement in children's education provides opportunities to extend learning beyond school. Relationships between parents and teachers, and between teachers and students, are foundational for promoting children's academic, language, and social-emotional skills, and have particular salience for children from marginalized groups.

ELN'S CONTRIBUTION

We know relationships matter from years of prior research. ELN researchers have expanded the field's knowledge base in ways that can influence early childhood practice and policy by exploring different relationship patterns over time, in both rural and urban settings, including their associations with children's social-behavioral, academic and executive function outcomes. **Teacher-child relationships**, **parent engagement** and **parent-teacher relationships** have been identified as being open to change or improvement through early learning practice and policy decisions.

What We Learned

- Positive relationships between parents and their children's teachers over the early school years, and positive relationships between teachers and children, hold promise for promoting social skills, reducing skill gaps among students from marginalized groups, and addressing problem behaviors before they escalate later on.
- High-quality educational experiences should include teachers' use of practices to engage families, create and maintain positive interpersonal connections with their students, and form relationships with their students' families.
- Context is important. Efforts to engage families, promote positive relationships between teachers and students, and form relationships between parents and teachers, are necessary across grade levels (i.e., pre-K through elementary school) and in both urban and rural schools.
- Peer relationships are an important part of children's classroom environments and experiences (see Classroom Experiences and Learning Opportunities brief which summarizes studies addressing these important relationships).

SUPPORTING FINDINGS

Teacher-Child Relationships

- Correlational findings suggest that the benefits of positive teacher-child relationships on children's functioning are evident,[1] both immediately and over time,[2] and function similarly for children from English- and Spanish-speaking families.[3] Positive teacher-child relationships are associated with improvements in children's social-behaivoral skills, academic outcomes, executive function[4] and positive perceptions about peer social support.[5]
- Cumulative conflictual interactions between students and teachers from pre-K to first grade are related to poor social-emotional functioning.[3]

- Experiencing a decrease in teacher-child interaction quality or an increase in teacher-child conflict across grades is associated with poorer outcomes, including children's lower social competence,[3] learning behaviors, and inhibition;[1] higher levels of problem behaviors;[2] and more negative perceptions of peer victimization.[5]
- There are differences in teacher-child relationships from pre-K to kindergarten (including decreased closeness and less positive teacher-child interactions),[1,2] and boys appear to experience larger negative effects than girls during the transition.[1]

Parent Engagement and Parent-Teacher Relationships

- Parents' support of children's advanced language and math skills at home predict gains in those domains, especially for families with lower levels of parent education.[6]
- Parents' support of children's learning at home increases from pre-K through kindergarten, while parent participation in school activities and events increases during pre-K but decreases through the end of kindergarten.[7]
- Communication between parents and teachers is stable during pre-K and decreases through the end of kindergarten.[7] There tends to be more parent-teacher communication related to students' behavioral problems,[2,3] except for Spanish-speaking families, where there is less overall communication about their child's learning and development.[3]
- Parents in rural communities report providing less support for children's learning at home and less communication with teachers than their urban counterparts.[7]
- Positive parent-teacher relationships during the school year are associated with gains in children's social-behavioral outcomes.[2] Specifically, parent-teacher communication is associated with children's positive social-behavioral well-being, and the associations are consistent for children from English- and Spanish-speaking families.[3]
- Sustained relationships between parents and teachers during the transition from pre-K through first grade are associated with fewer problem behaviors over time.[2] Furthermore, the home-school connection is associated with reducing the skill gap between Black and Latine children in teacher-rated problem behaviors.[8]

Dig Deeper

Watch a short research presentation to learn more about the Early Learning Network's findings related to relationships.

To access the video, visit our media library or use your phone's camera to scan the QR code.

Presenter: Lisa Knoche, Ph.D., *University of Nebraska–Lincoln team*

ENDNOTES

[1]Vitiello, V. E., Nguyen, T., Ruzek, E., Pianta, R. C., & Whittaker, J. V. (2021). Differences between pre-K and kindergarten classroom experiences: Do they predict children's social-emotional skills and self-regulation across the transition to kindergarten? *Early Childhood Research Quarterly, 59*, 287-299.

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IMPACT AREA:

Sustained High-Quality Experiences

Why Do They Matter?

Children perform best when there is consistency and continuity across educational experiences — in other words, when high-quality educational experiences are sustained. Achieving sustained, high-quality experiences requires attention to both programmatic alignment across pre-K to third grade, and processes that facilitate smooth student transitions. Education programs are strongly aligned when structures, policies, practices, curricula and assessments work together seamlessly across ages and grade levels to support and maintain children's success. Student transitions are effective when they allow for easy navigation across grades and between learning environments.

ELN'S CONTRIBUTION

ELN researchers have expanded the field's knowledge base of how alignment and transition practices support the development of math, language, literacy and social-behavioral skills, and identified current practices that create barriers to sustained experiences. **Alignment** and **transition practices** have been identified as being open to change or improvement through early learning practice and policy decisions.

What We Learned

- Intentional efforts to sustain high-quality experiences, such as using transition practices, promoting positive student-teacher relationships and sharing information across grades, may benefit all children, and especially those from marginalized backgrounds. However, there is variability in the degree to which students experience sustained experiences across grades. Sustained high-quality experiences alone do not consistently result in better outcomes; experiences must be high quality and aligned.
- Aligned practices between pre-K and kindergarten are positively associated with children's academic and social-behavioral outcomes. Alternatively, inconsistent academic and social environments across pre-K and kindergarten, including varying amounts of transition practices, may be difficult for children's kindergarten adjustment, particularly for children from marginalized backgrounds.
- Identifying barriers to effective transitions and alignment may be starting points for specifying policy and practice modifications.

SUPPORTING FINDINGS

Alignment Practices

- Intentionality in aligning structures, curricula and instructional content provides an opportunity to promote sustained experiences across pre-K and elementary programs[1] and support the benefits of the pre-K experience.
- Children's cumulative experiences in early grades are predictive of later social-behavioral outcomes for children from English- and Spanish-speaking families.[2]

- Between pre-K and kindergarten:
  - Differences between academic and social environments may be difficult for children as they adjust to kindergarten, particularly for children from families with low incomes, dual language learners and those from minoritized communities of color.[3]
  - Evidence of alignment includes progression toward advanced academic content from pre-K to kindergarten and similarity in child-centered ideas.[4]
  - Evidence of misalignment includes redundancies in foundational content, particularly for children living at or below the poverty line;[5] few teachers matched to students' diverse ethnic/linguistic backgrounds; and more teacher-structured activities and less effective teacher-child interactions.[4]
  - Reasons for weak alignment include debate over early childhood education, procedures disrupting data sharing and transition practices,[6] limited funding and a lack of culture supporting alignment.[7]
- There tends to be greater alignment between kindergarten and elementary grades than from pre-K to third grade.[8] When misalignment occurs in the form of redundancies between pre-K and kindergarten, it is primarily in foundational (not complex) language, literacy and math content.[5]

Transition Practices

- Challenges in the transition to kindergarten are common, with at least half of students experiencing some difficulties with academic and social-behavioral skills. Boys and children with IEPs experience greater difficulties.[9]
- Sustained, positive student-teacher relationships across transitions from pre-K to first grade predict improved social skills.[10]
- Data sharing on individual children is associated with higher literacy skills as children transition to kindergarten,[11] and is more common when pre-K programs are co-located in elementary school buildings.[12]
- Lack of communication and inability to bring together pre-K and elementary personnel prevent effective transition to kindergarten.[13]

Dig Deeper

Watch a short research presentation to learn more about the Early Learning Network's findings related to sustained high-quality experiences.

To access the video, visit our media library or use your phone's camera to scan the QR code.

Presenter: Meghan McCormick, Ph.D., *MDRC team*

ENDNOTES

[1]McCormick, M. P., Weiland, C., Hsueh, J., Maier, M., Hagos, R., Snow, C., Leacock, N., & Schick, L. (2019). Promoting content-enriched alignment across the early grades: A study of policies & practices in the Boston Public Schools. *Early Childhood Research Quarterly, 52*, 57-73.

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[11]Garber, K. L., Foster, T. J., Little, M. H., Cohen-Vogel, L., Bratsch-Hines, M., & Burchinal, M. R. (2022). Transition practices of rural pre-K and kindergarten teachers and their relations to children's academic and social skills. *Early Education and Development*.

[12]Little, M., Cohen-Vogel, L., Sadler, J., & Merrill, B. (2019). Data-driven decision making in early education: Evidence from North Carolina's pre-K program. *Education Policy Analysis Archives, 27*.

[13]Purtell, K. M., Valauri, A., Rhoad-Drogalis, A., Jiang, H., Justice, L. M., Lin, T-J, & Logan, J. A. (2020). Understanding policies and practices that support successful transitions to kindergarten. *Early Childhood Research Quarterly, 52*, 5-14.

OLOS — Optimizing Learning Opportunities for Students

A tool to improve student outcomes by helping teachers provide more personalized instruction.

What is OLOS?

The Optimizing Learning Opportunities for Students (OLOS) Observation System was developed by the Early Learning Network's assessment team at the University of California, Irvine with leadership from the late Carol M. Connor, renowned scientist in language and literacy.

OLOS is a user-friendly, web-based tool designed to help teachers understand what is happening in their classrooms and uncover ways to meet the unique learning needs of each student.

OLOS has been piloted and field-tested in the network's nationwide studies. Classroom settings include Orange County, California; Fairfax County, Virginia; rural and urban school districts in Nebraska; rural counties in North Carolina; and selected school districts in Ohio.

Why Does it Matter?

Simply put: Children learn differently. Each student brings a distinct set of skills, languages and perspectives to school and may experience different learning opportunities — even within the same classroom. A one-size-fits-all approach to instruction may put some students at a disadvantage.

It is important to observe and assess learning opportunities at the child level to better capture the complexities of how instruction impacts individual children and to improve instructional quality.

ELN'S CONTRIBUTION

OLOS advances our understanding of how to personalize instruction to meet each child's learning needs and to identify broader strategies for promoting equitable and effective learning opportunities in diverse early childhood settings.

OLOS has been used successfully by teachers and researchers to measure the content and context of individual children's classroom learning experiences, and can help inform instruction for individual children over the school year when used in conjunction with assessments of literacy and math skills.

What We Learned

Research conducted by ELN teams allowed us to uncover general instructional practices in pre-K to third grade classrooms, and their association with children's literacy and math performance.

LITERACY

- On average across the sites, students spent very little time learning letters and letter sounds in pre-K (less than 5 min. of a two-hour observation), slightly more time in kindergarten (10-15 min.), but almost no time by third grade (1 min.).[1,6]
- For individual students, the closer the match between recommended instruction in letters and letter sounds (based on children's skills) and learning algorithms developed by Dr. Connor, the more literacy growth was observed.[4,6]
- When teachers' instruction was focused on meaning (e.g., vocabulary development, story-time comprehension skills), greater growth was observed in children's vocabulary. When teachers exceeded the amount of recommended meaning-focused instruction for individual children, this led to higher child gains.[4,6]

MATH

- Across sites, there was little evidence of math instruction (less than 5 min. of a two-hour observation), and this instruction was not related to growth in math skills. In kindergarten, learning opportunities in math were more common and these opportunities were linked to growth in math skills, especially for children with low math skills at the beginning of the school year.[1,3,6]
- Math experiences looked very different across pre-K and kindergarten. In pre-K, math instruction was primarily led by teachers during whole class instruction whereas in kindergarten, it was divided among whole class, small group, and individual activities led by both teachers and children.[6]
- Whole class math experiences in kindergarten were associated with lower gains in math, and this was especially true for children with low math skills. In contrast, individual math activities were linked to higher gains for kindergarteners with low math skills.[1,3,6]

CLASSROOM USE

- Teachers can be trained in and meet high standards for accurate and reliable use of the OLOS system after either an online or in-person training.[2]
- Teachers reported finding the information provided by the OLOS system valuable to their instruction. They particularly liked the online teacher dashboard immediately available upon completing an observation.[5]

Dig Deeper

Watch a research presentation to learn more about the Early Learning Network's findings related to OLOS.

To access the video, visit our media library or use your phone's camera to scan the QR code.

Presenter: Ashley Adams Sanabria, Ph.D., CCC-SLP, *University of California, Irvine team*

ENDNOTES

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[3]Connor, C. M., Adams, A., Zargar, E., Wood, T. S., Hernandez, B. E., & Vandell, D. L. (2020). Observing individual children in early childhood classrooms using Optimizing Learning Opportunities for Students (OLOS): A feasibility study. *Early Childhood Research Quarterly, 52*, 74-79.

[4]Connor, C. M., May, H., Sparapani, N., Hwang, J. K., Adams, A., Wood, T. S., & Day, S. (2022). Bringing Assessment-to-Instruction (A2i) technology to scale: Exploring the process from development to implementation. *Journal of Educational Psychology, 114*, 1495-1532.

[5]Curtis, F. & Adams Sanabria, A. (2021, November). *Use of an individualized classroom observation system by SLPs* [Paper]. American Speech and Hearing Association 2021 Convention, Washington, D.C., United States.

[6]Sanabria, A., Hwang, J. K., Zargar, E., Grimm, K., & Vandell, D. L. (under review). *Opportunities to learn in preK and K*.