

Summer reading loss is the basis of almost all the rich/poor reading gap.

Richard L. Allington

rallingt@utk.edu

Anne McGill-Franzen

amcgillf@utk.edu

University of Tennessee

College of Education, Health, and Human Sciences.

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Although recent federal policy has focused on differences in teacher quality as the primary factor involved in creating the rich/poor reading achievement gap (IES, 2014), others have noted that children from low-income families gain as much reading growth as children from middle- and higher-income families during that part of the year when schools are open (Alexander, Entwistle & Olson, 2001; Hayes & Grether, 1983; McCoach, O'Connell, Reis & Levitt, 2006). These reports also provide evidence, as do others, that it is during the summer months, when schools are closed, that the rich/poor reading achievement gap is largely created.

In this chapter we first present the evidence on the size and nature of the rich/poor reading achievement gap. Then we evaluate the evidence on factors, such as teacher quality and summer reading activity, that contribute to the achievement gap. Finally we discuss the evidence on summer reading loss as well as the evidence that summer reading loss is primarily attributable to the limited access to books that poor children are likely to experience every summer. We close with a summary of several recent studies demonstrating that enhancing the access children from low-income families have to books during the summer months is a comparatively cost effective approach to eliminating summer loss and narrowing the rich/poor reading achievement gap.

The rich/poor reading achievement gap.

Students from low-income families currently exhibit reading achievement that falls

far below the achievement of students from middle-income families. The rich/poor reading achievement gap has been widening for quite a while. Over the past 30 years, the reading achievement gap between students from the 90th and 10th percentile income families grew from .9 SD to 1.25 SD, an increase of 40% (Reardon, 2013). In other words, schools today are less successful at educating poor students than schools were in the 1980's when *A Nation at Risk* was written. That report derided American education for its failure to educate both children from low-income families and children of color.

However, during the same time period that the rich/poor reading achievement gap was widening, the reading achievement gap between black and white students shrank from close to 1.25 SD to less than .75 SD (Reardon, 2013). Thus, American schools are doing better in developing readers within some subgroups but doing less well with other subgroups. There may be multiple explanations for just why American schools have been making progress with African-American children while losing ground in educating the wider group of children of poverty, including increasing numbers of low-income immigrant families, but that is beyond the scope of the chapter. Nonetheless it is timely to readdress educating children from low-income families.

What we do know is the children from low-income families begin school already behind children from families with higher incomes. Two-thirds of all children, at kindergarten entry, know the names of the letters of the alphabet and one-third of

the entrants know most of the consonant sounds (Pearson & Hiebert, 2010). Too often it is children from the low-income families who enter kindergarten ranking in the bottom third of their peers, knowing neither the letter names nor the sounds that those letters usually represent. At the same time, alphabet knowledge is one of those “constrained skills” that represent essential early literacy learning (Paris, 2005). Letter name knowledge is one of the print related proficiencies that develop in print-rich home environments. But it is just those environments that are related to the mother’s educational level and to family income (Piasta, Justice, McGinty & Kaderavek, 2012). Children from low-income families arrive with far fewer experiences with books and with writing than do children more economically advantaged families (McGill-Franzen, Lanford & Adams, 2002). Thus, children from low-income families begin school behind their more economically advantages peers. Unfortunately, the gap that exists at kindergarten entry simply widens across the years these children attend school.

What seems even worse, are the data on the quality of preschool print environments and lessons (McGill-Franzen, 1994; McGill-Franzen, et al, 2002; Neuman & Celano, 2001). These reports indicate that programs serving middle-class children are far more likely to provide print-rich learning environments than programs serving children from low-income families. It is the more economically advantaged children who are more likely to have easy access to books both at home and in preschool and have more contact with print and language-rich experiences and lessons. Additionally, more economically advantaged children are more likely to attend

preschool and to attend preschool longer than children from low-income families.

So children from low-income families arrive at school with fewer, and in some cases far fewer, print experiences than children from middle-income families. Although attending school will narrow that achievement gap modestly during the school year, during the following summer the gap again widens between children from low- and middle-income families. As Reardon notes, "The data show the gap narrowing between fall and spring of kindergarten and 1st grade years -- periods when students were in school -- and widening in the summer between kindergarten and 1st grade -- when they were not in school." (p. 13) Burkam, Ready, Lee and LoGerto (2004) provide further evidence that children from low-income families learn less during the summer months than do middle-class children. They also note that parents of children in low-income families were less likely to read a book to their child during the summer months, as well as less likely to take their child to a bookstore or a library than were middle-class parents.

Downey, vonHippel and Broh (2004) also report that schools play a part in slowly narrowing the achievement gap, but that the achievement gap then widened the during the summer months. We could go on but suffice it to say that while policy makers have largely ignored summer academic loss, the research community has written about summer loss for more than a century (Aason, 1959; Allington & McGill-Franzen, 2003; Borman & D'Agostino, 1996; Carter, 1984; Cooper, Nye, Charlton, Lindsay & Greathouse, 1996; Elder, 1927; Hayes & Grether, 1983; Heyns,

1978; Kim & Quinn, 2013; White, 1906). What we know is that children from low-income families begin school behind their more economically advantaged peers and fall further behind every year.

In a classic study of summer reading loss, Heyns (1978) documented the rich/poor reading achievement gap in the Atlanta schools nearly forty years ago. She reported that children from middle-class families generally gained more reading proficiency during the summer than children from low-income families. In fact, this latter group actually lost reading proficiency during the summer months. However, academic growth during the school year was roughly comparable for both groups. It was during the summer months that poor students lagged behind their financially better off peers. During those summer months children were not attending school and had to rely on family and community resources in developing reading proficiencies.

Cooper, Nye, Charlton, Lindsay and Greathouse (1996) report a meta-analysis of studies of summer reading (as well as mathematics) loss. Their findings stated that summer reading loss was related to family income levels. Quoting the authors, "Middle-class students appeared to gain on grade-level equivalent reading recognition tests over summer while lower-class students lost on them. There were no moderating effects for gender or race..." (p. 227) In other words, children from low-income families were observed to lose some of their academic proficiencies related to reading over the summer vacation months while middle class children actually added reading proficiency over those same months. The data analyzed indicated that, "On average, summer vacations created a gap of about 3 months

between middle- and lower-class students." (p. 261) They hypothesized that this reading loss might be related to differential access to books experienced by the two, rich and poor, groups of children, "The income differences may be related to differences in opportunities to practice and learn (with more books and reading opportunities available to middle-class students)." (p. 265)

In a long-term study Alexander, Entwistle and Olson (2007) reported that for adolescents from higher-income families enrolled in the college track, compared to students from lower-income families enrolled in the non-college track, the reading achievement difference at ninth grade was 124 raw score points on the California Achievement Test-Reading. However, 40 points of that difference were present at the beginning of first-grade. An 8-point raw test score disadvantage accrued during the school years from first-grade to ninth-grade for the students from low-income families and there was the 76 raw score point disadvantage that accrued over the summer elementary school months for poor kids. Their data illustrated that during the first five years of school the amount of annual reading growth of low-SES students was not appreciably less than high-SES students during the months that school was in session. When school was not in session, the summer months, the achievement gap between rich and poor students significantly widened. When CAT-R tests were administered after the summer break, students from low-income families showed negative or no cumulative gains, while the more economically advantaged students showed positive cumulative reading achievement gains.

They go on to suggest that,

"Poor children in Baltimore may be progressing in parallel with better-off children during the school year, but that does not mean they are performing at the same level at year's end. To the contrary, at the end of elementary school they lag far behind, which we attribute to two sources: they start school already behind, a deficit that their good school years gains do not erase; and during the summer, when they are cut off from the school's resources, they lose ground relative to higher-SES children." (Alexander, et al, 2007, p. 19)

In this study, economically better-off kids gained raw score 52 points on CAT-R during the summer months, while children from low-income families lost raw score points on the CAT-R during the summer months. By 9th grade the reading achievement of children from low-income families stood at 75 points on the CAT-R behind middle class students' scores. About a third of this difference (26.5 points) was present when these students began first grade but largest contributor to the gap (48.5 points) was what happened (or didn't happen) during the summer months when the children were not enrolled in schools.¹

Examining the reading achievement gathered through the National Assessment of Educational Progress one can see that by fourth-grade children from low-income

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families are a bit more than a year behind other children. By eighth-grade this gap has widened to over two and one-half years and by twelfth-grade the gap is four years wide. That is, twelfth graders from low-income families read at the same level as the typical non-poor eighth grader (National Assessment of Educational Progress, 2013). The size of the reading gap on the NAEP assessment matches quite well with the Cooper, et al (1996) findings of a three-month difference in reading achievement that accrues every summer. That three-month difference is roughly one-third of a school year and suggests that children from low-income families will fall another year behind their middle-class peers roughly every three years. The four-year rich/poor reading achievement gap on the NAEP assessment at twelfth grade fits that projection quite nicely. This rich/poor reading achievement gap was primarily a summer months phenomena. The annual losses that were documented as occurring every summer accumulated into the substantial rich/poor reading achievement gap reported on NAEP.

We find the evidence available quite convincing that summer reading loss is both a real and the major factor in the substantial rich/poor reading achievement gap that exists today. We also find the evidence on the source of the rich/poor reading gap is equally compelling. We turn to that topic now.

The gap is not primarily attributable to ineffective schools or teachers

It is not true that ineffective teachers are over-represented in high-poverty schools; nor is it true that high-poverty schools have created the achievement gap. In fact,

evidence suggests that the opposite is true. Rather than schools that enroll many children from low-income families being *less effective* than other schools, the data available indicate that reading growth during the months that school is in session is *comparable* in schools with many poor children and schools with few poor children. Of course, all schools employ some teachers who are neither very expert nor very effective at teaching children to read (Bohn, Roehrig & Pressley, 2004; Stuhlman & Pianta, 2009; Valli, Croninger & Buese, 2012). However, it is not the case that high-poverty schools are filled with ineffective teachers producing reading achievement that falls short of the achievement attained in schools where most students are not economically disadvantaged (Alexander, et al , 2007; Burkam, et al, 2004: Downey, et al, 2004; Hayes & Grether, 1983; McCoach, et al, 2006).

The findings of Hayes and Grether (1983), thirty years ago, asserted that summer reading loss was the major contributor to the rich/poor reading achievement gap. They reported that achievement growth during the school year was remarkably consistent regardless of whether the school enrolled economically disadvantaged or more economically advantaged children. As Hayes and Grether noted, "The differential progress made during the four summers between 2nd and 6th grade accounts for upwards of 80% of the difference between economically advantaged all-white schools and the all-black and Puerto Rican ghetto schools." (p. 64) Again, most of the remainder of the rich/poor reading achievement gap was found in the differences that existed between children from families of differing economic status when the children began school.

Likewise, Entwistle, Alexander and Olson (1997) noted that the cumulative gains in reading comprehension in elementary grades, as measured on the CAT-R, was 191 raw score points for children from low-income families and 193 raw score point gains for children who were financially better off. They note that, "Such parity hardly accords with popular (and some professional) depictions of poor children's schooling..." (p. 18) In other words, the identification of high-poverty schools as failing schools and the identification of the teachers in these buildings as failing teachers, based on student reading achievement, are fundamentally inaccurate. The schools children from low-income families attend produce just as much growth in reading achievement each year as do those award-winning, higher-wealth elementary schools. Entwistle and her colleagues also note that their data is not unique but mirrors the achievement patterns reported by others (Hayes & Grether, 1983; Heyns, 1978; 1987).

Given these reports, it seems safe to conclude that while teachers and schools may contribute, in a small measure, to the rich/poor reading achievement gap, the evidence also demonstrates that it is the time during the summer months, when children are not attending school, that contribute most of the difference in reading achievement between rich and poor students. In other words, it is the contributions (or the lack of them) of families and communities during the summer months, when school is not in session, that carries the weight of the evidence on the cause of the rich/poor reading achievement gap.

Why do children from low-income families consistently experience summer reading loss?

Why do summer vacation months play such a different role in the reading development of children from families at different income levels? In our opinion it is the more restricted access to books and other reading material that children from low-income families experience that lies at the root of this problem.

Our opinion is based on the evidence available. Neuman and Celano (2001) found that in low-income neighborhoods, fewer books were available in stores, childcare centers, and local elementary school and public libraries. Also, in low-income neighborhoods, the books that were available were both older and of lower quality than the books available in middle-class communities. Similar findings are reported by Allington, Guice, Baker, Michaelson and Li (1995), Constantino (2005), Fryer and Levitt, (2002), McGill-Franzen, et al, (2002), Smith, Constantino and Krashen, (1997). Additionally, the numbers of books available in the homes of children vary by ethnicity with white children living in homes with two and a half times as many books as black children (Fryer & Levitt, 2002). Children from low-income families live in neighborhoods that offer fewer locations to buy or borrow books, attend schools where the numbers of book available are more limited, and live in homes where few books are found. Minority children live in homes with less than half the number of books found in white homes.

All this leads to some children spending summers with restricted access to books

that could be read. This lack of access means that these children are less likely to read during the summer months. This lack of reading activity leads to a decrease in reading proficiencies just as the absence of practice leads to a decrease in almost any proficiency (think of ice skating activity and playing hockey here). What we do know is that there is positive correlation between volume of reading activity and reading proficiency (Anderson, Wilson & Fielding, 1988; Cunningham & Stanovich, 1991) and that reading activity is related to ease of access to books and other reading material (McQuillan & Au, 2001; Waples, 1937/1972). This relationship was also reported by Heyns (1978) who suggested, "The unique contribution of reading to summer learning suggests that increasing access to books and encouraging reading may well have a substantial impact on achievement" (p. 172).

Recently, Lindsay (2013) established the relationship of access to books and increased reading behavior in a meta-analysis of research on book distribution programs. He reported that when examining the outcomes of rigorous experimental studies, where access was manipulated amongst populations of randomly assigned subjects, the impact of increasing book access on reading achievement produced an effect size of $d = 0.435$. This finding led Lindsay to conclude,

"Interventions that facilitate children's access to print material produce impacts that are one to four times as large as those in the average intervention (depending on the outcome category being examined). The more policy relevant outcomes -- reading performance -- showed impacts that are about twice as large as the

average impact found in elementary schools." (p. 34)

The various forms of evidence just reviewed on ease of access to books, especially during the summer vacation months, led us to conclude that summer reading loss might be eliminated by enhancing access, of children from low-income families, to books.

Ameliorating the rich/poor reading achievement gap.

We developed an experimental test of this hypothesis by employing a three-year longitudinal summer books intervention (Allington, McGill-Franzen, et al, 2010). In that study we randomly selected first- and second-grade children enrolled in high-poverty schools for either the treatment group, so that books for summer reading were provided, or to the control group where no books were provided for summer reading. Each year we provided a book fair in each of the 17 targeted elementary schools. Most children attending these schools were poor (from 66% to 98% of the students were eligible for free or reduced price meals) and most of the students were minority students (89% were Black or Hispanic).

The book fairs we provided for treatment children allowed each student the opportunity to select 12-15 books for voluntary summer reading from a collection of roughly 500 books each year. The books each treatment child selected were then distributed to treatment children on their final day of school. After completing the three-year voluntary summer book reading project the treatment children earned scores roughly .40 of a standard deviation above those of the control children. The

difference in reading achievement at the end of study was statistically significant with a small effect size (ES=0.14, for the full-sample and ES=0.21 for the free-lunch children). While the effect was, technically, small, it was as large as the effect size for attending summer school (Cooper, et al, 2000) and as large, or larger, as the effect size on reading achievement reported for schools adopting one of the approved federal models of educational reform (Borman, Hewes, Overman & Brown, 2003).

Kim (2007) also provided summer books to students in first through fifth grade. The books given to the treatment students were selected for them using an interest and reading difficulty procedure. Treatment group students reported reading three more books than did the children in the control group but no significant differences in reading achievement were found between groups at the end of the one summer intervention study. Kim and White (2008) added a classroom scaffolding component and provided third, fourth, and fifth grade students with summer books. They found that the classroom scaffolding produced significant differences in reading achievement at the end of this one-year summer intervention. They reported an effect size of ES=0.14, identical to that reported by Allington, McGill-Franzen, et al (2010).

Similarly, Wilkens, Gersten, et al. (2012) compared providing eight books for summer reading to third-grade students with low-reading ability. However, children in the treatment group read only one more book than did children in the control

group and no significant differences were observed in reading achievement at the end of the study. Again, however, student self-selection of the books they received was not an aspect of this research project nor were the participants necessarily children from low-income families.

White, Kim, Kingston and Foster (2014) replicated the 2008 Kim and White study with students from 19 elementary schools in grades kindergarten through fifth grade. The overall comparison found no significant differences in reading achievement following the summer reading intervention. However, White, et al. (2014) report that the reading achievement of treatment students in schools where more than 75 percent or more of the students were eligible for free-lunch did differ from the reading achievement of control students. In other words, it was only children from low-income families who benefited from books for summer reading.

In Allington and McGill-Franzen (2013a) we suggest that there may be a number of reasons some scholars have not found the same positive effects of providing children with books to read during the summer months as we did. First, the Allington, McGill-Franzen, et al (2010) study was designed to ensure that children were given books that they actually wanted to read by allowing self-selection of the texts. Second, each child was provided 12 to 15 self-selected books each year. Fewer books seemed simply not a substantial enough number of books to have any great impact on the reading development of beginning readers. Third, the study was a longitudinally designed study (three consecutive summers) because the potential

impact in any given summer can be expected to be small and difficult to capture on current standardized reading achievement tests. Finally, the study targeted beginning readers (grades 1 and 2) in the first year because the impact of early reading experiences seems so potentially powerful (Torgeson, 2002; Vellutino, Scanlon & Tanzman, 1998). Our study, then, provided more books, books that were self-selected, to younger students from low-income families for a longer period of time than did those who have published other reports of summer book distribution.

We have argued (McGill-Franzen & Allington, 2013b) that self-selection is a powerful factor in supporting summer voluntary reading activity. Lindsay (2010) found that the effect size on reading achievement for access when individual choice was involved was $d = .766$ but substantially smaller ($d = .402$) when students did not choose the texts they were given. Additionally, Lindsay (2010) found that giving children books, as opposed to lending children books, for summer reading also produced larger effects on achievement.

No other studies, to date have allowed children to self-select the texts they receive for summer voluntary reading, most studies did not target only children from low-income families to receive summer books, no other study has lasted longer than a single summer, and no other study has distributed summer books to primary grade students only. Thus, all four factors make the Allington, McGill-Franzen, et al (2010) study unique. We are unsure whether a single or multiple factors are influential in obtaining the outcome we reported. What our study did demonstrate is that providing primary grade students from low-income families with the opportunity to

self-select books for summer reading did, in fact, substantially improve their reading achievement when compared to the control group children.

Conclusion.

Summer reading loss has been determined to be the major component of the existing rich/poor reading achievement gap. It now seems clear that children from low-income families have a more restricted access to books during the summer months than do more economically advantaged children. By expanding summer access to books for children from low-income families, several studies (Allington, McGill-Franzen, et al, 2010; Kim, 2006; White, et al, 2014) have demonstrated that summer reading loss can be at least ameliorated if not eliminated. The effect size ($d=0.14$) of improving poor children's access to self-selected books during the summer months in our study equaled the effect size ($d=0.14$) that Cooper, et al (2000) reported for attending summer school. However, our annual cost per student was substantially lower than the cost of attending summer school. The annual cost of the books we distributed was roughly \$50 per child and because the summer book distribution was our only intervention it appears that distributing self-selected books to children from low-income families is a potentially powerful option that state education agencies and school districts should seriously consider.

Further support for providing books for summer reading comes from the meta-analysis of 41 recent studies of summer interventions completed by Kim and Quinn (2013) who report comparable effects for school-based and home-based summer reading interventions. As the authors noted,

"The magnitude of the effect size across the five outcome measures was similar for classroom and home interventions. More precisely, there was no significant difference in the mean effects of classroom and home interventions on each of the five outcome measures." (p. 400)

In other words, two meta-analyses (Cooper, et al., 2000; Kim & Quinn, 2013) both report that it is possible to positively impact reading growth during the summer months with home-based interventions. The most common and least expensive home-based reading intervention has simply been to distribute books for summer voluntary reading.

Eliminating summer reading loss would substantially narrow the rich/poor reading achievement gap that currently undercuts school and life success. Distributing books that children from low-income families want to read, especially distributing such books to poor children enrolled in the early elementary grades, is a documented research-based intervention that should receive renewed attention from both policy makers and practitioners.

Footnote 1. One criticism of studies of summer reading loss is that the testing that has been used typically occurred in the spring, often weeks before summer vacation periods began and fall testing typically a few weeks after children returned to school. In some cases the test dates indicate that children had as many weeks of schooling between the testing periods as they had weeks of summer vacation. However, Burkam, et al (2004) used exact testing days as well opening and closing of school dates to calculate summer losses more specifically. In their analysis the pattern of differential effects of summer vacation periods on reading achievement was robust, indicating the rich/poor achievement gap effects even after their adjustment for earlier measurement inaccuracies.

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