

Why reading by third grade matters

Synthesis of Research



Our 3rd Graders Must

READ!
TO SUCCEED.

Celebrating 100 Years



of Central Iowa unitedwaydm.org



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Summary of research and strategies

Reading proficiently by end of third grade

is the most important predictor of high school graduation and career success. Yet, nationwide, every year 67% of all children and more than 80% of low-income children do not read proficiently by the end of third grade. In Iowa, approximately 7,500 students fall behind in third grade reading each year. According to one national study, students who are behind in reading by the end of third grade are four times more likely to not graduate from high school thus setting them up for a life filled with economic and social challenges.

Leila Feister, the lead researcher for Annie E. Casey Foundation writes “up until the end of 3rd grade, most students are learning to read. Beginning in fourth grade, however, they are reading to learn, using their skills to gain more information in subjects such as math and science, to solve problems, to think critically about what they are learning, and to act upon and share that knowledge in the world around them.” Certain key factors were identified, based on research, impacting third grade reading. They are: (1) school readiness; (2) chronic absence; (3) quality out-of-school time; (4) summer learning loss; (5) parent/caregiver engagement; (6) healthy readers; and (7) student mobility.

School Readiness

Just as there is an achievement gap in school performance, there is a school readiness gap that separates

disadvantaged children from their more affluent peers. As early as 18 months, low-income children begin to fall behind in vocabulary development and other skills critical for school success. Parents play an enormous role in closing this gap, as do daycare providers, pediatricians, preschool programs, and the broader community. Research shows that learning begins long before a child enters kindergarten. Children, even infants, soak up words, rhymes, songs, and images. Vocabulary development is particularly important. A child’s health, and the timely recognition of developmental delays, is another critical aspect of school readiness. Doctors, care-providers, and preschool teachers play a key role.

Some key statistics about school readiness are: 61% of low-income children have no children’s books at home; children from impoverished backgrounds hear as many as 30 million fewer words than their more affluent peers; by age 2, poor children are already behind their peers in listening, counting, and other skills essential to literacy; a child’s vocabulary as early as age 3 can predict third grade reading achievement; by age 5, a typical middle-class child recognizes 22 letters of the alphabet, compared to 9 for a child from a low-income family.

Chronic Absence

Chronic absence is defined as students missing 10% or more of the school year due to excused or unexcused absences or suspensions. Research shows that 1 in 10 kindergarten students miss nearly a month of school every year. In some districts, it runs as high as 1 in 3. Kindergarteners who miss 10% of school days have

Summary of Research and Strategies

lower academic performance when they reach first grade. Reading scores for Latino children were most seriously affected. Tracking chronic absence is a data-driven solution that can be built into federal grant applications and can be an integral part of parent engagement programs. It can be a goal for a funder's investment—or a measure of a grantee's success. School level messaging, community wide awareness campaign, incentives, and cross-sector coordination are some key strategies that can be implemented to reverse this pernicious problem.

Quality Out-of-school Time

Out-of-school time programs initially originated as a space for students to have safe and supervised environments during the out-of-school hours. Today, this concept has evolved to include activities such as academic enrichment, skill building, positive character building, social-emotional, soft skills etc. According to Deborah Vandell - founding dean of the School of Education at the University of California, Irvine – quality out-of-school experience is the “real solution linked to closing the (achievement) gap.” This is a significant statement especially considering how many students live in households where both parents are in the workforce. Iowa is one of the top three states in the nation where all parents are working. According to a report released by the Afterschool Alliance in 2015, in Iowa, there are approximately 114,865 (23%) children alone and unsupervised during the out-of-school hours. High quality out-of-school care includes the following (1) quality interaction with adults, peers (2) academic enrichment activities (3) sustained participation in quality care over long periods of time and (4) intensity of hours spent, typically more than 15 hours a week.

Summer Learning Loss

Three month summer vacation breaks the rhythm of learning. This leads to forgetting key subject matter. This is true especially for children from low-income households since they have limited access to high quality reading material. Harris Cooper and his fellow researchers reviewed 39 national studies of summer academic loss and conducted an analysis using 13 of the studies. They concluded that on average, summer vacations created a [reading] gap of about 3 months between middle- and lower-class students. Cumulatively, by the end of fifth grade, disadvantaged children are nearly three grade equivalents behind their more affluent peers in reading. Summer reading programs, access to books, and cross-sector coordination can limit the summer learning slide.

Parent and Caregiver Engagement

Parents are the first and most important teachers in their children's lives. Research shows that students are most successful academically and socially when their parents are involved and engaged in their learning. There is no set of policies that will replace the parents' role in their children's education. Increasing both the quantity and quality of conversations between young children and their parents is a key strategy to boost brain development, early learning, school readiness and ultimately the number of children reading proficiently by the end of third grade.

Research shows that words used, duration of conversation and speech patterns of the child up to age 3 is derived from parents. Parents reading aloud for 30 minutes per day to their children from infancy establish a strong foundation for future learning. However, parents from low-income families who face multiple social, emotional and economic barriers struggle to provide age-appropriate parenting to their children thus resulting in developmental delays in the child. The message is clear: parents need to talk, read and interact with their children. But what parents really need to know is how they interact make all the difference in the development of their children's vocabulary, comprehension and critical thinking skills. Parenting classes, access to quality subsidized preschool, and cross-sector coordination can help prevent the word gap especially in low-income children.

Healthy Readers

Healthy development greatly impacts children's ability to learn. Children who are on track in their physical, social and emotional, cognitive, and verbal development are more successful learners from their earliest years, and they are more likely to become proficient readers. The Healthy Readers Initiative of the National Campaign for Grade-Level Reading focuses on strategies to ensure that children from low-income families are in good health and developing on track at four key milestones in their development from birth through third grade: Born Healthy, Thriving at Three, Ready at Five, and Present and Engaged in the Early Grades. At every age and stage of development, children from low-income families often receive less, and lower-quality, health care and services. As a result, they experience poor health at higher rates

Summary of Research and Strategies

than children from higher income families. For example, they have: higher rates of developmental delays and disabilities related to learning, which affect their school readiness; higher rates of asthma that affect their school attendance; and fewer opportunities for high-quality nutrition, especially during the summer. Since poor nutrition affects learning, such missed opportunities can contribute to summer learning loss.

Student Mobility

Students who change schools frequently, especially those in early grades, are more likely to lag behind reading than their stable peers. High levels of student mobility undermine educational outcomes not only for individual students but also for the schools they attend. Many families move frequently due to job loss or job relocation. Students who have changed schools two or more times in the previous year are half as likely as their stable peers to read well, and third graders who changed schools frequently are 2.5 times more likely to repeat a grade. Providing stable student transportation options and working with the schools in a cross-sector fashion can help address the issue of student mobility.

Conclusion

To read proficiently by end of third grade has significant and long-term consequences not only for the children but also for the community they live in and the nation as a whole. If left unchecked, this problem will undermine efforts to end intergenerational poverty, close the achievement gap, and reduce high school dropout rates. Far fewer of the next generation will be prepared to succeed in a global economy, participate in higher education, or enter military and civilian service. Problems such as poverty, parent's educational levels and access to quality care are common barriers facing all struggling readers.

The critical and time-sensitive nature of this issue warranted United Way of Central Iowa and its partners to focus on key community strategies that both influence the macro-problems and specific community issues. They will be specifically raising community awareness through an initiative called Read to Succeed, starting 2016, on key issues of: (1) school readiness; (2) quality out-of-school time; (3) summer learning loss; and (4) parent/caregiver engagement.

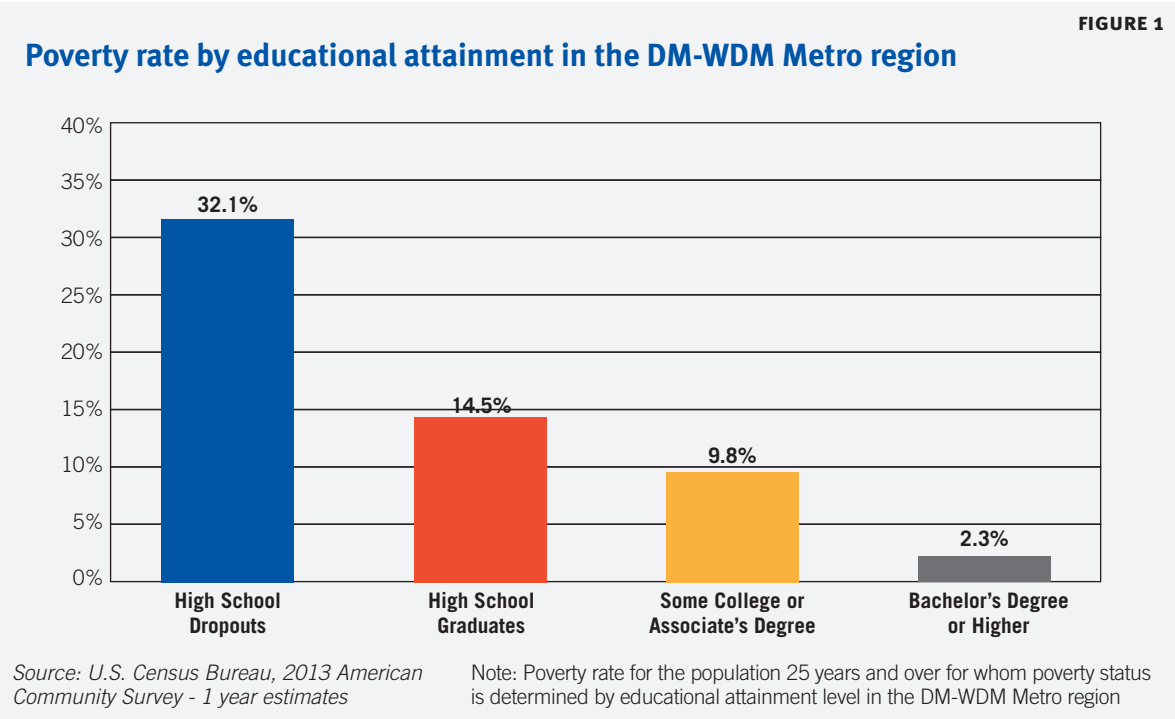


Introduction

“Education is a key predictor of health and longevity. People with higher levels of education have higher earnings; live in better neighborhoods; and can afford to buy better medical care, health insurance, and healthier foods.”
Mather and Jarosz 2014, 13

Finishing high school, therefore, is a significant step in the success of an individual. However, there are far too many students dropping out of high school. In 2013, according to the U.S. Census, an estimated 4.6 million 18-24 year olds dropped out of high school in the United States. In the Des Moines metro region an estimated

5,646 students (18-24) dropped out in 2013. Apart from lost earnings, poverty, and productivity, high school dropouts are more likely than those who graduate to be arrested or have a child while still in high school, both of which incur additional financial and social costs (Fiester 2010, 5).



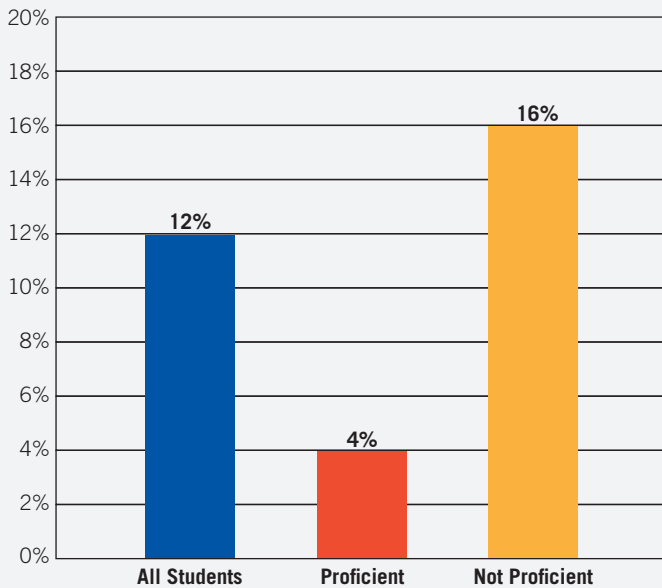
Introduction

Educators and researchers, in an effort to identify early warning signs of dropping out, have linked failure to read proficiently by the end of third grade with failure to graduate from high school. According to Feister (2010, 5), up until the end of third grade most students are learning to read. Beginning in fourth grade, however, they are reading to learn, using their skills to gain more information in subjects such as math and science, to solve problems, to think critically about what they are learning, and to act upon and share that knowledge in the world around them.

A national report released in 2012 confirms this link between third grade reading proficiency and graduation. The report is based on a longitudinal study of nearly 4,000 students from across the country. They found that those who do not read proficiently by the end of third grade are **four times** more likely to leave school without a diploma than proficient readers. For the most challenged readers, those who could not master even the basic skills by third grade, the rate is nearly **six times** greater (Hernandez 2012, 4). This issue is even more telling for students coming from low-income households.

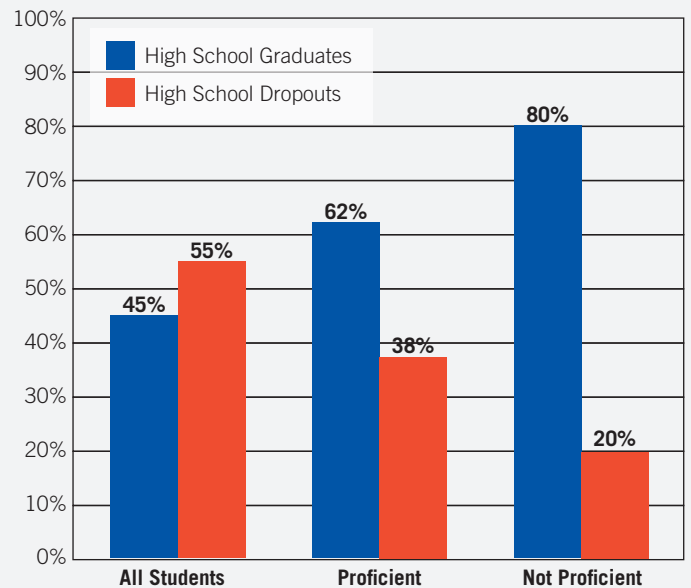
Another longitudinal study of more than 17,000 students from the Chicago Public Schools was conducted by the University of Chicago. Researchers from this study concluded that there is strong correlational evidence that students who were at or above grade level in third grade graduate at higher rates than their peers who were below grade level in third grade (Lesnick 2010, 1). Figure 3 shows the relationship between third grade reading and graduation. Students below third grade reading level are almost three times more likely to drop out than those who are above grade level.

FIGURE 2
Percent of children not graduating from high school, by reading proficiency



Source: Double Jeopardy Report

FIGURE 3
Relationship between third grade reading and high school graduation in Chicago Public Schools (n=17,016)



Source: A Longitudinal Analysis of Third Grade Students in Chicago

A similar study was done by the South Carolina Education Committee for the South Carolina General Assembly in 2013. The committee concluded that there is a statistically significant relationship between third grade reading and high school graduation. The study analyzed the reading scores of 32,117 third grade students from South Carolina schools and their high school graduation outcome. Findings indicate that students who were below basic¹ in reading in third grade are four times more likely to dropout than proficient readers.

¹ Below Basic indicates a student has no mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.

Introduction

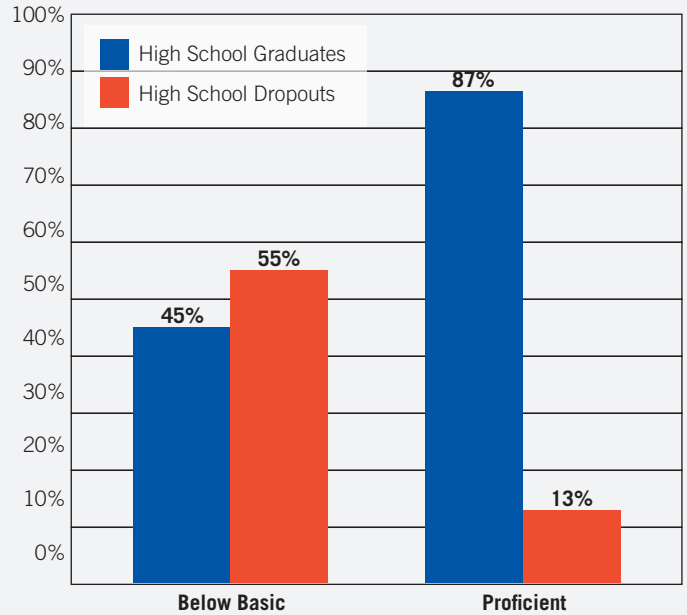
Different studies from across the country point to one fact: If students are not proficient in reading by third grade, they are highly likely to lag in eighth grade and ninth grade, disengage from school and eventually not complete high school.

In order for us to address this issue within our region, it is important for us to look at local data. Figure 5 illustrates the disparity that exists among the different subgroups in reading levels of students in the 20 school districts in Polk, Dallas and Warren Counties. These disadvantaged kids, we can assume, are at high-risk of falling behind academically, disengaging from school and eventually dropping out. As a community and state, we cannot afford that.

In Des Moines, Iowa's largest school district, more than one-third of the third grade students struggled to read in 2014. However, the problem is not just in Des Moines. When we disaggregate data and look at economically disadvantaged students and students of color, other suburban districts such as Perry, Carlisle, Norwalk, and West Des Moines face similar challenges with struggling third grade readers.

FIGURE 4

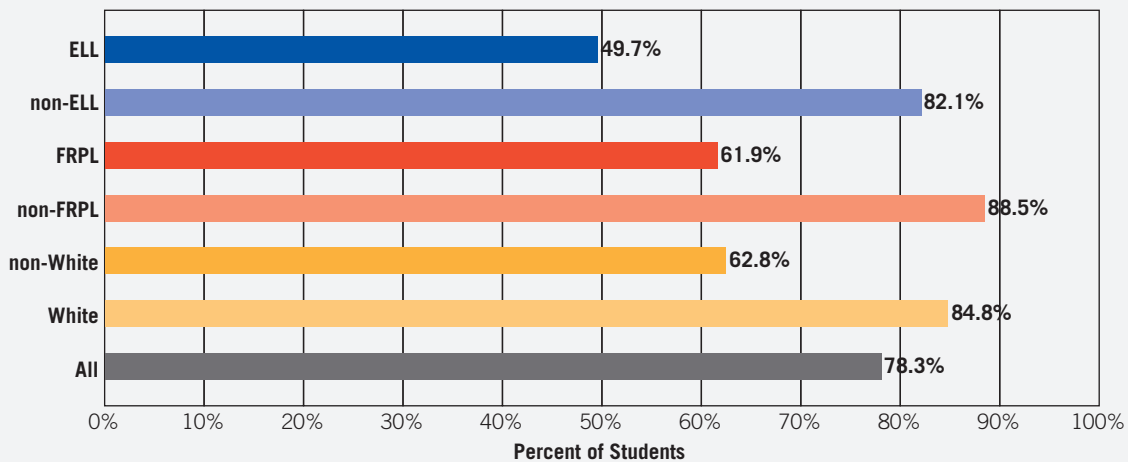
Relationship between third grade reading and high school graduation in South Carolina Public Schools (n=32,117)



Source: A Longitudinal Analysis of Third Grade Students in South Carolina

FIGURE 5

Third graders in central Iowa² who were proficient in reading³ in 2014



Source: Iowa Dept. of Education

This white paper is a literature review of national research to inspire stakeholders to a call to action to reverse this potentially catastrophic trend by supporting strategies that can help students in their early stages of literacy, as well as cognitive and social-emotional

development. Certain key factors that impact third grade reading include: (1) school readiness; (2) chronic absence; (3) quality out-of-school time; (4) summer learning loss; (5) parent/caregiver engagement; (6) healthy readers; and (7) student mobility.

² Central Iowa includes the twenty school districts in Polk, Dallas and Warren counties

³ Iowa Assessment



School Readiness

Just as there is an achievement gap in school performance, there is a school readiness gap that separates low-income students from their affluent peers. As early as 18 months of age, low-income students begin to fall behind in vocabulary development and other skills critical for school success. Parents play an enormous role in closing this gap. Parents from low-income households, however, face multiple barriers in raising their children and supporting their education. They are typically single with poor education and have higher rates of depression and poorer health than affluent mothers. As a result they lack even the basic skills and resources to parent a child, leading the child to experience developmental delays.

The Campaign for Grade-Level Reading has identified key statistics and issues related to school readiness, especially focusing on low-income households.

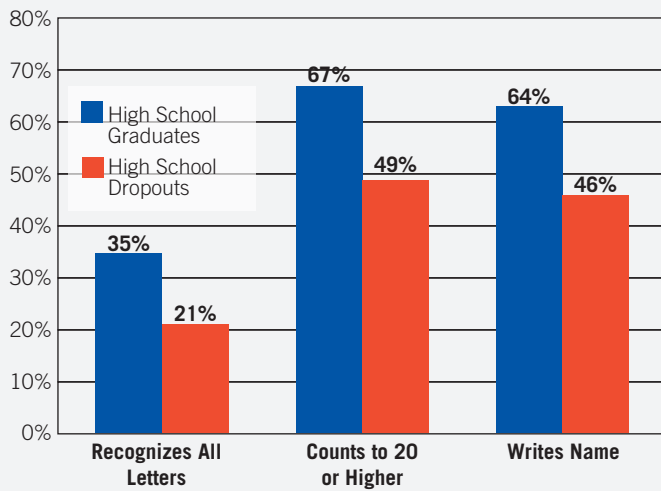
- Low-income children are more likely to experience developmental delays than their higher-income peers. Poverty-associated trauma and toxic stress exacerbate these developmental delays and compromise social-emotional health. Low-income children are significantly more likely to be in poor health and are less likely to receive adequate treatment for vision, hearing, dental caries and other health conditions that could compromise physical and cognitive development.
- Approximately 61 percent of low-income children have less access to age-appropriate books than their affluent peers, a ratio of 1 book for every 300 low-income children as opposed to 13 books per child in middle-income households.
- By age four, low-income children would have heard 30 million fewer words than their affluent peers.
- By age five, a typical middle-class child recognizes 22 letters of the alphabet, compared to 9 for a child from a low-income family.
- Low-income children have less access to developmentally appropriate, high-quality early care and learning opportunities.

Figures 6 and 7 are two charts from Child Trends and Brookings Institute illustrating a strong relationship between poverty and school readiness. Data for both reports are taken from a national database of young children from the U.S. Department of Education.

School Readiness

Percent of children ages 3-6 with selected school readiness skills, by poverty level

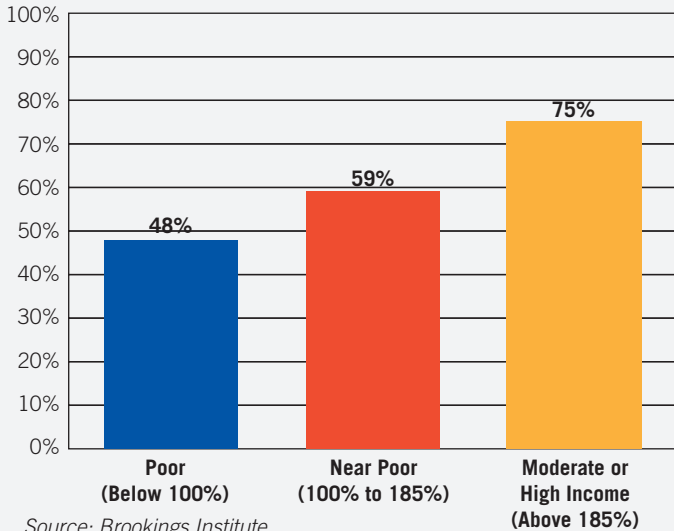
FIGURE 6



Source: Child Trends

Likelihood of being ready for school at age five, by poverty status at birth

FIGURE 7



Source: Brookings Institute

Central Iowa developmental screening snapshot⁴

In central Iowa, 45% (3200) of the children who took the kindergarten readiness assessment⁵ were not proficient in the fall of 2014. This lack of readiness, as mentioned above, is an evidence of early childhood developmental delays. In the Des Moines region, work is underway to create a community-wide system ensuring all children receive a series of developmental screenings during their first five

years to detect potential issues, and all children get the help they need at the appropriate time.

The goal is to offer screenings at many places serving young children and families — from doctor's offices, health clinics and child care centers to possibly WIC clinics and free tax preparation sites. A coordinated system of care will provide referrals for services and follow-up.

Designing a well-coordinated and sustainable system involves selecting screening tools as well as addressing cost, training, data collection and information sharing. It also involves aligning with related efforts already underway, such as the 1st Five, a statewide Iowa public health initiative.

Working within the health care sector, 1st Five focuses on the healthy mental development of young children. 1st Five offers a public-private partnership between primary care providers and maternal and child public health providers designed to conduct surveillance and screening as well as to connect children and their families to programs and resources. A primary care provider refers a child or family to a 1st Five care coordinator, who links the family with services and regularly follows up with the family and primary care provider.

Between 2007 and 2014, 1st Five reached 118,461 children, 126 health practices and 462 providers. For the last half of 2014, the reasons for referrals were 31 percent for child development concerns, 23 percent for speech/hearing, 39 percent for family stress and 6 percent for caregiver depression. Seventy-nine percent were families with an annual income of less than \$25,000.

Unlike 1st Five's statewide effort, the Des Moines project will address, at the county level, a broad range of developmental areas and enlist a broad range of professionals, beyond health care.

Key strategies⁶ for success:

- **Home visiting** and other programs to provide tools and supports to help parents/caregivers succeed in promoting early language and literacy and healthy on-track child development.
- **Universal comprehensive health** and developmental screening with appropriate follow-up, intervention and supports.
- **Community-wide efforts** to create language-rich and book-rich environments for children before they start school.
- **Policy supports, resources and programs** to improve the availability of and access to high-quality early care and learning opportunities for children across a variety of programs and settings.

⁴ Innovation Brief – Healthy Readers April 2015, Campaign For Grade-Level Reading

⁵ The Kindergarten readiness assessment is called Formative Reading Assessment System for Teachers (FAST)

⁶ The Campaign for Grade Level Reading

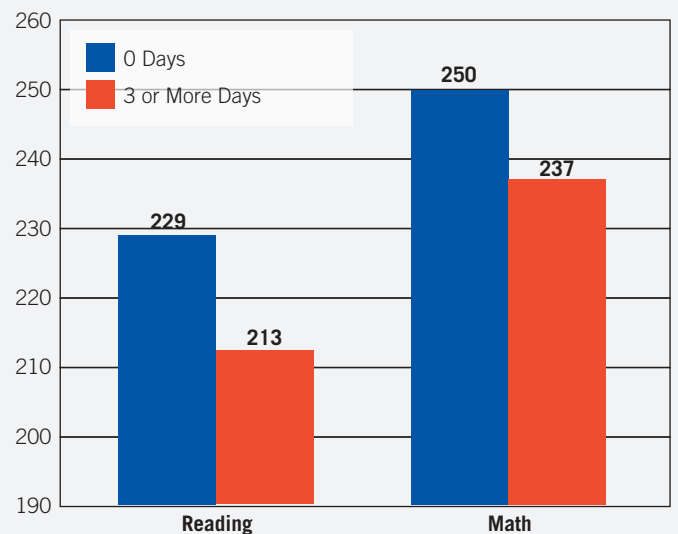
Chronic Absence

“Kids who are chronically absent from school are much more likely to drop out later—and not only do they miss the opportunities that come through education, but they are also at greater risk of involvement with the justice system.”

— Attorney General Loretta Lynch

Chronic absence is defined as students missing 10 percent or more of the school year due to excused or unexcused absences or suspensions. Students who are chronically absent experience a slide in academic performance. The effects of chronic absenteeism start early and spiral dramatically over time. Citing the significance of chronic absenteeism, the Obama administration has launched the first-ever national initiative called *Every Student Every Day*, which is designed to eliminate chronic absenteeism in our nation’s schools. The White House, Office of the Press Secretary goes on to note that children chronically absent in preschool, kindergarten, and first grade are much less likely to read at grade level by the end of third grade. Figure 8 illustrates the impact of chronic absenteeism on students from the State of Iowa.

FIGURE 8
National Assessment of Educational Progress (NAEP) scores for reading and math, grade 4, by days absent from school in the prior month in Iowa: 2013



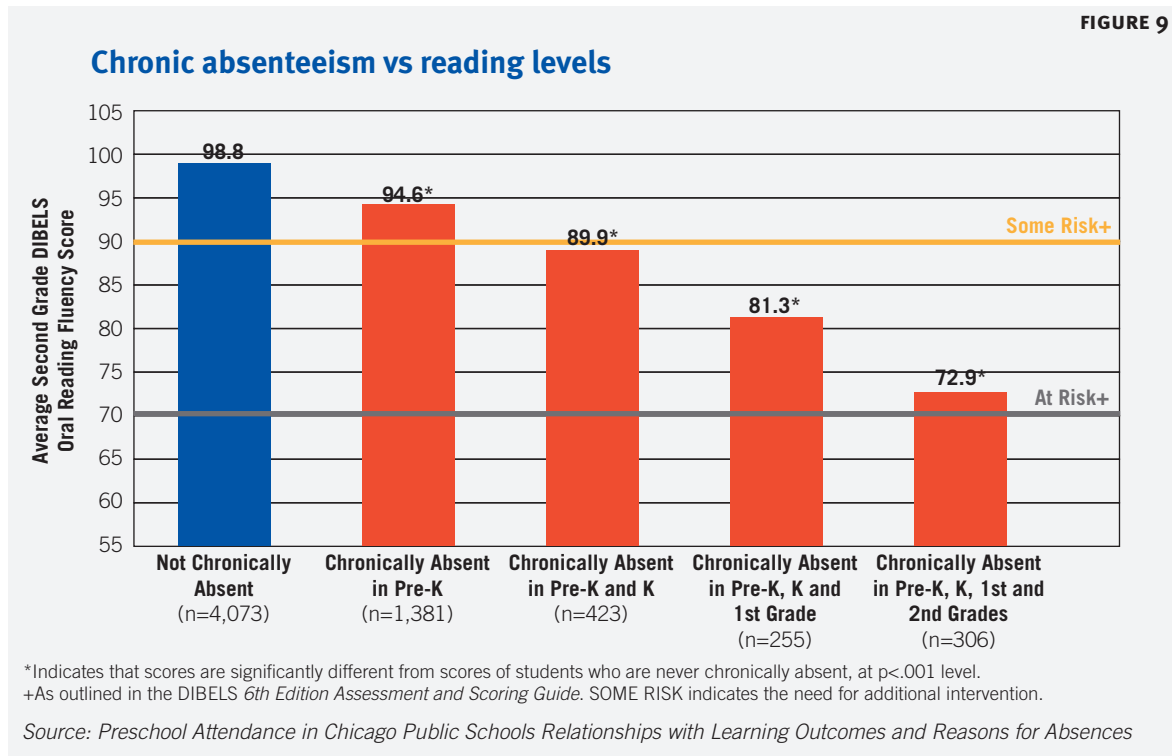
Source: Absences Add Up report

Chronic Absence

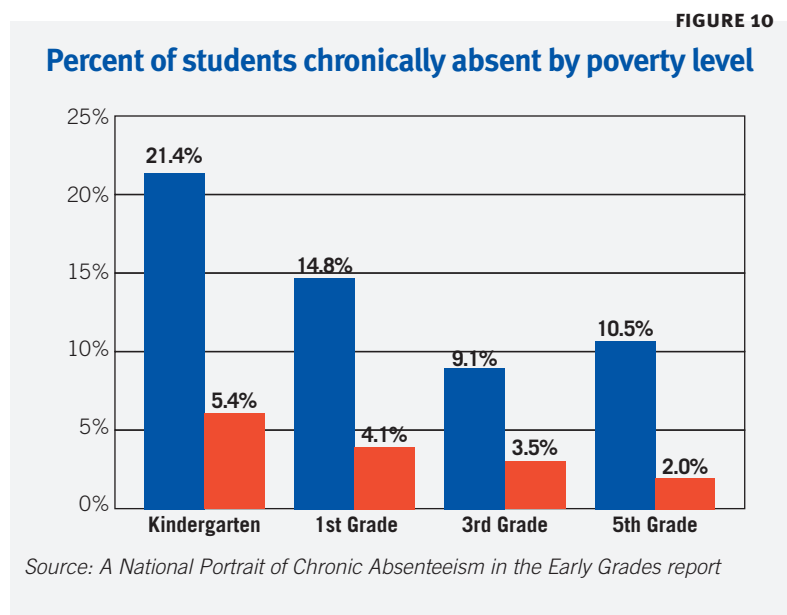
Researchers who interpret NAEP data estimate that 10 points on the NAEP scale is the equivalent of one grade worth of skills (Ginsburg et al 2014, 8). From the above chart (figure 8), we can see that kids in Iowa who miss 3 days or more of school in the month prior to the test show more than 10 points difference in reading and math, compared to the students who do not miss any

days. This is a significant difference, especially if it means they are one grade behind their peers.

A study done by the University of Chicago of 25,000 preschoolers (three- and four-year-olds) from the Chicago Public School system illustrate that the more years students are chronically absent in the early years, the more at-risk they are for needing reading interventions by the end of second grade (Ehrlich et al 2013, 5).



Poverty is another variable that is closely tied to chronic absenteeism (Figure 10) and school performance. From national data, we understand that students eligible for free and reduced price lunch are 30 percent more likely to be chronically absent in fourth grade and 40 percent more likely to be absent in eighth grade. This negatively impacts their academic performance. Low-income fourth graders with poor attendance scored 10 points (equivalent to one grade on the NAEP scale) lower than those with perfect attendance (Ginsburg et al 2014, 4).



Chronic Absence

There is a growing body of research from across the country documenting the pernicious effects of chronic absence throughout a student's academic career. They are as follows:

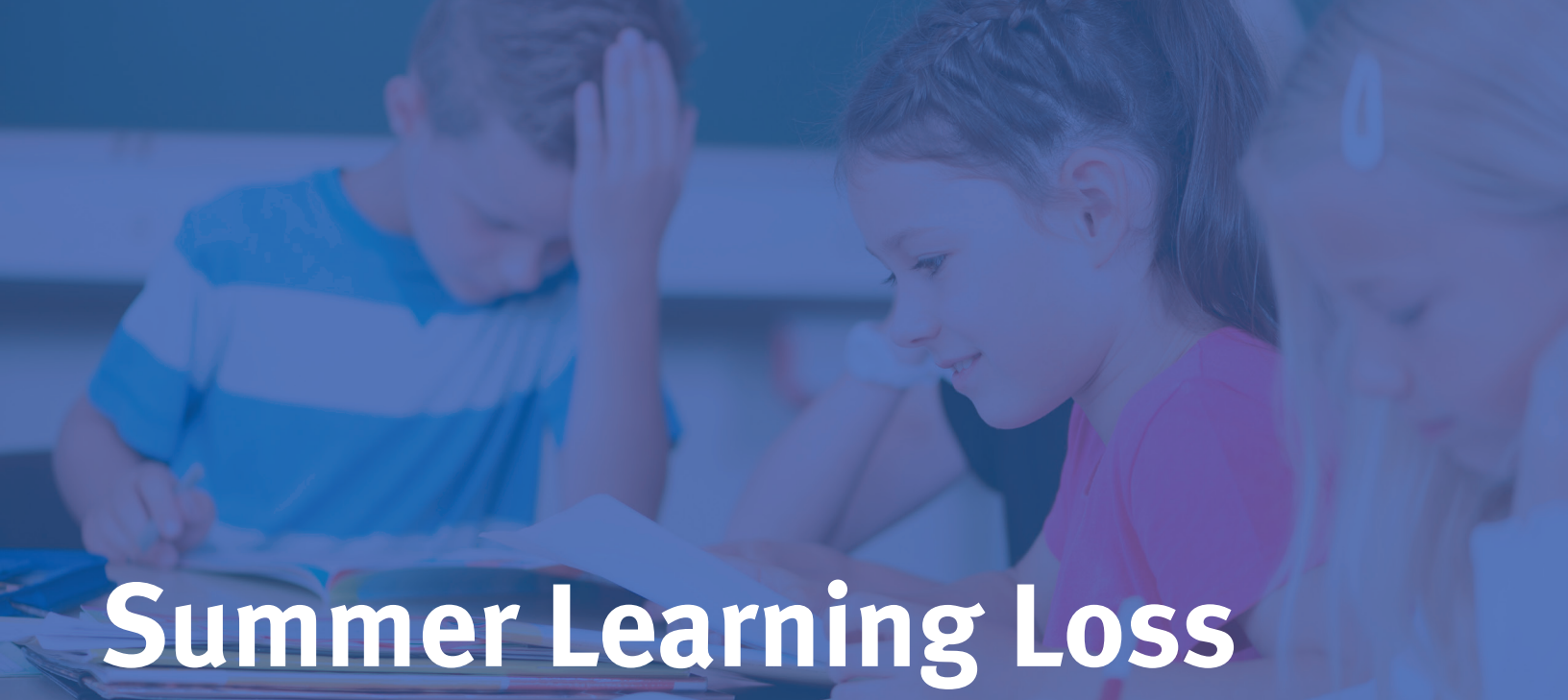
- In a nationally representative data set, chronic absence in kindergarten is associated with lower academic performance in first grade. The impact is two times greater for students from low-income families. Children from low-income families who were also chronically absent in kindergarten had the lowest levels of achievement in fifth grade (Balfanz and Byrnes 2012).
- Compared to children with average attendance, chronically absent students gained 14 percent fewer literacy skills in kindergarten, and 15 percent fewer literacy skills and 12 percent fewer mathematics skills in first grade, based on analysis of a nationally representative data set (Balfanz and Byrnes 2012)
- Poor attendance in the first month of school can predict chronic absence for the entire year (Ginsburg et al 2014, 5)
- Chronic absenteeism in preschool and kindergarten can influence whether a child will be held back in third grade (less likely to read proficiently in third grade). It can affect whether a child develops the grit and perseverance needed to succeed in school (Ginsburg et al 2014, 5).
- Many parents do not realize that too many absences in the preschool and early elementary years jeopardize reading achievement (Grade Level Reading).
- Low-income children are four times more likely to be chronically absent in kindergarten and three times more likely in first grade than their higher income peers (Grade Level Reading).
- One in ten kindergarten students miss nearly a month of school every year. In some districts, it runs as high as one in three.
- Kindergarten students who miss 10 percent of school days have lower academic performance when they reach first grade. Reading scores for Latino children were most seriously affected.

Key strategies⁷ for success:

- **Community-wide attendance awareness campaign** to engage and educate parents on the value of good attendance and address barriers to getting to school.
- **School-level messaging, modeling and incentives** to nurture culture and cultivate the habits of excellent attendance.
- **State, school district, school and community partner efforts** to build early warning response systems to prevent chronic absence.
- **Promote a standard definition⁸** in order to calculate chronic absenteeism across districts.
- **Cross-sector coordination** to identify and ameliorate the health challenges that contribute to chronic absence.

⁷ The Campaign for Grade Level Reading

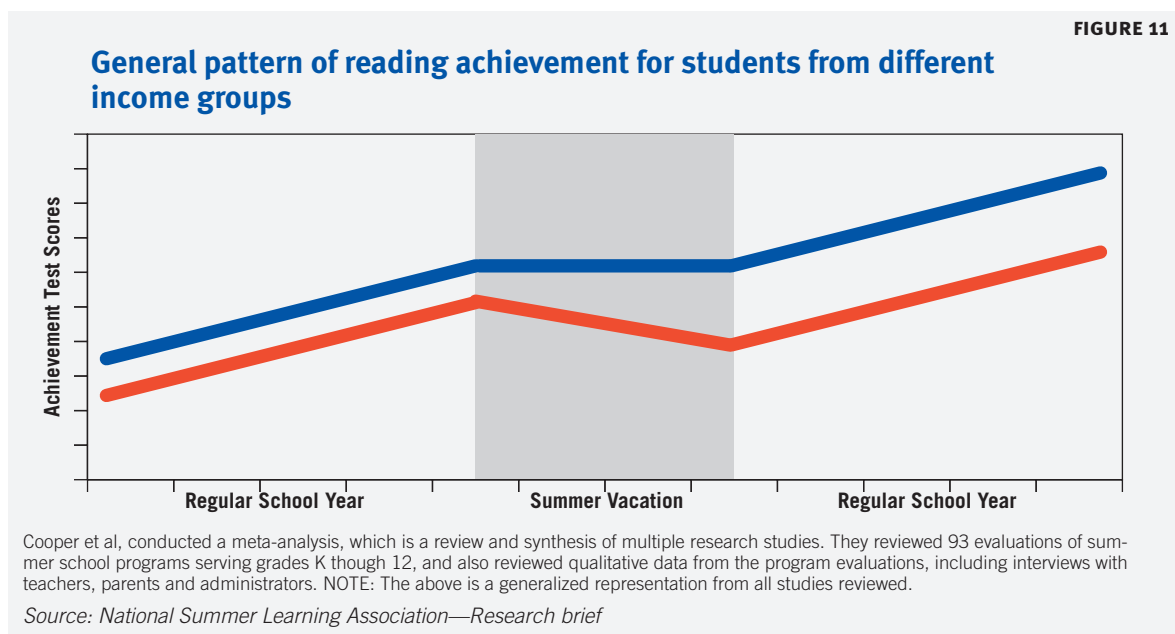
⁸ Absences Add up: How School Attendance influences student success (p6)



Summer Learning Loss

In the early years of formal schooling in America, school calendars were designed to fit the needs of particular communities. In agricultural areas it was typical for children to attend school for only 5 or 6 months so that they were free to participate in the farming economy, from planting to harvesting. During the same era, urban schools were operating on 11- or 12-month schedules. By the turn of the century, the present 9-month calendar, under which schools are closed in summer, emerged as the norm when 85 percent of Americans were involved in agriculture. Today, about 3 percent of Americans' livelihood is tied to the agricultural cycle but the school calendar has not changed (Cooper, 227).

There is enough evidence to suggest that children learn best when instruction is continuous, and a 3-month summer break is simply too long. The long vacation breaks the rhythm of instruction, leads to forgetting, and requires that a significant amount of time be spent on review of old material when students return to school in the fall. This concern is even greater for kids from low-income households. Harris Cooper and his fellow researchers reviewed 39 studies of summer academic loss and conducted a meta-analysis using 13 of the studies. They concluded that on average, summer vacations created a [reading] gap of about 3 months between middle- and lower-class students (Cooper 1996, 261). Figure 11 illustrates that gap.



Summer Learning Loss

The Campaign for Grade-Level Reading has compiled key points on summer learning loss from national research:

- Many low-income children lose two to three months of reading skills each summer.
- Summer learning losses are cumulative and by the end of fifth grade many low-income children are nearly three grade levels behind their higher income peers.
- Two-thirds of the ninth-grade reading achievement gap can be attributed to summer learning loss during elementary school.
- Only 18 percent of children from low-income families participate in summer learning programs. Less than one-third participate in any organized summer program or activity
- Nationally, only 15 percent of children who receive free or reduced-price meals during the school year have access to those meals during the summer.

Key strategies⁹ for success:

- **Provide access to self-selected books¹⁰** for summer reading thus addressing the reading achievement gap that exists between students from more and less economically advantaged families.
- **Community-wide messaging** about the importance of summer learning, including parents and caregivers reading to and with their children over the summer months, and about programs, services and opportunities that are available.
- **Summer reading campaigns** to encourage children to read over the summer and to increase access to books.
- **School district and community partner integration** of early literacy skill development within high-quality summer programs of all types.
- **Cross-sector coordination** to ensure access to summer meals, physical activities and health and nutrition information in a variety of settings.
- **Provide access to high-quality summer programs¹¹** that include individualized instruction, parental involvement, regular attendance, small class sizes, alignment with school year curriculum, and content that extends beyond remediation.

⁹ The Campaign for Grade Level Reading

¹⁰ Addressing summer reading setback among economically disadvantaged elementary students, Reading Psychology, 31:411-427, 2010 (p423)

¹¹ Early Warning Confirmed – A Research update on third-grade reading (p18)



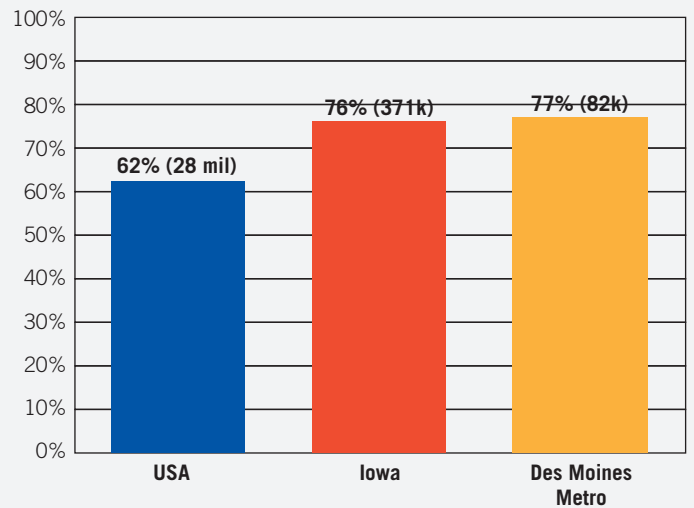
Quality Out-of-school Time

Out-of-school programs in the United States initially originated as a space for students to have safe and supervised environments during the out-of-school hours. Today, this concept has evolved to. It not only continues to provide safe and supervised environments but also includes activities such as academic enrichment, skill building, positive character building, etc. For the past two decades, numerous studies have been conducted on highlighting the value of out-of-school research.

Deborah Vandell, founding dean of the School of Education at the University of California, Irvine, summarized decades of out-of-school research succinctly: “Real solution linked to closing the (achievement) gap.” This is a significant statement, especially considering how many students live in households where both parents are in the workforce. Figure 12 shows the percent of students living in two-parent working households, which means these children during out-of-school hours are in either some sort of care setting or are unsupervised. According to a report released by the Afterschool Alliance in 2015, in Iowa, there are approximately 114,865 (23 percent) children alone and unsupervised during the out-of-school hours.

FIGURE 12

Percent of students (under 18 years) living in households where both parents are in the workforce



Source: 2014 ACS—1-year estimates

Quality Out-of-school Time

in Iowa would participate in some form of out-of-school program if one were available to them. Children who are in some sort of out-of-school care need to be in a setting where there is: (1) quality interaction with adults and peers; (2) academic enrichment activities; (3) sustained participation in quality care over long periods of time; and (4) intensity of hours spent, typically more than 15 hours a week. Children in such quality care, research shows, improve academic performance, improve overall GPA, increase school attendance, and improve behavior (The Achievement Gap is Real Infographic).

There are numerous evaluation studies on quality out-of-school programs across the country that shows student gains in academic performance. For example, an evaluation study was done on students in second through sixth grades from across nine states who attended the Save the Children afterschool program. The evaluators found these students made statistically significant gains in reading based on their reading scores (Afterschool Alliance 2014, 39). Another similar large scale study was done evaluating 35 separate out-of-school programs for at-risk children across the country. The evaluators found students who were originally at risk of failing made significant advancements in reading and math standardized assessment tests. Not only did these students improve their reading and math scores, but they also showed improvement in behavior, attendance, self-efficacy and overall work-habits (Afterschool Alliance 2015, 25). For our state, a report from Iowa's 21st Century Community Learning Centers out-of-school programs found that 62 percent of teachers saw increased participation in class, 61 percent saw improved behavior and more than half saw improvement in academic performance among students regularly participating in the out-of-school programs.

It is clear from the research that students (especially low-income) who attend out-of-school programs that have quality interactions with adults/peers, enriched activities and sustained and intense participation over time make significant gains in reading, math, attendance and work ethic.

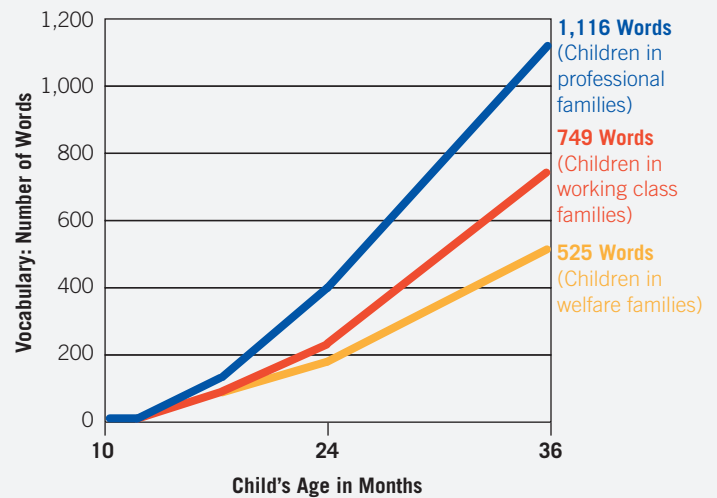
Parent and Caregiver Engagement

Parents are the first and most important teachers in their children's lives. Research shows that students are most successful academically and socially when their parents are involved and engaged in their learning. Reading 30 minutes daily to their child can establish a strong foundation for future learning (US Department of Education, America Reads Challenge). There is no set of policies that will replace parents' roles in their children's education.

Within a child's early life, the parent/caregiver is responsible for most, if not all, social stimulation and consequently language and communication development. As a result, how parents interact with their children is of great consequence, given it lays a critical foundation impacting the way children process future information many years down the road. The study conducted by Hart and Risley (2003, 7) shows a clear correlation between the conversation styles of parents and the resulting speech of their children. Researchers found that 86 percent to 98 percent of the words used by each child by the age of three were derived from their parents' vocabularies. Furthermore, not only were the words they used nearly identical, but also the average number of words utilized, the duration of their conversations, and the speech patterns were all strikingly similar to those of their parents.

FIGURE 13

Children's vocabulary, by age

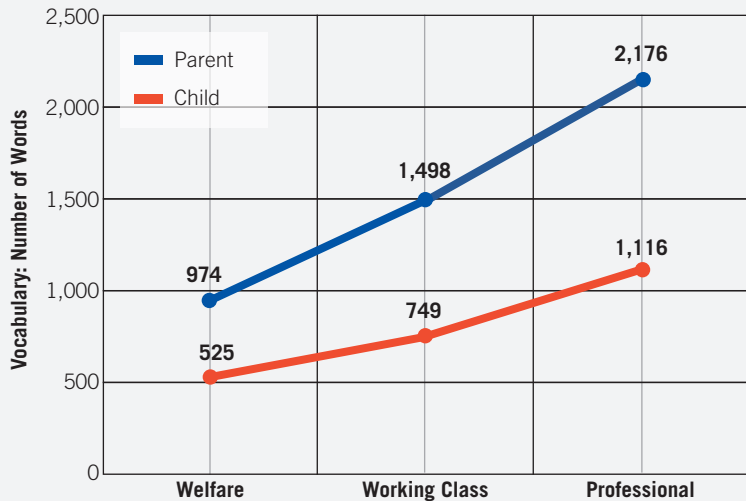


Source: *The Early Catastrophe – The 30 million word gap by age 3*

Parent and Caregiver Engagement

FIGURE 14

Recorded vocabulary size of child (by age 3) depends on parent's vocabulary size and their income



Source: *The Early Catastrophe – The 30 million word gap by age 3*

By the age of 34-36 months, children talk and use words similar to the averages of their parents (Figure 15). This is significant in the sense that up to age 3, the parents or caregivers are the primary teachers reinforcing literacy and vocabulary development. Also, parents with higher educational attainment do well when it comes to teaching their children more words. We can see from the chart above (Figure 14), the professional parent-child combination is more than two times better off than the welfare parent-child combination.

Hart and Risley (2003) continued their analysis to include the impact of early child (age 1-2) vocabulary development on third grade reading levels. They found a significant¹² positive relationship between how kids scored on the reading tests when they were read to by their parents when they were age 1-2 to when they grew up to age 9-10.

No doubt parents have a close and significant relationship in the cognitive, literacy, social and emotional development of a young child. It is therefore important that the parent is stable financially, educationally and socially/emotionally. By age 3, children of parents with lower incomes only knew on average 616 words per hour in comparison to children of professional parents who by the same age knew on average 2,153 words per hour. This translates to 30 million¹³ fewer words by age 4 for children from low-income households in comparison to their affluent peers.

The message is clear: parents need to talk, read and interact with their children, and how they interact makes all the difference in the development of their children's vocabulary, comprehension and critical thinking skills. The Campaign for Grade-Level Reading has compiled key points on the importance of parental involvement in their child's early development:

- Prenatal and well-baby care improves healthy births and reduces the incidence of developmental delays and the resulting impact on future well-being and academic success.
- Talking, singing, reading and engaging in nurturing and responsive behavior will enhance language, literacy, social, and cognitive skills critical for early school success.
- High-quality home visiting programs will contribute to improved parenting skills, child development and parent engagement.

- Teach parents how to read a book to their child.
- Teach parents how to use the right technology. Digital apps designed to teach young children to read are an increasingly large share of the market, but low-income household parents have little to no information about whether and how they work.

Key strategies¹⁴ for success:

- **Promote and track** early childhood development milestones and recognize early warning signs of potential developmental delays.
- **Expose children** to a wide range of age appropriate books and reading materials in the home and community.
- **Close the word gap** by talking, singing, and reading to children (as little as 20 minutes a day of reading can close the word gap).

¹² The rate of vocabulary growth at age 3 was strongly associated with scores at age 9-10 on both the Peabody Picture Vocabulary Test-Revised (PPVT-R) of receptive vocabulary ($r = .58$) and the Test of Language Development – 2: Intermediate (TOLD) ($r = .74$) and its subtests (listening, speaking, semantics, syntax). Vocabulary use at age 3 was strongly associated with reading comprehension scores on the Comprehensive Test of Basic Skills (CTBS/U) ($r = .56$).

¹³ Assuming a 5,200-hour year, by age 4 professional family child would accumulate 45 million words, working class family child would accumulate 26 million words and welfare family child 13 million words (a gap of approx. 30 million words)

¹⁴ The Campaign for Grade Level Reading



Healthy Readers

Healthy development greatly impacts childrens' ability to learn. Children who are on track in their physical, social and emotional, cognitive, and verbal development are more successful learners from their earliest years, and they are more likely to become proficient readers.

The Healthy Readers Initiative of the National Campaign for Grade-Level Reading focuses on strategies to ensure that children from low-income families are in good health and developing on track at four key milestones in their development from birth through third grade: Born Healthy, Thriving at Three, Ready at Five, and Present and Engaged in the Early Grades. At every age and stage of development, children from low-income families often receive less, and lower-quality, health care and services. As a result, they experience poor health at higher rates than children from higher income families. Following are key health issues that have to be addressed in order for children to become healthy readers: (1) born healthy; (2) asthma; (3) oral health; (4) nutrition; and (5) physical activity.

Born healthy

Based on the Panel Study of Income Dynamics, Dr. Conley, Professor at New York University, states "low birth weight, defined as less than 2,500 grams, or 5.5 pounds, has predictive power to alter the chance that a newborn will graduate high school on time. Low birth weight also makes it more likely that a baby later will be held back in school, be enrolled in special education or classified as learning disabled" (Population Reference Bureau). Low birth weight babies are also highly susceptible to neuro-developmental problems, behavioral problems and attention deficit disorder that can interfere with their learning and school success (Fiester 2010, 15).

Kids Count data show that 8 percent of all children nationally have low birth weight¹⁵, but the percentage is higher for children born to low-income mothers (10 percent) than for higher-income children (6 percent). Newborns whose mothers have low levels of education are more likely than newborns of more-educated mothers to have been exposed prenatally to cigarette smoke, alcohol, drugs, and folic acid deficiencies (Fiester 2010, 16). All of these at-risk behaviors can have a significant negative impact on the health of a baby in the womb.

Providing quality prenatal care and other appropriate care for the mother will ensure kids are born healthy.

Asthma¹⁶

Asthma symptoms can be triggered by respiratory infections, allergens such as mold, pollens and furry animals, irritants such as tobacco smoke, some cleaning products, stress and physical activity. Uncontrolled asthma symptoms pose significant risks to children's health and learning. Minority children from low-income urban households have disproportionately high rates of asthma. Children with severe asthma experience considerably more sleep problems than other children, with more fatigue during waking hours. Fatigue from disturbed sleep can lead to less energy for learning.

Asthma is the leading medical cause of school absence, leading to 14 million missed school days annually, according to the Asthma and Allergy Foundation of America. It is also the third leading cause of hospitalization for children under 15.

¹⁵ For the State of Iowa it is 7 percent

¹⁶ The Campaign for Grade-Level Reading - Controlling environments and managing asthma

- In 2010, 7 million children in the United States had asthma. African-American children are twice as likely to have asthma as white children.
- Boys are 45 percent more likely than girls to have ever been diagnosed with asthma. African-American youth, especially those from poor families, are disproportionately affected.

Oral health¹⁷

Oral health problems are the single most common chronic disease of early childhood and are five times more common than asthma. An estimated 25 percent of 3- to 5-year-olds and 6- to 9-year-olds living in poverty had untreated dental caries. Tooth decay causes pain, loss of sleep, reduced concentration and attention span, and absence from school or preschool. Children from low-income families and children of color are most vulnerable and are at much higher risk of missing school.

Oral health problems may lead children to limit their food intake and variety, leading to decreased consumption of healthy foods, which in turn affects children's energy, attention and capacities for learning. Significant disparities persist in children's oral health conditions:

- Thirty-seven percent of African-American children and 41 percent of Hispanic children have untreated tooth decay, compared with 25 percent of white children.
- Only 40 percent of children from low-income families have an annual dental visit.
- In far too many states and communities, the dearth of dentists who accept Medicaid-enrolled children severely limits children's access to oral health care.
- In 2009, only 44 percent of Medicaid-enrolled children nationwide received dental services.

Nutrition

Poor nutrition among kids in poverty is a significant factor affecting early childhood development. U.S. food and nutrition programs were created to ensure that children and other vulnerable people would get enough to eat. However, recent research is finding out that children from low-income households who are food insecure

are more likely to eat the wrong type of food, leading to obesity and other concomitant issues. Poor children from birth to age five are twice as likely as affluent children to be obese (Currie 2005, 125). Providing nutritious food and engaging kids in appropriate physical activity can help fight obesity and enhance physical, cognitive, social and emotional development.

Physical activity

A number of recent studies link physical activity and academic performance. The key findings indicate controlled physical activity for young children can positively affect their ability to focus, retain information and be less distracted. These characteristics significantly enhance their ability to succeed in school.

An experiment was conducted where children were allowed to walk on a treadmill for 20 minutes at a moderate pace and immediately after respond to test questions in the areas of reading, spelling, and arithmetic. Researchers found that kids who walked had greater accuracy in their test and had a more intense response within the brain than children who had been sitting (Appendix III). Further, children who walked for 20 minutes performed better on reading comprehension than those who sat for a similar length of time. Following physical activity, children also completed learning tasks faster and more accurately and were more likely to read above their grade level.

Appendix II illustrates the pathway on how nutritious food, physical activity and timely health checkups for young children can positively impact educational achievement. If kids are physically healthy, they are more likely to be socially and emotionally developed. Holistic growth positively impacts the literacy and cognitive aptitude of a child.

The Campaign for Grade Level Reading has created a comprehensive chart (Appendix I) that illustrates the impact of health determinants on early school success.

Key summary issues impacting children's health are:

- Inadequate prenatal care and the resulting poor birth outcomes contribute to developmental delays and learning disabilities.
- Low-income children are less likely to receive adequate treatment for vision, hearing, dental caries and other health conditions that compromise physi-

¹⁷ The Campaign for Grade-Level Reading - Ensuring oral health

cal and cognitive development.

- Environmental hazards in low-income homes and neighborhoods cause lead poisoning and exacerbate asthma and other illnesses that contribute to developmental delays, learning disabilities and chronic absence.
- Limited access to proper nutritious food among low-income children can lead to weight gain.
- Structured physical activity for kids can enhance attention, reduce distractions and increase reading outcomes.

Key strategies¹⁸ for success:

- **Access to high-quality prenatal care**, adequate nutrition and home visiting programs for low-income mothers at high risk for poor birth outcomes.
- **Universal comprehensive health and developmental screening**, follow-up, intervention and support.
- **Public-private partnerships** to provide low-income children with vision, hearing and oral health care services.
- **“Healthy homes” programs** to help families identify, manage and remediate environmental hazards to reduce childhood illnesses.
- **Healthy meal options in schools and during summer** that serve as anchors for literacy achievement and physical fitness activities.

¹⁸The Campaign for Grade-Level Reading



Student Mobility

Low-income families are more likely than middle-income families to move frequently, often causing their children to change schools mid-year. Mobility rates are higher among low-income households and in distressed neighborhoods than for higher income households and homeowners. High levels of student mobility “undermine educational outcomes not only for individual students but also for the schools they attend.” Many families move frequently due to job loss or job relocation. Students who have changed schools two or more times in the previous year are half as likely as their stable peers to read well and third-graders who changed

schools frequently are 2.5 times more likely to repeat a grade (Feister 2010, 21).

According to data from Des Moines Public Schools, in school year 2013-2014, 45 percent of elementary school students who moved are from schools within the inner city of Des Moines as opposed to 24 percent from rest of the city. Most likely these kids miss a significant amount of class instruction time, are disengaged and are academically lagging behind their peers. Appendix IV gives a detailed description of the negative impact of student mobility on early grade performance.



Conclusion

Early grade reading proficiency is a complex societal issue. This white paper discusses various factors that play a role in determining children's ability to read. Macro-problems such as poverty, parent's educational levels and student mobility are common barriers facing all struggling readers. Early intervention can help these readers make a big difference towards their reading. It is estimated that for 85 to 90 percent of struggling readers, prevention and intervention strategies similar to the ones outlined, if implemented with fidelity before third grade, can increase children's reading levels to average grade levels. Conversely, if intervention is delayed until after third grade, 75 percent of those children will continue to have difficulties learning to read throughout high school and into their adult years (Lesnick 2010, 6).

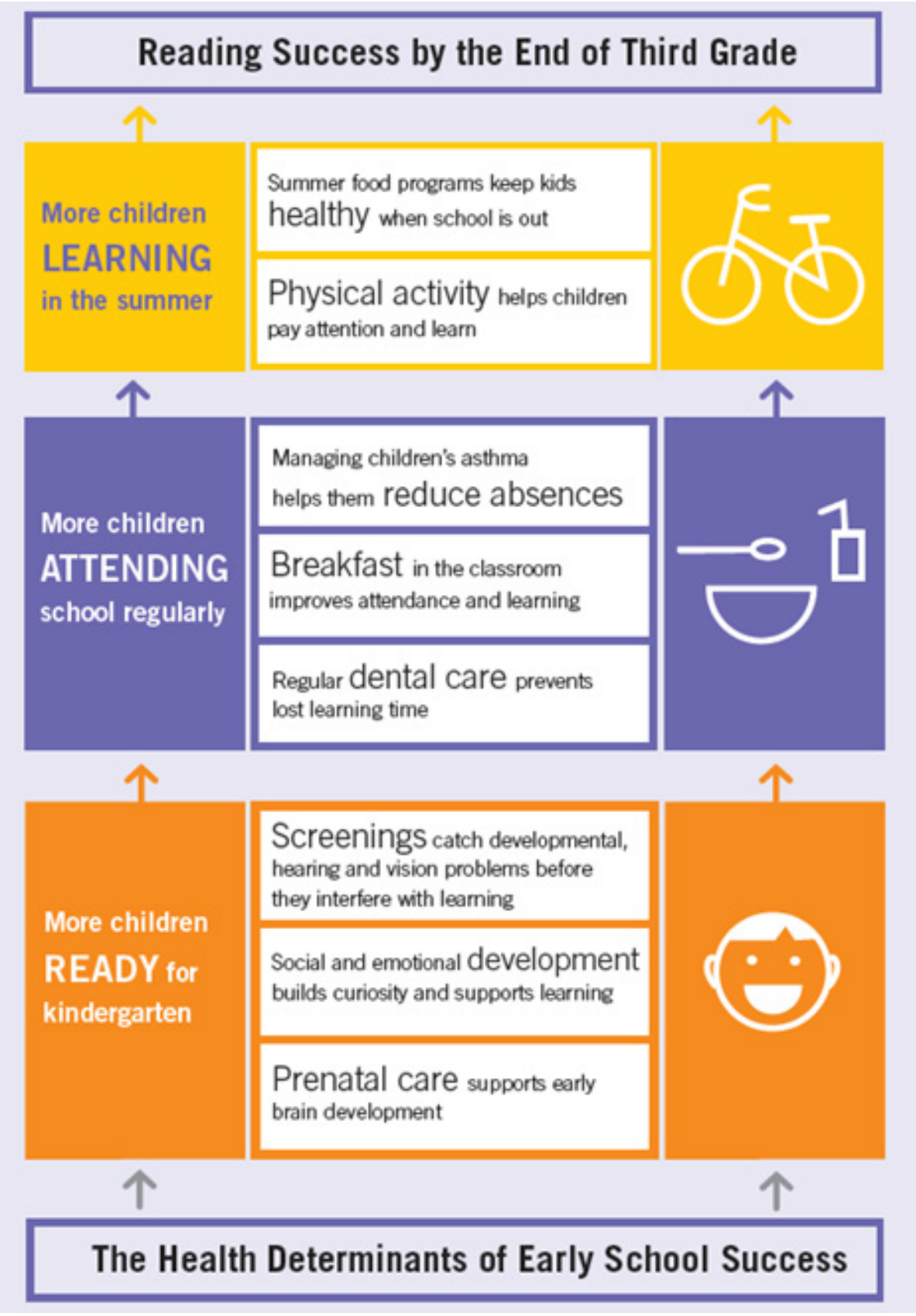
The critical and time-sensitive nature of this issue warranted United Way of Central Iowa and its partners to focus on key community strategies that both influence the macro-problems and specific community issues.

They will be specifically raising community awareness through an initiative called *Read to Succeed*, starting 2016, on key issues of: (1) school readiness; (2) quality out-of-school time; (3) summer learning loss; and (4) parent/caregiver engagement.

In conclusion, Ralph Smith, the Managing Director of the *National Campaign for Grade-Level Reading*, has this to say about this critical community agenda: "Grade level reading has significant and long-term consequences not only for each of those children but for their communities, and for our nation as a whole. If left unchecked, this problem will undermine efforts to end intergenerational poverty, close the achievement gap, and reduce high school dropout rates. Far fewer of the next generation will be prepared to succeed in a global economy, participate in higher education, or enter military and civilian service."

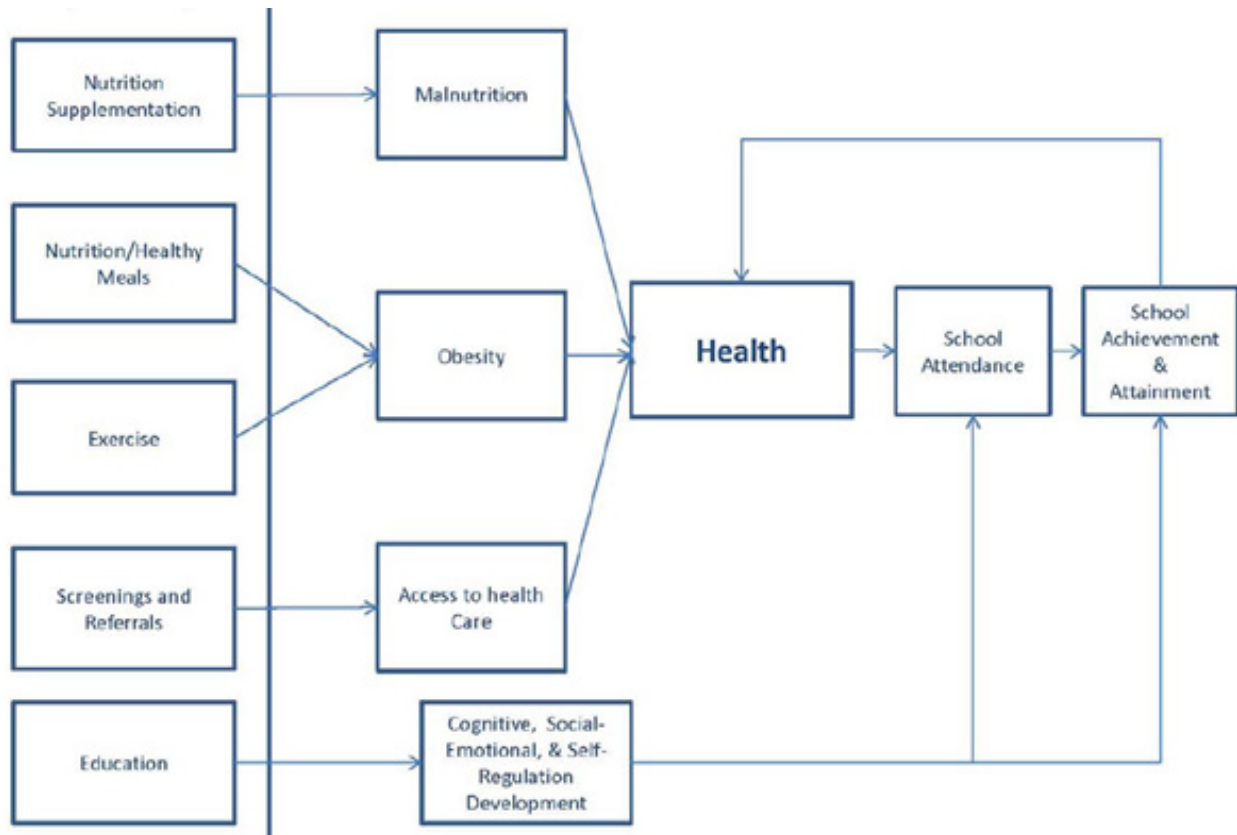
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Source: The Campaign for Grade Level Reading

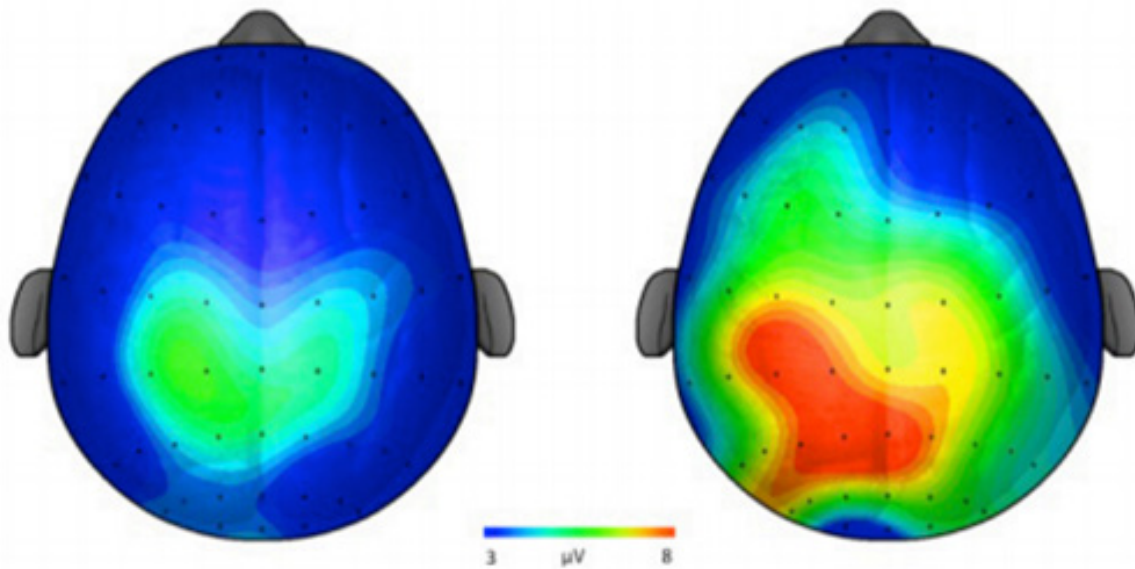
Flowchart showing the impact of early childhood strategies on health problems and subsequent school achievement



Source: *Early Childhood Education: Pathways to better health*

Brain scans of kids after 20 minutes of walking

These two brain images, taken from the top of the head, represent the average amount of students' neural activity during a test following sitting and walking for 20 minutes. The color blue represents lower neural activity, while the color red denotes higher brain activity in a given region.

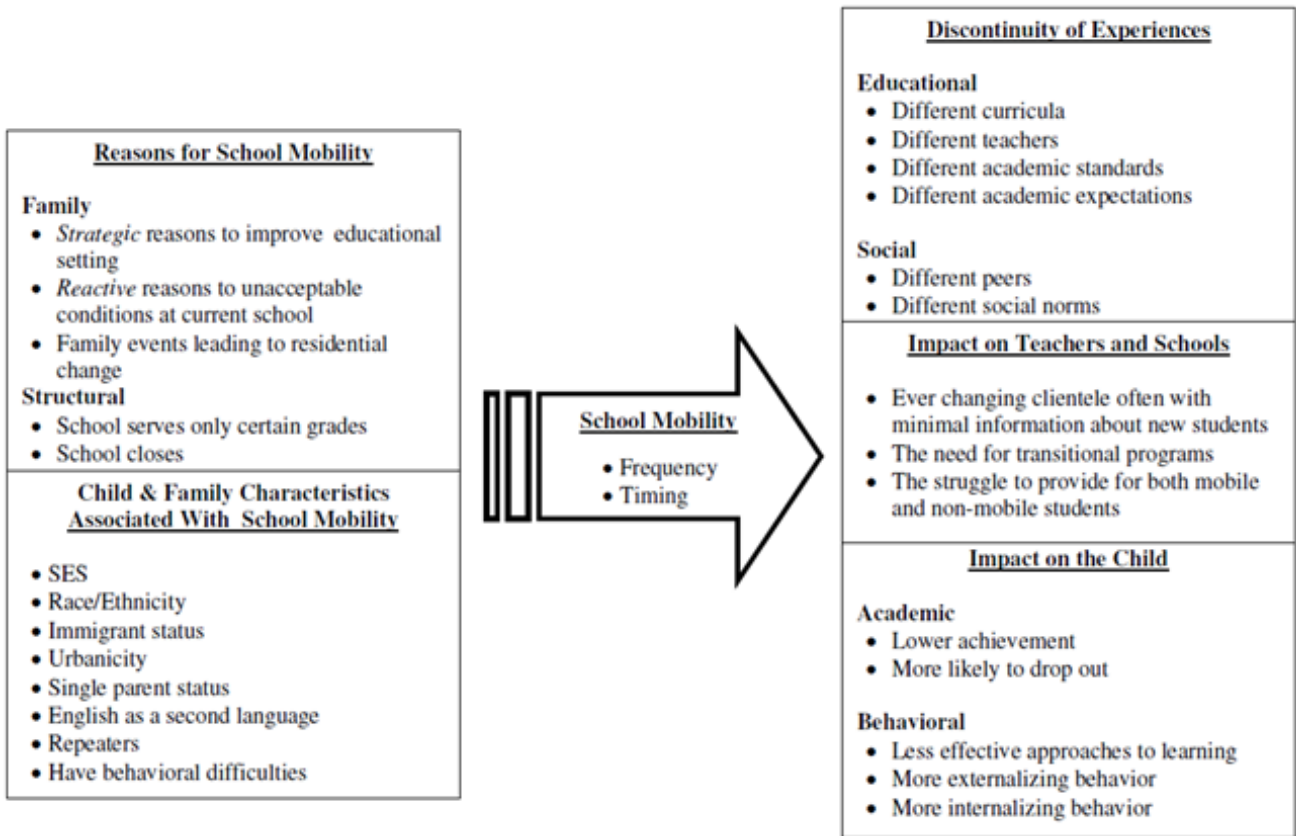


After 20 minutes of sitting quietly

After 20 minutes of walking

Source: Active Education: Growing Evidence on Physical Activity and Academic Performance

Conceptual Model: Causes and Potential Negative Consequences of School Mobility in the Early Grades



Source: *School Mobility in the Early Elementary Grades: Frequency and Impact From Nationally-Representative Data*

United Way of Central Iowa's Education Strategy Map for reaching the 2020 community goal

Goal: Increase the percentage of central Iowa students who graduate from high school to 95 percent by 2020

Result 1: School Readiness

Indicator 1: Percent of children who enter school ready to learn (FAST)

Strategy 1.1: Provide access to preventive health services that foster positive children's physical and mental health development (Prenatal-birth)

Program Performance Measures²²:

1. Number of women served in the program (Q1)
2. Number of babies born whose parent is in the program (Q1)
3. Percent of women who access prenatal care in the first trimester (Q2)
4. Number/percent of children born at a healthy birth weight (5.5 lbs. or more) (Q3/Q4)
5. Number of children (0-5) screened for dental decay (Q1)
6. Number/percent of individuals screened for dental decay who receive additional dental services (Q3/Q4)
7. Number of children 0-5 with caries (Q1)
8. Number/percent of students screened for mental health who received an intervention (Q3/Q4)
9. Number/percent of children who meet weekly goals over 80 percent of the time (Q3/Q4)
10. Number/percent of families who report that care coordination made a difference (Q3/Q4)

Strategy 1.2: Provide resources and supports to families that strengthen interactions and promote early learning in a home environment

Program Performance Measures:

1. Number of parents who participate in a parent education program (Q1)
2. Number/percent of participating families that improve or maintain healthy functioning, problem solving and communication (Q3/Q4)
3. Number/percent of families who report improved nurturing and attachment between the parent and the child (Q3/Q4)
4. Number/percent of participating families who increase their knowledge about child development and parenting (Q3/Q4)

Strategy 1.3: Expand access and improve the quality of early care and education environments for at-risk children

Program Performance Measures:

1. Number of staff at home-based, center, or preschool (Q1)
2. Number/percent of classrooms implementing an evidence-based curriculum (Q3/Q4)
3. Number of staff at the home-based, center, or preschool with rating, certification, credential, or renewal (Q2)
4. Number of preschool classrooms that have a state-licensed teacher (Q2)
5. Number/percent of quality early learning environments that are maintaining or improving their rating in a quality initiative (Q3/Q4)
6. Number/percent of early learning environments that are implementing a research-based curriculum (Q3/Q4)
7. Number/percent of quality early learning environments that improve health and safety standards (Q3/Q4)

Strategy 1.4: Improve the quality of training and professional development for early care and education providers

Program Performance Measures:

1. Number of participants participating in professional development (Q1)
2. Number/percent of participants who complete 9-18 credit hours on a 12 month TEACH contract (Q3/Q4)
3. Percent of all professional development participants who received rating, certification, credential, or renewals (Q2)

²² Program performance measures are list of measures identified based on popular research. It is used to track United Way of Central Iowa (UWCI) funded partner's progress. There are other measures not listed here tracked by UWCI as well.

Strategy 1.5: Increase availability and utilization of quality pre-school for at-risk children

Program Performance Measures:

1. Number of children in a quality early learning environment (assumption that quality early learning environment is a home-based, center or preschool participating in a quality initiative, such as QRS, QPPS, Head Start standards, NAEYC) (Q1)
2. Number of children who had a developmental screening (Q1)
3. Number of children who are referred for follow-up services as a result of a developmental screening (Q1)
4. Number/percent of children who received services as a result of a developmental screening (Q3/Q4)
5. Number/percent of children demonstrating age appropriate skills as measured by Creative Curriculum Gold Assessment (Q3/Q4)

Result 2: Early Grade success**Indicator 1: Percent of students proficient in 4th grade reading****Strategy 2.1: Provide supportive services for at-risk early grade students and families that promote learning and reduce school absence**

Program Performance Measures:

1. Number of students who are identified as at-risk of poor academic outcomes (Q1)
2. Number of students who are referred to community resources as a result of being identified as at-risk of poor academic outcomes (Q1)
3. Number/percent of students who are absent 9 days or more per semester(Q3/Q4)
4. Number/percent of students who improve academic performance (4th & 8th grade reading proficiency) (Q3/Q4)
5. Number/percent of CINA/TPR students who are reading at grade level when the case is closed (Q3/Q4)

Strategy 2.2: Provide quality and engaging out-of-school opportunities for elementary school students that reinforce and enhance academic & social/emotional learning

Program Performance Measures:

1. Number of students who attend program (Q1)
2. Number of staff at after-school/extended-day and summer school program (Q1)
3. Quality assessment tool rating (based upon the quality rating that is being used in the program)(Q2)
4. Percent of staff at the after-school/extended-day and summer school program with rating, certification, credential, or renewal (Q2)
5. Number/percent of students who attend the program 3 days or more per week (Q3/Q4)
6. Number/percent of students who are absent 9 days or more per semester(Q3/Q4)
7. Number/percent of students not failing any academic course during reporting period (Q3/Q4)
8. Number/percent of students who maintain/increase reading speed (Q3/Q4)
9. Number/percent of students who maintain/increase in reading accuracy (Q3/Q4)

Strategy 2.3: Promote and coordinate activities that reduce summer learning loss for elementary school students

Program Performance Measures:

1. Number of students who attend program (Q1)
2. Number/percent of students who successfully complete program (Q3/Q4)
3. Number/percent of students who attend the program 3 days or more per week (Q3/Q4)

Strategy 2.4: Develop programs that support positive physical and mental health for elementary school students

Program Performance Measures:

1. Number of students who attend program (Q1)
2. Number/percent of students who actively participate in physical education/activities (Q3/Q4)

By 2020, United Way of Central Iowa will increase the number of third grade students who read proficiently to 90 percent.

For more information:

ReadtoSucceedUWCI.org

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