

## SELF-REGULATION IN EARLY CHILDHOOD

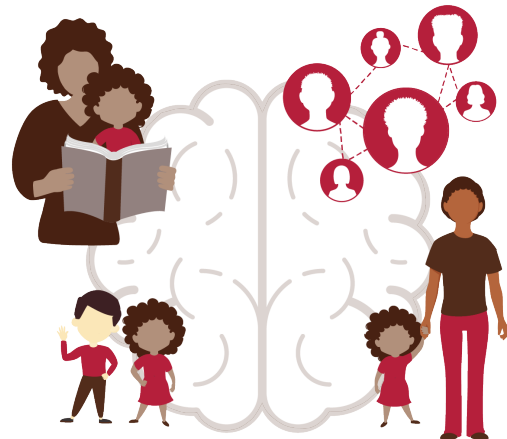
*Research on the Development of Children's Self-Regulation in the Context of the Educare Learning Network*



Children's early development unfolds within a complex system of close relationships.<sup>1, 2</sup> **Social and emotional learning (SEL)** is a critical part of human development that starts with early adult-child interactions. There are five broad and interrelated areas of social-emotional learning: 1) social awareness, 2) relationship skills, 3) responsible decision-making, 4) self-awareness, and 5) self-management.<sup>3</sup> **Self-regulation, or the internal capacities that help children manage their thoughts, feelings, and behaviors,** underlie all five areas.<sup>4</sup> Children's ability to regulate their responses to the world serves as a foundation for all development and learning. Many studies have shown that stronger self-regulation skills early in life are a predictor of positive developmental outcomes, including school readiness and later academic success.<sup>5</sup>

The **prefrontal cortex (PFC)**—the area of the brain responsible for self-regulation—undergoes rapid changes in the first five years.<sup>6</sup> For this reason, early childhood is an optimal period for enhancing self-regulation development. All children experience, interpret, and react to the world differently, and these individual qualities affect children’s abilities to regulate thoughts, emotions, and actions. The development of self-regulation stems from the interplay between these individual factors and children’s experiences and interactions within the multiple environments that they navigate (e.g., their home, school, or community).<sup>7</sup>

Interventions focused on strengthening early relationships have been especially important for promoting children’s self-regulation skills.<sup>8</sup> Across both home and school, warm and responsive caregiving provided within a safe, predictable environment fosters the development of young children’s self-regulation skills.<sup>9, 10</sup> Adults can also engage children in **purposeful interactions** and teaching that promote self-regulation skills. Children demonstrate better self-regulation when adults model effective regulation strategies,<sup>11</sup> engage children in activities that require self-monitoring and turn-taking,<sup>12, 13</sup> and teach children the language to understand their emotions and strategies to consider and adapt their behaviors.<sup>14, 15</sup>



These skills are also important when children enter formal school settings for the first time and beyond. Across multiple studies, kindergarten teachers have identified self-regulation as the single most important marker of **school readiness**.<sup>16, 17</sup> Early self-regulation abilities help children sustain attention in learning activities and adjust to new expectations.<sup>4</sup> They also contribute to emerging academic skills like literacy, math, and vocabulary, as well as adaptive classroom behaviors including sustained engagement, cooperation, following instructions, positive peer relationships, and fewer behavior problems.<sup>18, 19, 20, 21</sup> There is also important evidence that self-regulation skills in early childhood are associated with long-term outcomes in adulthood; children with positive self-regulation skills are more likely to grow into adults with better health, financial, and educational outcomes.<sup>22, 23</sup>



## Educare's Approach to Supporting Children's Self-Regulation

Considering the centrality of self-regulation to children’s lifelong development and learning, Educare schools are committed to incorporating SEL into classroom curriculum and explicitly focus on cultivating social-emotional well-being and self-regulation skills through nurturing relationships and high-quality classroom-based practices. Educare schools select and employ a variety of evidence-based social-emotional curricula that serve the unique needs and diversity of the children and families in their communities, including holistic and universal approaches; promotion, prevention, and intervention practices; trauma-informed strategies; positive relationships; and building self-control, empathy, self-esteem, and problem-solving skills.\*

Classroom observation assessments centered on the quality of teacher–child interactions in Educare schools consistently indicate that **emotional and behavioral support in both toddler and preschool classrooms is high†**.



Given that Educare maintains a deep emphasis on social-emotional learning and development in early childhood, it is a prime environment to study the development of children’s self-regulation as well as the role that key relationships play in supporting self-regulation skills.

Data Utilization	Embedded Professional Development
High-Quality Teaching Practices	Intensive Family Engagement

### WHAT IS EDUCARE?

Educare schools provide full-day, year-round early education for children from six weeks to five years of age and their families from underserved communities. There are currently 25 operating Educare schools in diverse communities across the country, serving nearly 4,000 children and guiding the professional development for over 2,000 early childhood professionals in those schools. Educare schools are Early Head Start, Head Start, and/or public Pre-K providers. All Educare schools leverage public-private partnerships, bringing together local school districts, philanthropic organizations, researchers, policymakers, and families. These dynamic partnerships comprise the Educare Learning Network.

Educare’s comprehensive model is grounded in research and includes four core features: 1) data utilization; 2) embedded professional development; 3) high-quality teaching practices; and 4) intensive family engagement. These features, in the context of strong leadership and community partner linkages, aim to enhance achievement and overall well-being among Educare children and families.



\* 2019-20 data from the annual staff survey indicated that 18 Educare schools used specific evidence-based social-emotional curricula in their classrooms including Conscious Discipline, Second Step, PBIS/Teaching Pyramid, & Paths

† Educare Classroom Assessment Scoring System (CLASS) scores from 2017-2020



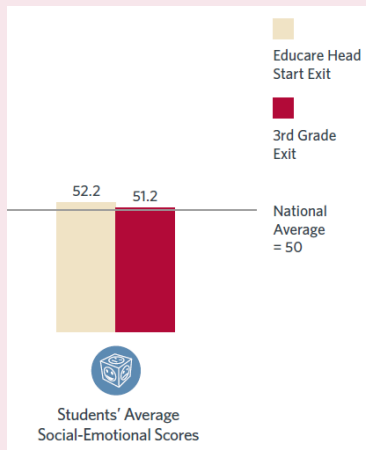
## What Do We Know About Self-Regulation in Children Attending Educare Schools?

Educare Learning Network researchers have studied self-regulation in children attending Educare schools. Overall, Educare data show that:

Most Educare children enter kindergarten with average or above average social-emotional skills, including self-regulation.<sup>26</sup>

At approximately two and three years of age, as well as at kindergarten entry, children demonstrate fewer problem behaviors and better self-regulation skills compared to children of similar backgrounds who did not attend Educare.<sup>24, 25, 26</sup>

Educare graduates maintain positive social-emotional skills, including self-regulation, through elementary school<sup>‡</sup>.




<sup>‡</sup> Based on Educare Chicago Follow-Up Study data from 2005-2015 including teacher-rated social-emotional skills measured using the *Devereux Early Childhood Assessment* at Educare exit and the *Devereux Student Strengths Assessment* at 3rd grade exit

## What Matters for Children’s Self-Regulation Development?

Educare Learning Network researchers have investigated factors that influence the development of self-regulation among children attending Educare schools. In particular, studies have shown that timing and length of enrollment in Educare, as well as a variety of early relationships, play a significant role in shaping children’s self-regulation skills.

### Timing and Length of Enrollment in Relation to Educare Children’s Self-Regulation

 In their work, Network researchers have explored how timing and length of enrollment<sup>◇</sup> in Educare contributes to children’s self-regulation skills.<sup>27</sup> Specifically, they investigated whether children’s age at the time of enrollment and length of time in Educare were related to children’s self-regulation.

Overall, children benefited from being enrolled in Educare for a greater length of time. More time in Educare was associated with better self-regulation, regardless of age at entry. Children who entered Educare at younger ages were rated as having lower self-regulation skills (but still within normal ranges); but ratings of self-regulation were higher the longer children were enrolled in Educare.

These associations were even stronger for dual language learners (DLLs)<sup>§</sup> compared to English-only speaking children and show that DLL children in particular may benefit from longer enrollment in Educare.



<sup>◇</sup> For additional research evidence from ELN on timing and length of enrollment and DLLs, refer to the respective Educare Insights briefs.

<sup>§</sup> Educare children who are primarily exposed to a language other than English either prior to or while simultaneously being exposed to English

### DATA COLLECTION DETAILS

Each Educare school is part of a research-practice partnership (RPP) with a local evaluation partner (LEP). Through these collaborative partnerships, data are collected at the local program level and as part of core studies including the Educare National Evaluation to assess child and family outcomes, staff practices, and program quality in a variety of domains. Researchers and evaluators at each Educare school have been studying implementation and outcomes since 2007 to document:

- core features of the Educare model
- unique local features
- dosage, intensity, content, and quality of child and family services
- child and family outcomes
- progress over time

As part of the Educare National Evaluation, cross-site semi-annual/annual assessments of children’s language, literacy, and social-emotional skills are completed.

Each Educare school also engages in on-going site-specific evaluations and data collection determined by the school and local evaluation partner (LEP) to inform program practice, drive program improvement and professional development, evaluate locally driven initiatives, and determine compliance with a variety of early care and education (ECE) standards.

## The Role of Relationships on the Development of Children’s Self-Regulation

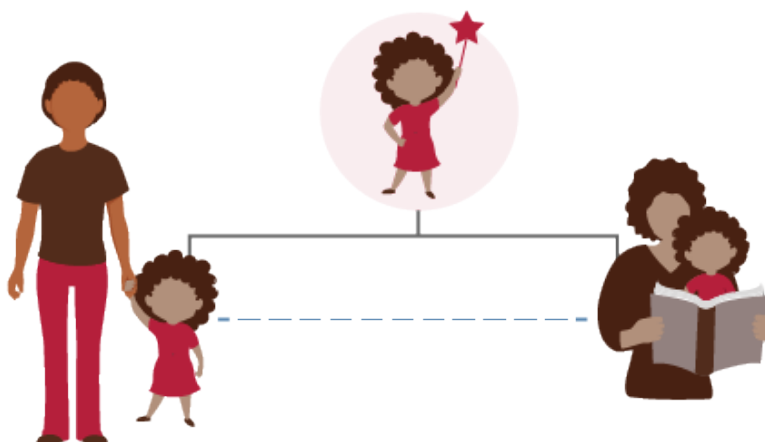
Children’s home and school contexts are deeply connected and jointly influence children’s self-regulation. Within these contexts, children’s relationships with **parents**, **teachers**, and **peers** **operate together** to influence development. Through multiple studies, Educare Learning Network researchers have demonstrated the importance of early relationships in supporting children’s self-regulation abilities.<sup>28, 29, 30, 31</sup>

### Parents and Teachers

Using data from a set of Educare schools\*\*, researchers studied qualities of **parent**– and **teacher**–child relationships and children’s self-regulation, as well as the ways that these systems and relationships work together to **mutually influence** the development of children’s self-regulation skills.<sup>28, 29, 31</sup>

Specifically, these studies explored:

- 1 Associations between characteristics of parent–child relationships and children’s self-regulation <sup>28</sup>
- 2 Associations between characteristics of teacher–child relationships and children’s self-regulation <sup>28, 29, 31</sup>
- 3 Associations between teacher–child and parent–child relationships and children’s self-regulation <sup>28</sup>



\*\* Three Educare schools in two Midwestern cities



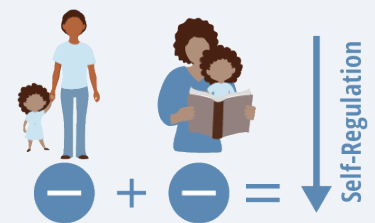
**Better parent-child relationships** were associated with **higher** levels of **self-regulation** for children. Specifically, **children demonstrated better self-regulation skills when their parent(s) reported a closer parent-child relationship.**<sup>28</sup>



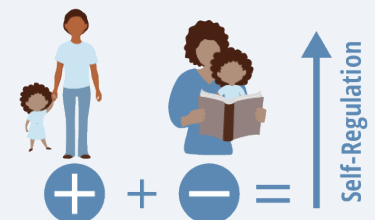
**More negative teacher-child** interactions were related to **poorer self-regulation** skills. Children who had **higher levels of conflict** with teachers displayed **lower levels of self-regulation.**<sup>28, 29</sup> This association was **especially evident for boys.**<sup>29</sup> The association also held true when examining it in the other direction: Teachers had the most **difficulty building close relationships** with children who demonstrated **low regulatory skills** and who were also **more reactive** to their environment.



When children's relationships with parents and teachers were examined together, **low levels of parent-child closeness in combination with high levels of teacher-child conflict were associated with lower levels of self-regulation.**<sup>28</sup>



In addition, when children experienced conflictual relationships with teachers, but parents reported high levels of closeness with children, stronger self-regulation skills were observed. Thus, **children's positive relationships with parents may serve as a buffer against any negative influence of teacher-child conflict on children's self-regulation.**<sup>28</sup>



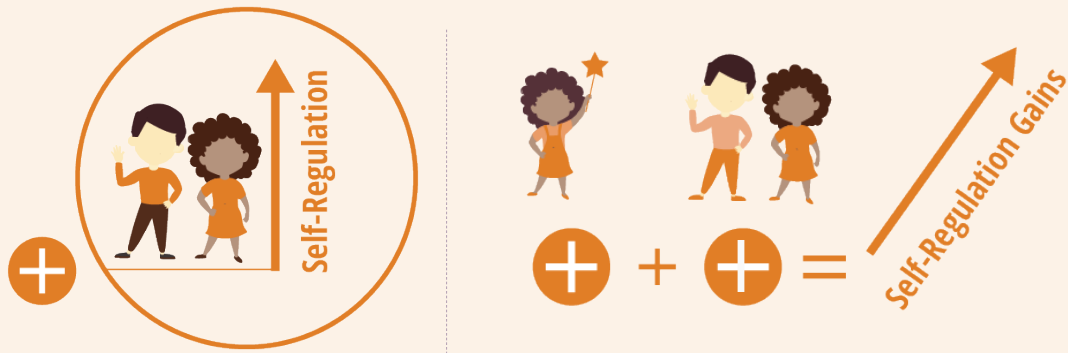
**Peers**

Educare Learning Network researchers have also explored the role that children’s peers play in the development of self-regulation. To investigate whether peers’ self-regulation skills contributed to individual children’s development of self-regulation, researchers studied:

- Associations between peers’ self-regulation skills measured at the beginning of the year and changes in children’s self-regulation over the course of the school year.<sup>30</sup>



Educare children demonstrated positive changes in self-regulation skills at the end of the school year when their peers were initially rated by teachers as having higher self-regulation skills. Moreover, children made even more gains in self-regulation abilities when they began the school year with higher levels of self-regulation skills *and* when their peers demonstrated higher levels of self-regulation.<sup>30</sup>





### Summary of Research Findings

Research findings from the Educare Learning Network on self-regulation in early childhood:

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Add to existing research demonstrating the importance of key relationships (i.e., with parents, teachers or other caregivers, and peers) *across* contexts (home, early childhood program) for the development of young children’s self-regulation abilities.<sup>27, 28, 29, 30, 31</sup>

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Show that longer time spent in Educare was beneficial for children’s self-regulation development, particularly DLLs.<sup>27</sup>

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Demonstrate the essential role that relationships with parents, teachers, and peers play in supporting the development of children’s self-regulation skills.<sup>28, 29, 30, 31</sup>

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## IMPLICATIONS AND RECOMMENDATIONS FOR RESEARCH, PRACTICE, AND POLICY

These findings, together with other research literature exploring the development of self-regulation in early childhood, offer valuable insights into ECE policies and best practices that have the potential to strengthen early relationships and optimize the learning and development of young children from low-income backgrounds. Below we provide some recommendations for research, policy, and practice initiatives to support the development and success of children in Educare and across the wider ECE field.

### 1 Center race/ethnicity and linguistic diversity in research on children's self-regulation

Although the Educare studies outlined in the current brief provide salient evidence on children's self-regulation, there was limited focus on race/ethnicity and linguistic diversity.

#### Centering race/ethnicity and linguistic diversity

in this work **acknowledges the cultural wealth and experiences of racial, ethnic, and/or linguistic groups**; it also allows for the **examination of the roles that systemic racism, discrimination, and implicit bias may play on any self-regulation differences identified among children**. Future self-regulation research should **both describe the study sample in the methods and explore racial/ethnic and linguistic differences**.



Researchers must develop research questions and use methodologies and measures that are grounded in socio-culturally relevant frameworks. Doing so will advance a deeper, more accurate understanding of children's self-regulation development, including the opportunity gaps that children experience that hinder strong self-regulation development and skills. Further research on children's regulation guided by anti-racist, anti-bias principles and methods will ultimately inform effective, strengths-based, and meaningful practices that bolster children's self-regulation.<sup>32</sup>

### 2 Foster and strengthen positive parent–child relationships in early childhood

Given the important role that parents and families play in the development of children's self-regulation skills, promoting positive parent–child interactions characterized by warmth,

sensitivity, and responsiveness is key. Home and school contexts are interrelated in predicting children’s outcomes, therefore, ECE programs and providers should **build and maintain partnerships with families**, exemplify warm, responsive interactions in staff’s relationships with parents, and support **family engagement** to help children develop the skills needed to succeed in different environments.



**Strong home–school connections and communication** are essential, and it is important that ECE staff **acknowledge and uplift parents’ strengths** and emphasize the importance of parents as their children’s first teachers. ECE programs should work to build on parents’ strengths in culturally relevant ways by connecting them to **resources and providing opportunities for families to learn about parenting strategies specifically focused on the development of self-regulation**. Moreover, addressing parental hardships, helping parents identify social supports, and connecting families with community-based services and resources can further strengthen parents’ relationships with their children by **reducing stress, advancing family economic mobility, and building social capital**. As

such, **supporting family engagement staff** and members of the ECE workforce working most closely with families is also crucial.<sup>33</sup>

### 3 Promote positive teacher–child interactions in ECE settings

The critical importance of close relationships with teachers on the development of children’s self-regulation also suggests the need for classroom-based and relationship-focused interventions to support early development and learning. ECE programs should **incorporate evidence-based social-emotional curricula into classroom instruction**, help staff develop **effective social-emotional teaching strategies**, and educate providers about the **importance of supportive and sensitive interactions** with children. It is also imperative that staff are given the chance to **engage in professional development opportunities** (e.g., training, coaching, and communities of practice) focused on positive interactions and are provided with the **tools and resources necessary to engage in developmentally and individually appropriate teaching strategies** that take into account children’s unique backgrounds, needs, and abilities.



**Observations and assessments** of teacher-child interactions as well as **reflective practice opportunities** can further help to support and enhance the quality of relationships in the classroom. In addition, **efforts and strategies focused on supporting the ECE workforce** are also critical in order to reduce teachers' stress and improve well-being, further enabling staff to build relationships with children and engage in positive teacher-child interactions.<sup>34</sup>

**4 Expand access to and promote long-term participation in high-quality ECE programs** Given the benefits of participating in high-quality ECE for children's SEL, it is essential to expand access to high-quality ECE opportunities for families and provide the supports, information and/or opportunities necessary to enable children's continued participation in these programs. **Increasing state and federal investments in ECE, providing resources to support high-quality programming, and prioritizing funding for families in underserved communities** are critical. Moreover, **strengthening provider skills** through professional development opportunities, **supporting the ECE workforce** to ensure staff well-being and retention, and **working to adequately fund and staff ECE programs** to enable continuity in relationships and full engagement in programs can contribute to the



availability and accessibility of high-quality ECE services. In addition, in order to promote longer enrollment in ECE programs, providers should **develop family engagement strategies** to build meaningful connections with families, provide activities, interactions, and supports to **increase involvement in children's learning**, and **invite families to participate in decision making and goal setting**.<sup>35</sup>



# NETWORK SPOTLIGHT:

Highlighting one example of outstanding practice or innovation in the Educare Learning Network

## MINDFULNESS AND MASTERY PROJECT

Given Educare’s commitment to fostering social-emotional development, a group of Educare schools and their research partners have been participating in a multi-year initiative to support children’s social-emotional skills, including self-regulation. Led by the LEP team at the University of Nebraska Medical Center and launched through an Acceleration Grant from the Buffett Early Childhood Fund, this project aims to support the implementation of social-emotional curriculum across 13 Educare schools and test a variety of mindfulness practices to enhance social-emotional functioning in Educare children, staff, and families. With a focus on relationships, intentional strategies at home and in the classroom, professional development opportunities, and staff training, Educare schools have worked to integrate a social-emotional framework and set of core practices into their Educare programming, as well as tailored interventions to meet the needs of individual schools. The project aims to support the integration of SEL activities into the classroom, enhance teachers’ abilities to promote positive social-emotional development, improve children’s social-emotional skills, and foster school-readiness among Educare children.

Educare schools involved in this project are deeply committed to implementing social-emotional strategies in the classroom and providing families with resources and information about the activities used in the classroom to aid the continuation of SEL between school and home contexts. Each school has participated in either in-person or online training centered on social-emotional curriculum; a variety of professional development activities related to social emotional learning; and efforts to embed mindfulness practices within daily classroom routines. For example, many schools have integrated breathing exercises; concentrated on supporting children’s awareness of emotions; and implemented ‘Brain Games’, a set of engaging activities designed to help children strengthen self-regulation skills and strategies. In addition to children’s social-emotional development, there has also been a particular focus on staff and caregiver well-being.

Educare schools involved in the Mindfulness and Mastery project have reported improvements in children’s self-regulation and social-emotional development. Schools reported that children are showing more empathy, regulating emotions with more independence, and thinking and talking about emotions more frequently. Participants have also reported increases in positive teacher–child relationships, parent engagement, and staff well-being and morale. Participating schools are continuing to implement activities and evaluate outcomes in a variety of areas, and ultimately hope to develop a program and set of recommendations that can be adapted and implemented across other ECE settings.

*The following Educare schools are involved in the Mindfulness and Mastery project: Omaha (2), Atlanta, Central Maine, Lincoln, Miami, New Orleans, Seattle, Tulsa (3), West DuPage, and Winnebago*



## REFERENCES

- <sup>1</sup> Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- <sup>2</sup> Sameroff, A. (Ed.). (2009). *The transactional model of development: How children and contexts shape each other*. American Psychological Association.
- <sup>3</sup> CASEL. (n.d.). *What is the CASEL Framework?* <https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/>
- <sup>4</sup> Blair, C., & Raver, C. C. (2015). School readiness and self-regulation: A developmental psychobiological approach. *Annual Review of Psychology*, 66(1), 711–731.
- <sup>5</sup> Robson, D. A., Allen, M. S., & Howard, S. J. (2020). Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review. *Psychological Bulletin*, 146(4), 324–354.
- <sup>6</sup> Diamond, A. (2002). Normal development of prefrontal cortex from birth to young adulthood: Cognitive functions, anatomy, and biochemistry. In D. T. Stuss & R. T. Knight (Eds.), *Principles of frontal lobe function* (pp. 466-503). Oxford University Press USA.
- <sup>7</sup> Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- <sup>8</sup> Morawska, A., Dittman, C. K., & Rusby, J. C. (2019). Promoting self-regulation in young children: The role of parenting interventions. *Clinical Child and Family Psychology Review*, 22(1), 43–51.
- <sup>9</sup> Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development*, 81(1), 326–339.
- <sup>10</sup> Carlson, S. M. (2003). Executive function in context: Development, measurement, theory, and experience. *Monographs of the Society for Research in Child Development*, 68(3), 138–151
- <sup>11</sup> Sanders, M. R., & Mazzucchelli, T. G. (2013). The promotion of self-regulation through parenting interventions. *Clinical Child and Family Psychology Review*, 16(1), 1–17.
- <sup>12</sup> Bodrova, E., & Leong, D. (2012). *Tools of the mind: The Vygotskian approach to early childhood education*. Merrill.
- <sup>13</sup> Bodrova, E., & Leong, D. J. (2005). Promoting student self-regulation in learning. *Education Digest: Essential Readings Condensed for Quick Review*, 71(2), 54–57.
- <sup>14</sup> Valotton, C., & Ayoub, C. (2011). Use your words: The role of language in the development of toddlers' self-regulation. *Early Childhood Research Quarterly*, 26(2), 169–181.

- <sup>15</sup> RamsOOK, K. A., Welsh, J. A., & Bierman, K. L. (2020). What you say, and how you say it: Preschoolers' growth in vocabulary and communication skills differentially predict kindergarten academic achievement and self-regulation. *Social Development*, 29(3), 783–800.
- <sup>16</sup> Lin, H.-L., Lawrence, F. R., & Gorrell, J. (2003). Kindergarten teachers' views of children's readiness for school. *Early Childhood Research Quarterly*, 18(2), 225–237.
- <sup>17</sup> Heaviside, S., Farris, E., & Carpenter, J. M. (1993). *Public school kindergarten teachers' views on children's readiness for school*. US Department of Education, Office of Educational Research and Improvement.
- <sup>18</sup> Lonigan, C. J., Allan, D. M., & Phillips, B. M. (2017). Examining the predictive relations between two aspects of self-regulation and growth in preschool children's early literacy skills. *Developmental Psychology*, 53(1), 63–76.
- <sup>19</sup> McClelland, M. M., & Wanless, S. B. (2012). Growing up with assets and risks: The importance of self-regulation for academic achievement. *Research in Human Development*, 9(4), 278–297.
- <sup>20</sup> Bohlmann, N. L., Maier, M. F., & Palacios, N. (2015). Bidirectionality in self-regulation and expressive vocabulary: Comparisons between monolingual and dual language learners in preschool. *Child Development*, 86(4), 1094–1111.
- <sup>21</sup> Rimm-Kaufman, S. E., Curby, T. W., Grimm, K. J., Nathanson, L., & Brock, L. L. (2009). The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, 45(4), 958–972.
- <sup>22</sup> McClelland, M. M., Acock, A. C., Piccinin, A., Rhea, S. A., & Stallings, M. C. (2013). Relations between preschool attention span-persistence and age 25 educational outcomes. *Early Childhood Research Quarterly*, 28(2), 314–324.
- <sup>23</sup> Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., Houts, R., Poulton, R., Roberts, B. W., & Ross, S. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, 108(7), 2693–2698.
- <sup>24</sup> Yazejian, N., Bryant, D. M., Hans, S., Horm, D., St. Clair, L., File, N., & Burchinal, M. (2017). Child and parenting outcomes after 1 year of Educare. *Child Development*, 88(5), 1671–1688.
- <sup>25</sup> Yazejian, N., Bryant, D. M., Kuhn, L. J., Burchinal, M., Horm, D., Hans, S., File, N., & Jackson, B. (2020). The Educare intervention: Outcomes at age 3. *Early Childhood Research Quarterly*, 53, 425–440.
- <sup>26</sup> Stein, A., Simon, N., and Britten, J. (2017). "Demonstrating Results: Educare Prepares Young Children for Success." Ounce of Prevention Fund.
- <sup>27</sup> Yazejian, N., Bryant, D., Freel, K., & Burchinal, M. (2015). High-quality early education: Age of entry and time in care differences in student outcomes for English-only and dual language learners. *Early Childhood Research Quarterly*, 32, 23–39.

- <sup>28</sup> Acar, I. H., Torquati, J. C., Garcia, A., & Ren, L. (2018). Examining the roles of parent–child and teacher–child relationships on behavior regulation of children at risk. *Merrill-Palmer Quarterly*, *64*(2), 248–274.
- <sup>29</sup> Acar, I. H., Veziroglu-Celik, M., Garcia, A., Colgrove, A., Raikes, H., Gönen, M., & Encinger, A. (2019). The qualities of teacher–child relationships and self-regulation of children at risk in the United States and Turkey: The moderating role of gender. *Early Childhood Education Journal*, *47*(1), 75–84.
- <sup>30</sup> Choi, J. Y., Castle, S., Burchinal, M., Horm, D., Guss, S., & Bingham, G. E. (2018). Peer effects on low-income children's learning and development. *Journal of School Psychology*, *71*, 1–17.
- <sup>31</sup> Acar, I. H., Torquati, J. C., Encinger, A., & Colgrove, A. (2018). The role of child temperament on low-income preschool children's relationships with their parents and teachers. *Infant and Child Development*, *27*(1).
- <sup>32</sup> Bruno, E. P., & Iruka, I. U. (2022). Reexamining the Carolina abecedarian project using an antiracist perspective: Implications for early care and education research. *Early Childhood Research Quarterly*, *58*, 165-176.
- <sup>33</sup> Pahigiannis, K., Rosanbalm, K. and Murray, D. W. (2019). *Supporting the development of self-regulation in young children: Tips for practitioners working with preschool children (3-5 years old) in classroom settings* (OPRE Brief #2019-29). Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.
- <sup>34</sup> Rosanbalm, K.D., & Murray, D.W. (2017). *Promoting self-regulation in early childhood: A practice brief* (OPRE Brief #2017-79). Office of Planning, Research, and Evaluation, Administration for Children and Families, US. Department of Health and Human Services.
- <sup>35</sup> Li, W., Farkas, G., Duncan, G. J., Burchinal, M. R., & Vandell, D. L. (2013). Timing of high-quality child care and cognitive, language, and pre-academic development. *Developmental Psychology*, *49*(8), 1440-1451.

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**The Educare research findings summarized in this brief are based on the following peer-reviewed research papers:**

Yazejian, N., Bryant, D. M., Hans, S., Horm, D., St. Clair, L., File, N., & Burchinal, M. (2017). Child and parenting outcomes after 1 year of Educare. *Child Development, 88*(5), 1671–1688.

Yazejian, N., Bryant, D. M., Kuhn, L. J., Burchinal, M., Horm, D., Hans, S., File, N., & Jackson, B. (2020). The Educare intervention: Outcomes at age 3. *Early Childhood Research Quarterly, 53*, 425–440.

Yazejian, N., Bryant, D., Freel, K., & Burchinal, M. (2015). High-quality early education: Age of entry and time in care differences in student outcomes for English-only and dual language learners. *Early Childhood Research Quarterly, 32*, 23–39.

Acar, I. H., Torquati, J. C., Garcia, A., & Ren, L. (2018). Examining the roles of parent–child and teacher–child relationships on behavior regulation of children at risk. *Merrill-Palmer Quarterly, 64*(2), 248–274

Acar, I. H., Veziroglu-Celik, M., Garcia, A., Colgrove, A., Raikes, H., Gönen, M., & Encinger, A. (2019). The qualities of teacher–child relationships and self-regulation of children at risk in the United States and Turkey: The moderating role of gender. *Early Childhood Education Journal, 47*(1), 75–84.

Choi, J. Y., Castle, S., Burchinal, M., Horm, D., Guss, S., & Bingham, G. E. (2018). Peer effects on low-income children's learning and development. *Journal of School Psychology, 71*, 1–17.

Acar, I. H., Torquati, J. C., Encinger, A., & Colgrove, A. (2018). The role of child temperament on low-income preschool children's relationships with their parents and teachers. *Infant and Child Development, 27*(1).

**Please direct questions about these peer-reviewed research papers to:**

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**Please direct questions about the Educare Learning Network or the Educare Insights briefs to our Network team, housed within Start Early (formerly known as the Ounce of Prevention Fund):**

Rachel Katz, Senior Research Specialist or Amanda Stein, Director, Research and Evaluation.

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