The Untapped Power of Summer to Advance Student Achievement

THE LEARNING SEASON

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The Learning Season:
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THE UNTAPPED POWER OF SUMMER TO ADVANCE STUDENT ACHIEVEMENT

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Message from Nicholas C. Donohue
President and CEO, Nellie Mae Education Foundation

Since 2000, the Nellie Mae Education Foundation has focused on key factors that contribute to student learning and achievement both inside and outside of the classroom. As the school year draws to a close and summer commences, it seems only fitting that we present our new report, "The Learning Season: The Untapped Power of Summer to Advance Student Achievement."

Others have looked at the effects of summer before. This report connects these past efforts with the work of a new crop of researchers.

What is striking is that all of these researchers have arrived at a similar set of conclusions: that children in all socioeconomic groups are learning at nearly the same rate, at least when it comes to basic skills, during the school year, and that differences in achievement between poor and middle-class children are rooted in the inequities that young people experience outside the schoolhouse door.

And while the findings regarding summer learning loss are profound, they must not distract us from the unfinished business of school improvement. Achievement is too low and the quality of school time activities is part of the problem.

However, we must broaden our thinking about student learning to include strategies that focus on where children are and what they are doing outside of the classroom. This must include a more nuanced understanding of the larger social conditions—poverty, violence, discrimination—that neuroscientists tell us influence learning and development in dramatic ways. Thus the challenge remains a complicated and important one. We know that school and societal influences on learning are enormous and now this report provides a firm reminder that summer learning loss is a major issue as well.

It is time for us to make a bold move to significantly rethink the educational experiences we organize for learners as a changing global society demands increased levels of learning for a much broader population. An important part of this rethinking must include what happens during summer. We hope that "The Learning Season" will help spark a new kind of public dialogue about what it takes to help our young people become productive adults and engaged citizens.

Introduction

As we know, the future of any society depends on its ability to foster the health and well-being of the next generation. Today's children will become tomorrow's citizens, workers, and parents. When we invest wisely in children and families, the next generation will pay that back through a lifetime of productivity and responsible citizenship [1]. When we fail to provide children with what they need to build a strong foundation for healthy and productive lives, we put our future prosperity and security at risk.

What does it really take to shape a generation of solid, decent, well-rounded young people who will support their families, strengthen their communities, and uphold the democratic values of a civil society?

Fortunately, the last decade has witnessed an explosion of discoveries in the neurosciences that point toward powerful new ways of understanding what young people need in order to learn and develop well [2–4]. We now know, for example, that cognitive, emotional, and social capabilities are inextricably intertwined throughout one's life. Emotional well-being and social competence provide a strong foundation for cognitive abilities, and together they are the bricks and mortar that comprise the foundation of human development and learning. In other words, learning is not just an academic activity that is confined to the classroom; it is part of a complex and ongoing developmental process.

Yet most public conversation today about how to provide children with the resources that they need to thrive in adulthood focuses almost exclusively on public education—and its failings. Repeated calls are made for dramatic changes to the educational system at the local, state, and national levels. In addition, a plethora of reform efforts, pilots, and initiatives aim to close the class and race test-score achievement gaps.

While the global economy places new demands on our young people and requires a shift in our nation's approach to education [5], the data paint a different picture than the one typically portrayed: Test scores show that our schools—even the weaker ones—are doing a better job of helping all children learn than we often assume. The research discussed in

this report suggests that in fact schools should not bear primary responsibility for the gaps in our educational system. Other factors, nearly all of them related to the opportunities and experiences children have outside of school, in the community and their families, result in gaps in achievement-test scores [6–8, 9].

Over the last several years, the public and policymakers have gained a much better understanding of the importance of children's experiences *before* they enter school; these early learning opportunities make a big difference in a child's capacity to learn and develop [10–12]. However, the vital importance of the hours spent outside the traditional school schedule for older children hasn't yet been fully grasped. According to the research, these hours in the end often determine whether children move forward [13–19]. Nonschool hours include both afterschool time during the school year and, predominantly, the hours during the two-plus months of the summer season.

Therefore, if we truly want all young people to learn and develop well, we must pay close attention to a burgeoning body of research pointing to the critical importance of summer opportunities. Quality summer experiences give children access and exposure to the opportunities and relationships within their communities that promote learning and development. In fact, summer programs have the potential to close the test-score gaps in a way that thus far has eluded us.

Summertime occupies a specific place in the public imagination, conjuring up images of rest and relaxation, of fresh air and freedom. Summer is also a time when many children are given the opportunity to expand their horizons and find their true passions, to build new relationships, build their identity, and master new skills—all experiences that facilitate learning and development. But for the significant numbers of children who do not have access to these experiences, the summer can be three months too many without meaningful learning opportunities.

We accept the current school calendar as "natural," but this schedule is rooted in our agricultural past, when many families needed children to work on the farm in the afternoons and all day during the summer. When the current nine-month school calendar was standardized,

85 percent of Americans were involved in agriculture, compared with less than 3 percent today [20]. Yet the school schedule has proven difficult to alter, both financially and politically [21]. In 1994 the National Commission on Time and Learning [22] spearheaded an effort to extend school days and years with the report *Prisoners of Time*. Despite widespread policy proposals at the time [23], there was not enough public support to overcome significant financing challenges, and the issue lost the public spotlight.

Today, leaders looking to improve our education system are again focusing on lengthening the school day [21, 24–27, 28], making this an opportune time to explore the links between children's summer experiences and school success. This report's goal is to help readers understand the connection between a child's summer experiences and his or her success in school and beyond, and to highlight the potential for the summer months to bridge persistent educational gaps.

School, Summer, and the "Achievement Gap"

The phenomenon of summer undoing school-year learning has come to be known as "summer learning loss." It was first commented on in 1906 [29], followed some decades later by the 1978 book *Summer Learning and the Effects of Schooling*, by Barbara Heyns, which was based on her study of Atlanta students. More recently, a number of researchers [17, 30–37] have found that *nearly all the differences in achievement between poor and middle-class children can be attributed to changes in learning that take place over the summer.* This finding is particularly surprising—and important—given that the vast majority of public and philanthropic resources are dedicated to school-year education, and that relatively scant resources are earmarked for summer programs.

While summer learning loss has operated mostly "under the radar," the effects of early childhood experiences on racial, ethnic, and class test-score achievement gaps have received a great deal of media and research attention. Evidence from a set of longitudinal studies demonstrating that preschool children benefit significantly—and permanently—from early learning experiences [10–12], along with new understandings from neuroscience [4, 38], has

formed the foundation for a national movement: public preschool is fast becoming a norm across the country, and public funding for early-childhood care and education is growing.

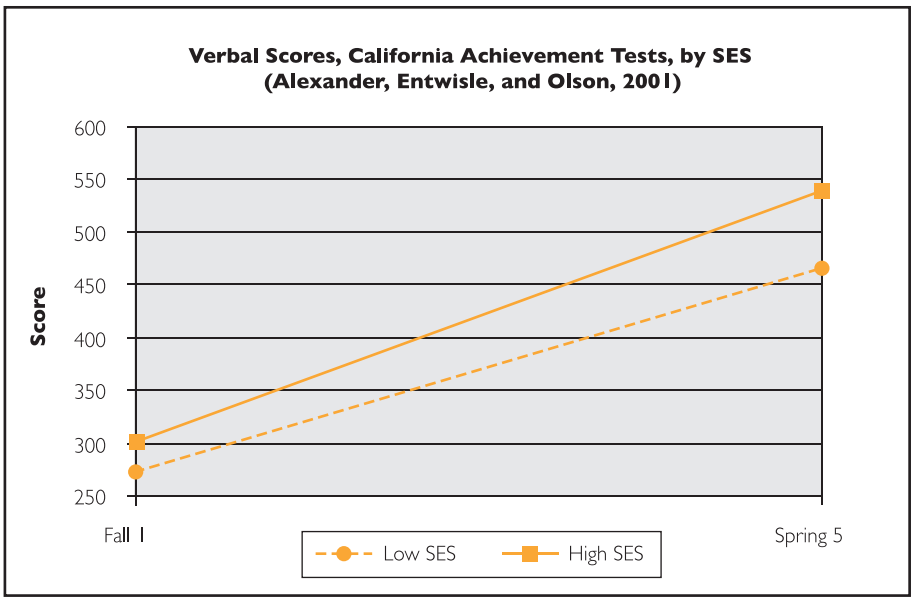
However, the trajectory of the test-score achievement gaps once children enter school has rarely been acknowledged, although there is ample evidence that both income and racial test-score gaps actually widen during this period [39–41]. For example, while there is a difference of one-half a standard deviation between the scores of African American and white children when they enter school, by the end of high school, the gap is a full standard deviation [41]. In research by Alexander, Entwisle and Olson [37], the gap in reading skills between children from poor families and those from affluent families grew from two months at the beginning of first grade to nearly two years by the end of fifth grade.

Despite these growing gaps, research on seasonal learning shows that children in all socioeconomic groups are actually progressing at the same rate during the school year. Yet during the summer middle-class children generally continue to learn, or hold steady, especially in reading, while poor children lose knowledge and skills [42]. These findings are especially surprising, given the well-documented disparities in facilities, teacher quality, curriculum, safety, and materials between schools serving poor children and those in affluent communities [9, 43–46]. Research on seasonal learning demonstrates that even struggling schools provide some support for children's learning, at least compared with a summer devoid of educational experiences [34, 36, 47].

Figures 1 and 2, on the following pages, illustrate this phenomenon. Alexander and his colleagues looked at test scores of a representative random sample of nearly 800 children from the Baltimore Public Schools beginning in the early 1980s [37]. Children took the California Achievement Tests (CAT) in both the fall and spring of each year, with only 16 percent of the original sample lost to attrition[1] [36]. Figure 1 shows a line representing the change in scores between the beginning of first grade and the spring of fifth grade. Lower socioeconomic status (SES) children started out behind their middle-class peers, with about a six-month gap in grade equivalency, and fell further behind over time, resulting in a lag of 2.5 years by the time they completed fifth grade.

[1] *Sample attrition is higher in some years than others, due to changes in follow-up practices and funding.*

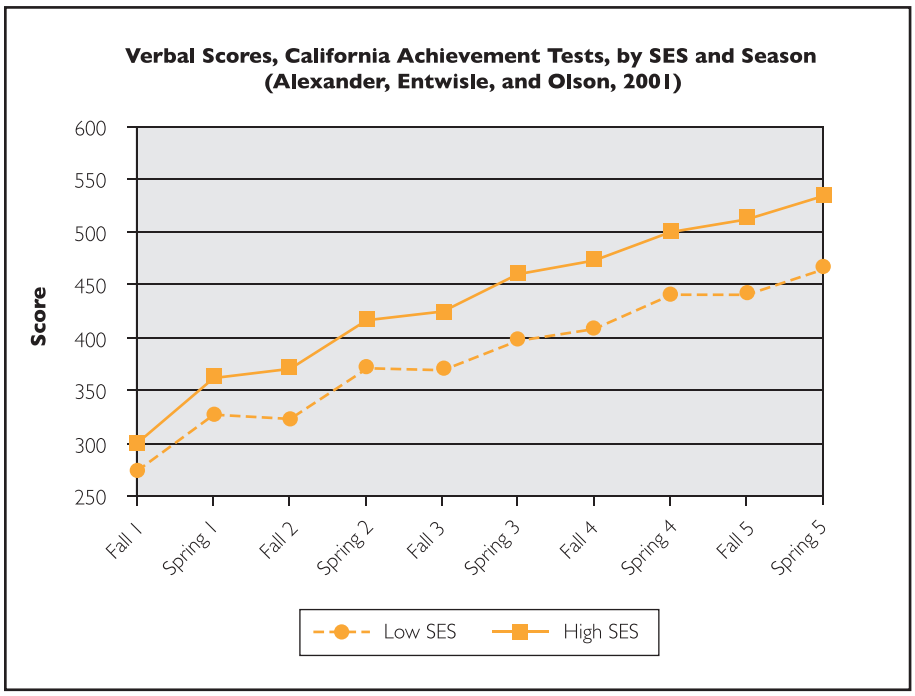
Figure 1. Test-Score Achievement Gap over Time



Adapted from Entwisle, Alexander, & Olson, 1997

In Figure 2 scores in the CAT are broken down by fall and spring test results. Here we can see that the gap in achievement grew not during the school year but rather over the summer (between the spring testing and fall testing). In other words, *all the increase in the achievement gap between first and fifth grade was attributable to changes in learning that occurred over the summer.* When one thinks about the relative effort made to close the achievement gap during the school year compared with investments in summer opportunities, these data are very compelling.

Figure 2. Test-Score Achievement Gap over Time, by Season



Adapted from Entwisle, Alexander, & Olson, 1997

The Baltimore study replicated the findings of Heyn's earlier work, and it has been confirmed by a number of studies using both local and national data more recently [17, 30, 32, 34]. Cooper and his colleagues [20] reviewed 39 studies of children's learning over the summer months and conducted a meta-analysis on 13 of the highest-quality and most recent studies. They found that all children lose an average of 2.6 months of grade-level equivalency in math skills over the summer. In reading, their findings replicate those of Alexander and his team: *middle-class children gain on reading tests over the summer, while lower-income children lose ground*. This divergence results in an average gap of three months in reading skills. Borman, a prominent researcher in the field of summer learning loss, summarizes these findings:

> If one were simply to add the gap that existed at the beginning of elementary school to the gaps that are created when school is not in session during the summer, that would account for virtually the entire achievement gap between middle-class and disadvantaged students at the end of elementary school [33 p. 234].

Today, schools are rated poorly if their students do not score well on state-mandated tests, regardless of whether children's learning has been helped or hindered by the school environment. By the same token, schools serving affluent families in a resource-rich community are assumed to be good schools on the basis of children's higher test scores, which may be high even in the face of a mediocre education. Downey and his colleagues [17, 34] have developed a new approach to measuring school performance that accounts for seasonal differences in learning, wherein the portion of student performance that can be attributed to the school is separated from the portion due to nonschool learning periods, including both during the period before a child enters school and over the summers as they progress through school. Using data from the Early Childhood Longitudinal Study (ECLS), they find striking differences in school impact with this approach:

> [O]ur analyses of reading suggest that 70 percent of currently labeled "failing" schools are not really failing…Many teachers and administrators working in schools serving disadvantaged children face a variety of challenges including scarce resources, large classes, and little parent involvement. Despite these conditions, a surprising number of professionals serving disadvantaged students appear to be doing a good job, much better than previously thought. [17 p. 24]

Using this measure of "school impact," in recent analyses of data from the Early Childhood Longitudinal Study (ECLS), the researchers find that many schools considered "failing"—due to the low test performance of their students—are actually doing a better job of education than schools with much-higher-performing students.

Although there is ample evidence that schools work to counteract summer learning loss and equalize achievement between children of different class backgrounds, the racial test-score achievement gap may not work in the same way. While most of the research to date on summer and the achievement gap looks only at income differences, Downey and his colleagues found that within the same socioeconomic strata, white children have higher achievement test scores, on average, than African American children [34]. Schools do not seem to

serve an equalizing function for race gaps as successfully as they do for income gaps [for example, 42]. Downey found that African American children continue to lose ground during the school year, compared with whites of the same economic strata, "suggesting that schools exacerbate black-white inequality" [34 p. 624]. Only the first two years of schooling are covered in Downey's study, and clearly more research is needed to understand the mechanisms by which the racial test-score achievement gap works differently from the income achievement gap. However, existing scholarship in education suggests that mechanisms such as student-teacher racial mismatch, teachers' lower expectations of black and Latino students, the stresses related to being a member of a stigmatized nondominant group, lack of culturally relevant curricula, consistency between home and dominant cultural values, and institutional racism on the part of schools may all play a part [48–55].

The increase in the test-score achievement gaps through summer-learning loss would be important in itself, but this process has powerful implications for children's long-term educational outcomes. We know that early school achievement predicts student success in middle school. When students reach high school, past performance often determines where they are tracked—to high-level college-preparatory and Advanced Placement courses or to lower-level "standard" or remedial courses or technical school. In addition, students on nonacademic tracks are much less likely to finish high school, which often leads to a life of constant financial struggles in the current economy. A recent extension of the Baltimore School Study [56] found that summer losses that accumulated in the first five years of schooling were directly linked to whether students attended college preparatory classes, graduated high school, and attended four-year colleges [56]. In that study, about one-third of the test score gap between 9th-graders from high and low-income families could be traced to disparities that were evident when children entered school, while the rest—or two-thirds of the achievement gap—was directly linked to summer learning differences.

While the test-score gaps have demonstrable effects on long-term educational outcomes, there are other differences in learning that we know much less about. The consensus, whether from neuroscientists, developmental scientists, educational researchers, or economists, is clear: educational (and life) success requires much more than skills in math and English

[for example, 1–5, 9, 57–63]. Content knowledge in subjects such as science and technology, process skills in analysis, communication, and problem solving, as well as social competence in developing relationships with those from other racial or cultural groups, are just a few examples of the kinds of skills that children must learn in order to succeed in the long run. Yet in the absence of good measures of children's growth in these areas and widespread testing, we have little evidence of whether their attainment follows the same patterns of racial and economic gaps. However, recent research documenting the severe narrowing of the curriculum in schools serving low-income populations [64], as well as inquiries into the quality and purposes of schools serving different classes of students in the past [65], suggest that these "achievement gaps" may be even greater than the ones currently captured by the current achievement tests.

Summer and Schools: What Do We Know?

Recent research confirms what many individual schools have experienced for some time: despite long-running and oftentimes valiant efforts, there have been few reductions in the income and racial educational test-score achievement gaps we face as a nation [6, 39, 40]. Perhaps this is not too surprising given the amount of time children spend in environments other than school. Walberg [66] estimates that only 13 percent of a typical 18-year-old's waking hours is spent in school, taking into account the years prior to school entry, the short school days of six or seven hours, and summer vacations and holidays. Even during the school year, children spend only about one-third of their waking hours in school [67].

And yet, the schools continue to be the only community institution held accountable for closing the test-score achievement gaps. In 2001, as the No Child Left Behind Act took hold across the country, Alexander and his colleagues' [37] research on summer learning showed that schools were more than fulfilling their responsibilities in educating children. Moreover, children in low-income families were just as capable of learning as their wealthier peers.

> The near parity of school-year learning across social lines establishes that schools play an important compensatory role, carrying along disadvantaged children at a pace close to that of their more advantaged classmates.... The powerful role of schools in fostering achievement of all children is one lesson informed by a seasonal perspective on learning. A second is that disadvantaged children, on the whole, are capable learners. They keep up during the school year, but before they start first grade and in summers between grades the out-of-school resources available to them are not sufficient to support their achievement. (p. 183)

A seasonal approach to education research uncovers exceptionally rich findings: poor children demonstrate their tremendous capacity to learn and use the educational content they are offered, even though schools serving poor children often cannot provide an equitable education. These findings are sobering in light of the challenges faced by many children living in poverty, including high rates of chronic health problems, poor nutrition, language barriers, racism, safety concerns, lack of supervision when parents work multiple jobs, and lack of access to health care, in addition to substandard and transient housing [6, 7, 48, 68, 69]. Although some children may "beat the odds" during the school year, we can no longer ignore the fact that the long summer vacation period represents critical hours for learning that must be fully utilized if we are going to meet our educational imperatives in a global economy.

Why Does Summer Make a Difference?

Clearly, middle-class children are making gains—or at least avoiding learning loss—during the summer, while children from lower-income families are not. Although the research discussed above points to clear differences, it does not tell us *why* these differences exist. What is different about the summer experiences of children in more affluent communities? And what might summer programs offer? This section will explore the results of research on why summer makes such an important difference in children's learning.

During the school year, children in both affluent and lower-income communities benefit from the "faucet theory," suggested by Entwisle and Alexander: Learning resources are turned *on* for all children during the school year [36], but in the summertime the faucet is turned *off*. Middle-class parents can make up for this loss with their own resources, but working-class and poor parents have difficulty creating enriching learning experiences for their children over the summer months. As James Comer [8] has cogently demonstrated, all parents, including those with the lowest educational and economic resources, want the same things for their children. However, all parents do not have the same access to opportunities for their children. Limited economic resources are compounded by a lack of community or neighborhood resources, and truncate parents' ability to personally help their children reach educational and occupational goals. Research suggests that all of these factors matter when it comes to summer learning [70].

Economic Resources

Even though low-income working parents typically spend a higher portion of their income on child care than parents in more affluent families [71, 72], they cannot pay the high tuition fees that are typical of summer day and overnight camps. Their children's experiences are not likely to mirror those of children in these private camps, where enrichment in a wide variety of focal areas such as arts, technology, and sports is the norm. Chin and Phillips found that the working-class families in their ethnographic study chose camps based on fees and the ability to obtain discounts, while middle cass families chose camps that they thought would best fit their children's interests. Furthermore, in low-income families older children may be needed at home to care for younger children during the hours in which their parents work.

Children from low-income families are likely to have less access to reading materials during the summer than middle-class children. Low-income parents typically have fewer books at home, read to their children less often, and have less educational attainment than parents in higher-income families [43, 73, 74], and have less flexibility in work hours [70]. Finally, parents who work long hours and rely on public transportation cannot easily access public libraries.

Neighborhood Resources

While families' economic resources have an impact on children's summer learning, neighborhood characteristics and assets also play a role. Entwisle and Alexander found that children in neighborhoods with high levels of poverty had greater summer learning loss, even after controlling for family resources [36].

Research on community effects indicates that neighborhood safety, cohesiveness, and areas for play all influence learning and development [75–80]. Children in poor urban neighborhoods that have high levels of violence may not have access to relationships with strong positive role models [81] and are often kept inside much of the time for their own protection [70, 82].

When children do not have opportunities to explore a variety of environments, they lose valuable social and academic learning possibilities. Housebound children may end up spending many of their summer hours in front of the television, an activity that is negatively associated with learning in general and reading in particular [82–87]. Moreover, there is increasing evidence that these adverse effects are long-term. For example, Hancox and his colleagues [86] found that children who watched more television during childhood and adolescence were more likely to drop out of school and less likely to attain a college degree, even after controlling for IQ and gender.

One interesting study, conducted over two decades ago by researchers at the Chapin Hall Center for Children [88], scrupulously gathered information on every activity available to 11- to 14-year-olds in two Chicago-area neighborhoods: a poor, inner-city area referred to as "Innerville" and the affluent suburb of "Greenwood." Their findings are likely to mirror the level and types of programming available during the summer as well:

> Overall, we identified 71 different activities per week per 1,000 youth in Greenwood, compared with only 23 in Innerville. More variety exists in the organized arts activities, classes, clubs or groups, sports, and social or civic events found within Greenwood, while youth in Innerville are offered a more limited range of afterschool programs and services, many aimed at providing personal support or tutoring. (p. iv)

While this study occurred nearly two decades ago, without major new public policy initiatives, it is reasonable to assume that the supply of enriching summer programs accessible to families in low-income areas is still likely to be significantly lower than in more affluent communities. As with the pregnancy prevention and drug abuse prevention programs uncovered by Littell and Wynn in Chicago, those activities that are available, like mandatory summer school, tend to be deficit-oriented and therefore are less likely to provide the types of broad, engaging, and enriched learning situations that are most likely to reduce the test-score achievement gaps.

Noneconomic Resources

Parents provide psychological and social as well as financial support for children. Their expectations for their children, parenting styles, and access to information and influence through social networks (or "social capital") all have an influence on their children's learning and development.

Expectations from adults, both parents and teachers, have striking results for children's school performance [52, 54, 55]. For example, an earlier analysis of data from the Beginning School Study [89] found that parental expectations for children were a stronger predictor of outcomes than economic status. Unfortunately, low-income parents are often in the situation of basing their expectations on inaccurate information. Since annual test scores do not take into account summer learning loss, they may give the impression that low-income children are not making progress as a result of their school experience. In addition, there is evidence that many teachers grade poor students lower than their standardized test scores would predict [36], and these lower grades probably also depress parental expectations of academic achievement.

Some poor parents have strong community connections through churches or other groups and are knowledgeable about how to use these networks to navigate and gain access to resources, but this "social capital" is much more common among parents from middle and especially upper-class backgrounds [90–92]. In the context of summer, poor parents are less likely to have access to information on summer opportunities, know about the process and timing for camp applications, or have the ability to influence their child's admission to and experience at summer programs [70].

These issues are compounded by the year-round effects of poverty on families and children. Poor children are more likely to face health problems, including asthma, lead poisoning, poor nutrition, and untreated vision difficulties, as well as poor housing, poor nutrition, and the stress of living in violent neighborhoods, among other challenges to learning [6, 7, 93, 94]. Without the buffering effects of six or seven hours a day in the relatively safe environment of schools or the subsidized meals that provide basic nutritional support to low-income children, the effects of poverty are exacerbated. African American and Latino families have to face the additional daily stresses of raising children in a society that still harbors both individual and institutional racism, and immigrant parents struggle to overcome cultural and language barriers [95–97].

Whether due to economic, neighborhood, or noneconomic issues, it is clear that families and neighborhoods are not able to make up for the resources lost to poor children when the school "faucet" is turned off, resulting in reduced learning. All children lose some knowledge over the summer, and as any teacher can attest, the early weeks of the school year are often spent reviewing material learned in the previous grade. But because poor children do not keep pace over the summer, they enter school each fall even further behind than their more privileged peers. What might change this situation? The next section looks at the major factors that could shift the achievement-gap trajectory over the summer, resulting in greater educational equity.

How Can Summer Programs Make a Difference?

Summer programs can support academic success in a number of different ways: by creating more time for learning, building relationships between children and adults, providing engaging learning activities that give children a chance to practice and make school-taught skills and knowledge meaningful, and building motivation through successful learning experiences in the arts, sports, or other areas. Such experiences create increased engagement in learning, which encompasses attitudes and behaviors such as motivation, persistence, initiative, and focus. Research indicates that engagement in learning is the key to school achievement as well as longer term-success, more powerful than IQ or family background [98–102].

The Availability of Time

One clear advantage of summer learning is the sheer availability of time—time for activities, for relationship building, and for a kind of learning that is exploratory and experiential in nature. Unfortunately, adding time for learning without the concomitant reform of other educational practices has not proved to be the panacea educators had hoped for, as evidenced by today's efforts to extend the school year. Leading researcher Nancy Karweit [103 p. 33] notes: "Learning takes time, but providing time does not in itself ensure that learning will take place." And a recent report published by the Education Sector concludes: "Research reveals a complicated relationship between time and learning and suggests that improving the quality of instructional time is at least as important as increasing the quantity of time in school [21 p. 1]."

Much of the research on extending the time children spend in school, whether through longer school days or years, has found either weak or no effects [47, 103–105]. In a study for the Department of Education, Haslem and his colleagues concluded [106 p. 8]: "simply adding more classroom time to the school year or day is a weak reform strategy." The study found that the educational success of the extended-time schools they studied depended on how much emphasis the school placed on characteristics not directly related to hours, such as strengthening students' sense of responsibility and respect.

Some studies that consider a longer school year do find positive effects on children's school performance. For example, a study of kindergartners that compared those attending for an extended year (210 days) with those attending a regular year (180 days) found that children attending the longer year showed higher performance levels in math, reading, and general knowledge, as well as higher levels of cognitive competence [107]. Why the different results? [103 p. 33] These seemingly contradictory findings are probably attributable to the fact that time alone does not make a difference in learning—it is what happens during that time that matters.

Researchers on time and learning divide the time children spend in school into three categories: allocated time, engaged time, and learning time [21, 23, 103, 106, 108]. "Allocated time" consists of all the hours that children spend in school, and this measure has little or no relationship to achievement. It turns out that during allocated time, children spend half or

more of their hours engaged in activities such as transitioning, preparing for a lesson about to begin, waiting while a teacher deals with disciplinary issues, eating lunch, and nonlearning activities. Some studies have found that as little as 28 percent of allocated time at school is spent in instruction [103, 109]. Yet even "engaged time"—time when children are involved in the learning process—does not result in increased achievement unless it matches the needs of the learner well. Lessons that are either too hard, meaning a child will not understand it, or too easy, such that the child has little to gain from them, will not produce worthwhile learning. "Learning time" is defined as "that precise period when an instructional activity is perfectly aligned with a student's readiness and learning occurs [23]."

Not surprisingly, the few studies that have examined the relationship between engaged time and achievement find a stronger correlation than research examining only allocated time, and those that capture learning time find the strongest relationship of all [21, 103, 106, 108]. However, defining learning time is complex, both the content and process of the learning environment as well as the internal needs of the individual student must be known. In fact, some experts suggest that downtime such as recess allows children to process and create meaning from the new content they learn in school [110], and brain research confirms that time away from direct instruction is necessary to the processing that permits learning to occur [2].

Most important, the research in this area makes clear that time alone will not make the difference in achievement. Further studies have shown that successful programs, whether they take place in summer schools, summer camps, or after school [15, 16, 98, 111], must do something more: they must get children excited about learning and increase their motivation to pursue knowledge in the months and years ahead. In addition, these studies have found that children are more excited about learning when they are connected to adult teachers and caregivers who introduce them to challenging and enriching experiences. Summer programs have the potential to extend learning time in an atmosphere of excitement, fun, and support, thereby building positive attitudes toward learning year-round.

Strong Relationships

Research on education [3, 4, 8, 112–122] and youth development [4, 102, 111, 113–121, 123–127], as well as resiliency research [127–130], all point to the key role played by young people's relationships with caring adults—teachers, parents, or other adult role models. In addition to connections with individual adults, having a sense of belonging to a larger community—including a connectedness to social institutions such as schools—is a key factor in children's school achievement and avoidance of risky behaviors [122, 131–133].

Recent research on the brain extends earlier findings in education and developmental studies by exposing the biological foundations of the critical role of social and emotional factors in school learning [3, 4, 120, 126]. Brain research suggests that the relational nature of development is guided by the very architecture of our brains [2, 126]. Our genes establish the basic blueprint for our developing brains, but our relationships with the important people in our lives guide the way that physical architecture is built over time and its stability.

Some of the most crucial relationships for children are those with the adults in their lives, relationships that serve as the single most important foundation for student success, especially for children at risk of school failure [134, 135]. For example, one study of children at high risk of retention in kindergarten, first, and second grades showed that those children who had a warm relationship with their teachers were not retained [cited in 135]. Likewise, studies of afterschool programs [14, 16, 136, 137] also suggest that positive relationships between adults and children in the program are strongly linked to positive outcomes for youth. Rhodes [125] posits three major ways in which afterschool staff help children develop: through direct instruction and conversations with youth that build cognitive skills; through support for social and emotional well-being; and by giving youth role models that help them to see possible avenues for their future.

Good peer relationships are also important, and their effects increase as children enter adolescence [15, 76, 138]. During this period of identity formation [114, 139], strong prosocial attachments made during summer programs may reduce children's tendency to engage in risky behavior in order to gain peer approval [140–142, 51], behavior that may also carry over to the school year [143].

Summer programs represent an opportunity for children and youth to develop strong relationships with adults and peers and a sense of having a valued place in the larger community. Unlike school, where much of the attention must be on content, and afterschool programs, where the available time limits the ability to develop deeper connections, summer is rich in both time and content flexibility [144]. In this informal learning setting, adults can serve as mentors to children who have few opportunities to venture outside their immediate community, enabling them to see themselves in new ways.

Engagement in Learning

To be good learners, children must want to do well. Children who feel engaged in the learning process are motivated learners. Motivation springs from many sources: the belief that an activity is challenging but not beyond the child's ability; that the task will be enjoyable, if not downright fun; and that it has some real meaning [114, 145, 146]. Young people need to feel competent as learners, to believe they can make a difference in their own success, to persist in the face of challenges, to feel that they can solve problems, and to have an interest in the content of the material they are learning [98]. Summer programs have the potential to develop sustained engagement in interest-based activities, which, as research suggests [147, 148], may result in increased intrinsic motivation and initiative.

What builds such internal motivation for learning? The work of Larson and his colleagues [148–150] on the development of initiative—a combination of focus, internal motivation, and effort over time—points to the importance of structured, voluntary activities in developing these traits. In their studies of adolescents, they have found that during school students are generally focused on their work, but the attention is not bolstered by interest or motivation, while during the common leisure activity of "hanging out" with friends, there is high interest but little focus or concentration. Structured, voluntary activities, such as those commonly experienced at summer camps and afterschool programs, result in the strongest combination of both internal motivation and concentration over time [148, 150].

Young people's motivation increases when they feel they are contributors to the program, rather than passive recipients of services [24]. Youth development experts point to the potential for engaging young people in planning and leading activities both in the program

and in the larger community [148, 151–167]. Summer programs also represent an opportunity to create what researcher Shirley Brice Heath [168, 169] has termed "border zones," environments where a young person's cultural and ethnic identity is strengthened in the context of enriched learning opportunities. Summer programs have the potential to build children's own racial and ethnic identities [49, 51, 170, 171], at the same time creating cross-group experiences that can develop children's respect for and understanding of peers from different cultures [146, 172]. When summer programs engage children in learning, these experiences have the potential to increase the motivation of young people over the long run, helping them develop goals and attitudes that last long past the warm days of summer.

Experiential Education

For middle-class children who continue to learn over the summer months, summer education is experiential education. Alexander and his colleagues note [37 p. 184]:

> We found that better off children in the BSS [Baltimore Schools Study] more often went to city and state parks, fairs, or carnivals and took day or overnight trips. They also took swimming, dance, and music lessons; visited local parks, museums, science centers, and zoos and more often went to the library in summer. And children who lived in better neighborhoods also played more organized sports in summer. Sports like soccer, field hockey, and softball require children to learn complicated rule systems and take multiple roles.

We know from research on the brain that the ability to locate new knowledge in a conceptual framework is key to learning [2] and that concrete experience is "one of the best ways to make strong, long-lasting neural connections" [57 p. 188]. Experiences that allow children to expand their horizons, gain perspective on their lives, and participate in authentic learning are likely to improve their performance in school [3, 38, 173]. Noam and his colleagues [174] argue that an experiential approach allows children to develop their skills in organizing and problem solving as well as reinforcing basic skills through real-world use of math and literacy. Clark's research [123, 175, 176] on the causes of variation in school performance between children of similar backgrounds suggests the importance of experiences that give young people a chance

to use the skills they learn in school—to gain insight into the importance of academic skills for everyday life as well as to improve them through practice.

Research on experiential education, which can include adventure education, community service learning, project-based learning, cooperative learning, outdoor adventure programs, and other experiences, provides insight into effective strategies for summer programs.[2] In fact, many summer programs embrace, albeit implicitly, the approach to learning defined by the Association for Experiential Education [177 p. 1] as:

> [a] philosophy and process in which educators purposefully engage with learners in direct, relevant experience and focused reflection in order to increase knowledge, develop skills, and clarify values and ways of thinking.

Evaluations of experiential education and cooperative learning activities have found that they have positive effects on students in a variety of areas, including academic performance. The most common outcomes are improved self-concept, stronger internal locus of control, stronger leadership skills, better grades, and higher school attendance [178–180, 181, 182]. In addition, cooperative learning is a powerful tool for building inter-group relations [172, 183]. A meta-analysis of outdoor education and adventure education programs by Hattie and his colleagues [179], which included 151 samples from 96 studies, found that outdoor education programs had significant effects on a wide range of areas, and according to follow-up studies, these positive changes lasted over time. Evaluations of community service learning programs [98, 184, 185] indicate that these experiences can enhance children's school performance while building a variety of positive characteristics in youth.

Project-based learning is a form of experiential education with great potential for out-of-school-time programs in general and summer programs in particular [173, 174, 186–188,]. Youth engage in collaborative long-term projects with clear learning goals, often multidisciplinary in nature, by participating in a series of activities that are linked over time and culminate in a product, service, or performance that has genuine meaning to the participants and often to the larger community as well.

[2] *See the full report of* Critical Hours: Afterschool Programs and Educational Success *for a more complete discussion of these approaches to learning.*

Reflection is a key component of project-based learning, which is typically conducted in small, cooperative learning groups. Project Zero, at Harvard University School of Education, which has been studying project-based learning for over four decades [188 p. 3], finds that this educational approach helps develop "essential skills required in school and work settings: the ability to do sustained work over time; skill in collaborating with others; problem solving and critical thinking in the midst of complex activities; and attention to process as well as product."

Citizen Schools has developed a model of afterschool programs for middle school students that utilizes experiential education through "apprenticeships," where volunteers guide small groups of youth over the course of a semester in a learning experience culminating in a demonstration, presentation, or performance for the wider community. Apprenticeships might include working at the federal courthouse and participating in a mock trial, testifying at a public hearing, designing a website for a nonprofit organization, or creating an exhibit at a local museum. A three-year evaluation of Citizen Schools [189] found especially strong effects on participating 8th graders, who were more likely than comparable non-participating peers to enroll in a top-tier high school and to be promoted to 10th grade on time.

Research, most of it focused on afterschool programs, indicates that both process and content matter for out-of-school-time learning. Brain research can help us understand the science behind this fact: in order to achieve academic success [2, 57] children need positive relationships with adults and peers in an environment that feels physically and emotionally safe, as well as activities that promote active learning. What types of summer programs are best suited to support children's learning during the long summer vacation? The next section addresses this question.

What Are the Effects of Participation in Summer Programs?

Over the last ten years, we have learned a lot about the importance of nonschool hours in boosting children's school achievement and healthy development. Community schools, afterschool programs, and extracurricular activities all show promise in helping young people reach academic and developmental milestones [for summaries, see 15, 98, 162, 165, 190–194], however, less is known about the role of summer programs.

Summer programs are not a monolithic experience; they vary widely, from remedial summer school programs to recreational camps and community centers [195]. Some types of programs may be more successful than others in reducing the test-score gaps and increasing equity. We review key studies focused on four types of summer programs: summer reading interventions, summer school, summer camps, and hybrid youth development-academic enrichment programs.

Summer Reading Interventions

Reading is the keystone skill for later learning. The time that children spend reading is the single most powerful strategy for improving literacy skills in fluency, vocabulary, and comprehension [196]. Furthermore, research indicates that reading is the content area most susceptible to the very summer learning loss that widens the test-score achievement gap [20, 31]. In response, several studies have examined the effects of summer interventions focused on encouraging children to read more during the summer. As Kim [197 p. 31] suggests, "Encouraging voluntary reading during summer vacation may be one useful strategy for helping struggling readers acquire the skills needed to succeed in school." [196]

While some school districts offer prizes to children who read a particular number of books over the summer, these efforts have not paid off in increased literacy skills. This may be due to the fact that the incentive for children to read as many books as possible in order to garner awards encourages children to choose those below their reading level [198]. In addition, studies of extrinsic motivation, such as rewards, indicate that these policies may be counterproductive, actually resulting in a decrease in children's desire to read for pleasure [145, 199, 200].

On the other hand, several new studies have taken a different approach to encouraging summer reading. By increasing the access of disadvantaged children to interesting, age-appropriate, and level-appropriate books, these projects aim to improve overall literacy skills and reduce summer learning loss among low-income children. For example, Allington and his colleagues [201] conducted an experiment in which children from 17 high-poverty elementary schools received a supply of books of their choice at the end of the school year for three years in a row, while a control group of children from the same schools did not receive books. Although no other intervention or support for summer reading was provided, the children with books scored significantly higher on a state reading assessment, with the poorest children having gained the most.

Kim [197] conducted a similar study with a sample of 552 low-income children from 10 schools. In June teachers encouraged both parents and students to read, and children were sent eight books over the course of the summer. The researchers found that children made measurable gains in reading over the summer, with the greatest gains occurring among black and Latino students, as well as those with the most reading difficulties and children who reported owning few books.

These studies, although preliminary in nature, suggest that providing books is a relatively cost-effective and replicable approach for supporting children's reading skills over the summer. [197 p. 31]

Summer Camps

Summer camps typically have a recreational focus, yet camps are the environments in which most middle-class children—who continue to improve their reading skills—are spending many of their summer hours. How do summer camps affect children's social, emotional, and cognitive development?

A study by Youth Development Strategies, Inc. (YDSI) for the American Camping Association (ACA) investigated the success of a wide variety of camps in providing four research-based "critical domains" linked to positive outcomes for youth: supportive relationships, safety, youth involvement, and skill building [212]. Surveys of 7,645 children between the ages of 10 and 18,

who attended 80 different camps, indicated that camps generally rated highest on supportive relationships, especially between youth and staff, but rated lower on youth involvement in decision making and leadership.

A second study sponsored by the ACA [143] examined the outcomes of attending camps from the perspective of campers, camp staff, and parents. An important aspect of this study is that parents and campers completed a follow-up survey six months after the end of camp, providing an indication of whether effects last over time. More than 5,000 children and their parents were surveyed prior to the start of camp, after the completion of the camp experience, and then six months thereafter. Camp staff also completed surveys near the beginning and end of each camp session. Scores in all four major areas—positive identity; social skills; physical and thinking skills; and positive values and growth—showed statistically significant gains in the interim between pretest and posttest and again at the six-month follow-up point. Since no comparison group was included in the study, this positive change cannot be definitively attributed to experiences in the program. But the convergence of responses from three different sources suggests that the camp experience was important in changing campers' developmental growth in these areas.

The High/Scope Educational Research Foundation in Ypsilanti, Michigan, is famous as the home of the Perry Preschool Project, where research identifying long-term benefits and cost savings has driven tectonic shifts in preschool policy across the country. The High/Scope Foundation has also sponsored a one-month summer program for disadvantaged teens, the "IDEAS" program [146], which had a highly structured curriculum that included arts, sciences, leadership development, community projects, and team-building activities [24]. A longitudinal study of the IDEAS program found that participants made positive changes in a number of academic and social areas, including development of friendships across racial and cultural lines, project-planning skills, self-confidence, and motivation to do well in school. Furthermore, as they grew older the study participants were found to be more than twice as likely to be participating in post-secondary education.

Unfortunately, research on the effects of summer camp is relatively weak to date, relying on self-reports from participating children [212] or a combination of reports from children, staff,

and parents [143], or a relatively small sample size [146]. Therefore, although the existing research indicates that camps can have a positive impact on young people, until more is known the results should be taken as suggestive rather than definitive. These studies do indicate that well-implemented camp programs have the potential to support children's social and emotional development, which may lead to increased academic performance, and that more research is warranted. However, to reduce the achievement gap, programs may need to supplement their program by integrating an intentional focus on academic skills.

Summer School

Summer school has historically been viewed as remedial education. While traditionally geared toward high school students who are required to repeat a course they failed during the school year, in many cities summer school is now mandatory for children of lower grade levels who are at risk of failing standardized tests [202]. As a result, the number of children enrolled in summer school has increased significantly, even in early elementary grades [203]. By the beginning of this decade, one-quarter of U.S. school districts required attendance in summer school for students who did not pass promotion-related tests, and an estimated five million students—10 percent of the total—were enrolled in summer school [204].

Several recent studies offer some evidence of positive academic effects related to summer school attendance [205–207], although these gains tend to be small. In a meta-analysis of 93 summer programs, Cooper and his colleagues [208] conclude that summer school programs typically have positive effects on student skills. Programs are more effective in boosting math than in improving reading skills, and they are more successful with children in the younger grades than those in middle school. Furthermore, middle-class children seem to benefit the most from their summer school experiences.

In their study of Summer Bridge, a Chicago summer school program serving over 21,000 students in grades three, six, and eight, Roderick and her colleagues [206] found that participating children made gains, with the sixth and eighth graders gaining an average of four months in reading after attending the six-week program [209]. However, not all students benefited equally from their summer school experiences. The study found that three factors were related to positive achievement: attending a summer school program located in a

relatively high-achieving school; participating in a classroom with a teacher who interacted with students in a high-quality manner; and having a summer school teacher who already knew them through their school-year experience.

One of the main concerns about summer school learning is the fact that children's gains often do not carry over into the school year [206, 208, 210, 211]. That is, while students may gain some skills relative to non-participants, these differences fade out over the course of the school year. As a result, Roderick and her colleagues conclude: "[w]e do not find evidence that a one-time summer intervention is an effective means of addressing the long-term learning needs of low-achieving students" [206 p. 4]. In Cooper and his colleagues' meta-analysis [208], programs that focused on accelerated learning or other areas were just as successful as remedial programs in boosting students' test scores. This results suggest that summer schools are not the only possible approach to stemming summer learning loss, especially since middle-class children are clearly taking a different route. Is there a summer opportunity that can build on the gains of effective summer schools while providing the kinds of developmental experiences that are likely to lead to long-term school engagement and achievement? Emerging research suggests that the relatively new phenomenon of programs that combine the academic rigor of good summer schools with the focus on youth development, including social and emotional development typical of many summer camps, may have some promise.

Hybrid Youth Development–Academic Enrichment Programs

Over the last decade, a new model of summer programs has developed that does not fit the typical mold of either summer school or summer camps. These programs have the goal of boosting children's academic performance, but unlike traditional summer schools, they do not take a remedial approach. They combine the qualities of typical youth development programs with a variety of high-quality curricula that increase engagement in learning while building specific skills in reading, math, and other subjects. These "hybrid programs" include many summer programs sponsored by 21st Century Community Learning Centers or Title I, as well as innovative programs including Teach Baltimore, summer literacy day camps, Building Educated Leaders for Life (BELL), Harlem RBI, Summer Scholars in Denver, and SuperCamp.

An Urban Institute study of the BELL summer program [18] used the scientifically rigorous "gold standard" of random assignment to test the impact of BELL on participating youth. BELL is a community-based organization with a mission to "dramatically increase the academic achievements, self-esteem and life opportunities of elementary school children living in underserved communities" [213]. Operating both afterschool and summer programs in Boston, New York, and Washington, DC, BELL offers a summer program of five to six weeks, eight hours a day. The program is staffed by a combination of certified teachers and college students, who provide approximately 12 hours per week of literacy and math instruction using commercially available curricula (currently, Houghton Mifflin's *Summer Success: Reading and Summer Success: Math*) as well as art, music, dance, and drama.

For the study, children who applied to attend the program in either New York or Boston were randomly assigned to either a participation group or a control group [18]. Most, although not all, of the children selected for the program group attended the BELL program. However, there was a complicating factor to the analysis, as it turned out that the children in the control group, while not attending BELL, also spent substantial time in academic activities over the summer (on average almost 12 hours per week, according to parent reports). The participation of control-group children in other academic pursuits perhaps is not surprising, since their parents signed them up for a relatively academic summer program, but this fact may have obscured the effects of the program for a more typical group of children. Even so, the researchers found that participants gained approximately one month *more* of reading skills than the control-group children. Just as important, [196] BELL program parents increased their encouragement of children's reading. Effects on parent behavior are especially notable since they are likely to last beyond the program itself and may lead to long-term changes in children's reading patterns and interests [196].

Teach Baltimore is another program that combines the enrichment and recreational orientation of summer camps with a focus on academic progress, especially in reading. Operating for more than 15 years through Johns Hopkins University, Teach Baltimore uses trained college-age volunteers selected through a competitive process to provide a seven-week summer program to hundreds of children each year. The program includes three hours

per day of intensive reading and writing practice as well as enrichment activities such as field trips to cultural events and museums, physical education, dance, educational games, art projects, science experiments, and drama.

In an experimental study of program effects that randomly assigned children to the Teach Baltimore program or a control group, Borman and his colleagues [33, 214] found no effects on reading scores after one year but a growing and statistically significant impact after children spent two or three years in the program. The initiation of a mandatory summer school program attended by many of the children in the "control" group complicated the experiment. However, the study results suggest that high-quality academic enrichment summer experiences can stop the widening of the test-score achievement gap as children move through school.

Schacter [43] reports on an evaluation of a literacy-oriented day camp funded by the Milken Family Foundation to serve low-income children. With the express purpose of preventing summer reading loss, literacy experiences were integrated into typical camp activities such as swimming, dance, crafts, music, field trips, and others. In addition, children received two hours each day of formal reading instruction and regular one-on-one tutoring with a volunteer. The study included 61 children who had completed first grade and a control group of first-grade children randomly selected from nearby elementary schools; all children in the study had initial reading scores below the 25th percentile. The results of the evaluation were unequivocal [43 p. 13]: "When reading instruction and tutoring were integrated into a summer day camp context, disadvantaged first-grade children from schools whose reading test scores were below the 25th percentile made significant reading gains compared to students who did not attend the summer intervention."

Studies of summer school have found that middle-class children generally benefit the most [208]. On the other hand, Teach Baltimore participants gained in equal measure regardless of socioeconomic status, while the control-group children attending other programs were divided, with children from affluent families gaining more than poor children [214]. Three factors may explain these discrepant results: the nonpunitive, nonmandatory character of Teach Baltimore, as opposed to most summer school programs; Teach Baltimore's emphasis

on training staff to work effectively with children from low-income families; and the engaging, integrated intentional learning delivered in the Teach Baltimore curriculum.

Together these three studies, which met high scientific research standards, create the beginning of a body of evidence suggesting that carefully designed and implemented summer programs that combine the best of youth development and academic enrichment can make a difference in preventing summer learning loss. These programs embed intentional academic content in engaging, fun activities, delivered by trained staff in a context of close relationships between counselors and campers and positive social dynamics. The positive results of these studies, while few in number, corroborate research on afterschool programs indicating that the most effective programs in boosting children's achievement do so by integrating academic content with high quality experiential learning activities [215–217].

The Opportunity Gap: Who Participates in Summer Programs

While there is growing evidence that summer activities can make a meaningful difference in academic outcomes, not all children have access to engaging learning opportunities during the summer. If programs are too expensive or not easily accessed by low-income families due to issues such as lack of transportation, part-time hours, or language barriers, even the best-designed experience will not be successful in promoting summer learning for all. This section examines what we know about where children and youth are during the summer and how their participation varies by race and socioeconomic status.

Most of the available information about summer program participation is based on data collected over a decade ago, but the findings are quite similar across studies: summer opportunities are not evenly distributed, and low-income children lose out [24, 71, 218–220]. Racial differences are also apparent; most studies find that the racial group most likely to attend is white children, followed by African American children, with Latino children attending at lower rates.

According to the National Center for Education Statistics (NCES), more than one-third (37.7 percent) of children in grades 1–12 attended some organized summer activity such as camps, and another 9 percent attended summer school in 1996 [220]. However, participation in summer school may be somewhat higher today, as many schools have increased summer school coverage in an attempt to move children over the passing line on state high-stakes standardized tests [208, 211, 214].

Analyses of the NCES data [220] indicate that children of parents with low educational attainment were slightly more likely to attend summer school than their peers, but much less likely to attend summer camp (see Table 1). Fifty-seven percent of children of college graduates went to camp versus only 12 percent of children of parents with less than a high school diploma. The race and ethnicity of children are also related to summer experiences. While Latino children were nearly twice as likely to attend summer school as white non-Hispanic children, they attended summer camp at less than half the rates.

*Table 1. Summer Activities of Students Enrolled in Grades 1–12, Percentage**

Student characteristics	Participated in organized summer activities	Attended summer school
Race/Ethnicity		
White	45.5	7.3
Black	24.8	11.0
Hispanic	19.2	14.0
Parents' highest educational level		
Less than high school diploma	12.1	10.5
High school diploma/GED	28.1	7.8
Some college	40.5	9.5
Bachelor's degree or higher	57.2	9.9

**Adapted from Indicator of the Month, May 1999, U.S. Department of Education, National Center for Education Statistics.*

A slightly more recent study by the Urban Institute [71] examines the summer child-care arrangements of working parents. Using data from the 1999 National Survey of America's Families, Capizzano and his colleagues found that about one-quarter of children of employed parents attended a summer program, and another 6 percent attended summer school. Children in lower-income families were less likely to attend a summer program, although the differences were not as great as those in the NCES data, which included both employed and non-employed parents. The Urban Institute study did not analyze participation by race and ethnicity.

Further evidence comes from a recent analysis of national data by the Harvard Family Research Project staff [219]. Using the Panel Study of Income Dynamics to examine participation in a wide variety of out-of-school-time activities, including summer programs, the researchers found that

> [c]ontrolling for other demographic factors, family income was the most consistent demographic factor linked to absolute participation. Youth from higher-income families were more likely to participate in many activities—before/after school programs, summer camp, school extracurricular activities and sports/recreation programs. [p. 8]

A special study by the National Center for Education Statistics (issue brief, summer activities, 2004) used data from the Early Childhood Longitudinal Study to examine a range of summer activities for children in the summer following kindergarten. This study found that 42.5 percent of children in high-socioeconomic status households attended camp, compared with just 5.4 percent of children in low-socioeconomic status and 18.4 percent of children in middle-SES families.

Where are the children who are not in programs? Many are home with their parents or being cared for by relatives. But a subset, especially among the older children, are on their own. The Urban Institute study revealed that 11 percent of children spent time alone or with a sibling younger than 13 during the summer, for an average of 10.3 hours per week [71]. Nearly a third (28 percent) of older children, ages 10–12, spent some time in self-care during the summer months. The evidence that children in self-care face greater risks, both academically and

socially, has been well documented [77, 221–225]. Recently, the Study of Promising Practices [13, 225, 226] confirmed these findings, with children in self-care, even if they occasionally participated in community activities, experiencing more problems with behavior and poorer work habits. Summer represents an especially risky situation, as boredom and hot weather may combine to create a dangerous mix.

The participation gap between higher- and lower-income families is not surprising, given what we know about the costs of summer arrangements. Unlike free public education, access to camp experiences is very much dependent on family resources. A study by the Urban Institute of costs of summer care found that higher-income parents spend $377 per month on average (7 percent of earnings), compared with $170 per month (11 percent of earnings) for lower-income families [71]. Good data on the cost of summer programs for families with children over the age of 12 is not available, but it is reasonable to assume that cost differentials when children reach an age that they can stay home alone or care for younger siblings is probably even greater between lower and higher-income families [24].

Surveys indicate that parents find making summer arrangements for their children particularly difficult, low-income and parents of color experiencing greater challenges in this regard [227]. A poll of over one thousand parents found that many felt their children did not have good options for summer activities, including 63 percent of low-income parents and 43 percent of high-income parents, as well as 62 percent of minority (African American and Latino) parents and 44 percent of non-Hispanic white parents.

During the school year, free public education provides learning opportunities for all families with school-age children, at least part of the day. Over the summer, many families, especially those with working parents, struggle to provide healthy, fun, and educational experiences for their children [228], and cost is often a major barrier [71]. The summer "opportunity gap" has ramifications beyond test scores: children miss out on the range of developmental supports provided by camping experiences, and often lose out nutritionally as well. Research indicates that only about 20% of children who are eligible for free and reduced price meals due to low family income have any access to subsidized meals during the summer [229] and overweight children tend to gain more weight, probably due to lack of exercise [230]. From

this information, it is reasonable to surmise that if low-income children are to gain access to programs that can reverse summer learning loss, public funding is likely to be needed to "turn on the faucet" of learning experiences.

Conclusion

The biggest learning gap we face is not an education or opportunity gap for our children. It is a knowledge gap for the adults concerned about these issues—the gap between what scientists and educators already know and what society does (or does not do) with that knowledge. If, as a society, we leave the "learning faucet" turned off for the summer, the test-score gap between the advantaged children and their less fortunate peers will continue to grow. Schooling matters, but the research shows that in large part schools are already doing their job—that is, helping all children learn. However, schools cannot help children learn when their doors are closed, and families of limited economic means cannot compensate for the missing resources on their own.

Summer deserves attention because, when it starts, learning stops for many children, especially low-income children and children of color. Recent evidence suggests that summer learning loss plays an even larger role than the test-score achievement gaps built up over the preschool years [56] in determining class differences in educational performance and attainment over the long run. Furthermore, learning is not just about retaining information: learning to think, solve problems, analyze information and situations, innovate, communicate, and work well with diverse individuals are all key skills needed in a global economy [5, 231, 232]. The informal learning environments of many summer programs can be prime contexts for the development of these twenty-first-century skills [193].

Given this powerful evidence, what can we do to turn on the learning faucet during the summer? As discussed above, summer school is the most prevalent public policy initiative to continue learning in the summer, with programming available now for elementary-and middle-school students in addition to the courses traditionally required for failing high school students. However, the conclusion is that summer school alone seems unlikely to close the

test-score achievement gap, based on research to date. Cooper and his colleagues [208], in their meta-analysis of studies on the subject, found that middle-class students were most likely to benefit from summer school. In addition, the short duration, punitive nature, and formal instructional structure of many summer school programs limit the ability of this strategy to fully engage children in the learning process.

Another approach to summer learning, through programs that integrate youth development principles and academic enrichment, appears to offer greater potential for success in closing the learning gap. If well implemented, these programs present the possibility for children to make measurable academic progress in an environment that builds relationships, deepens learning, and provides opportunities for children to develop lifelong interests and passions. In addition, other strategies that hold potential should be explored through research and pilot initiatives, including changing the school calendar, supporting summer reading through book distribution and work with families, and building community resources at the neighborhood level, including parks, libraries, day camps, recreation centers, and schools.

While research into the educational effects of summer programs is still in its early stages, the evidence to date suggests that high-quality "hybrid" programs can reduce summer learning loss for low-income children. However, there is much less research concerning the reduction of racial and ethnic achievement gaps in test scores, despite early evidence that efforts in this regard can be successful [197]. The analysis of Downey and his colleagues indicates that test-score achievement gaps between white and African American students increase both over the school year and during the summer [34]. More research is needed to investigate the different processes of the income and race test-score gaps, over both school years and summers.

The racial, ethnic, and income gaps that we see in school-based test scores are not a result of school experiences but rather reflect deep divisions in our broader society: gaps in access to economic and social resources, support, and role models, as well as differences in the level of bias and stress that students face in their educational environments. Closing the achievement gaps requires not only changing schools but also creating new, meaningful, and ongoing experiences for children outside of school, including during the many hours of summer. If we are to achieve education equity, summer must become the learning season for all children.

Recommendations

Summer learning loss is an issue for all children and all schools. In math, for example, middle-income children and low-income children lose ground in very similar ways. This means that, every year, teachers must spend the first weeks of school in review mode. But as this report argues, the losses over the summer are much greater for lower-income and African American children. This is true, despite the fact that our schools are doing a relatively good job of educating children of all income levels in basic skills during the school year. So how do we ensure that all our children continue to progress, even in the months when school is not in session? How do we expand that learning beyond basic skills, to include the developmental supports necessary to long-term educational and life success? And finally, how do we keep the momentum going for young people who have clearly demonstrated that they can learn?

The following is a set of recommendations for researchers, practitioners, and policymakers which, to our view, can have the greatest positive impact on providing quality summer learning experiences for all children.

Policy Recommendations

Evidence suggests that summer programs—well designed and implemented—can not only maintain school-skills over the summer months, but also boost learning in teamwork, problem solving, communication, and other key areas. However, if summer programs are to reach their potential for children, they will require significant expansion in funding and program capacity so that all children have *equal access* to high quality summer experiences [233]. To move toward this goal we must:

1. *Spread the word.* As long as the focus on reducing the achievement gap is solely on the traditional school day, efforts will not succeed.

2. *Map current sources of funding as well as potential funding sources at the local, state, and federal levels.* For example, supplemental education services under the No Child Left Behind Act can support summer educational support for many children attending Title I schools.

3 *Build on existing networks.* Many states now have afterschool networks, some of which are increasing their focus on summer programming. Networks should include summer program providers and reach out to educational organizations to build public support. Education networks, such as statewide groups of school superintendents, should also get involved.

4 *Increase public support for access to high quality summer enrichment programs.* Gaining funding will require concerted mobilization over time by educators, parents, out-of-school time providers, and others such as the business community.

5 *Increase philanthropic support from private charities, foundations, and donors who are interested in education, youth development, and working families.*

6 *Combine funding streams.* Currently, many federal and state funding streams focus on academic remediation, while others are linked to child care, delinquency prevention, nutrition, the arts, or reading. Children need full-day services during the summer that integrate academic skill building with enrichment experiences in a wide variety of areas. Flexible financing policies that promote collaboration can create partnerships between schools, community-based organizations, and other community resources such as libraries, museums, and parks departments.

7 *Support increased quality through training and technical assistance.* Serving greater numbers of children will only be worthwhile if programs are able to provide high quality experiences for their participants. Training coupled with technical assistance or coaching is a promising approach to program improvement. For such improvements to be sustained administrative leadership should be engaged in the process, institutionalizing changes into organizational practices and culture.

8 *Develop strong, appropriate accountability systems for funded programs.* Good intentions are not enough. Program leaders need to know what is expected and have the means to track their progress toward these expectations. Clear definitions of program quality and a process for continuous improvement should be part of summer policies designed to enhance youth outcomes.

9 *Develop and disseminate high quality curricula.* Many programs do not have the time or capacity to develop their own content, but could benefit by implementing appropriate curricula in a wide variety of areas. Several projects currently evaluate and disseminate afterschool curricula, and several large research projects in this area are currently underway. This information could be useful for summer programs as well.

10 *Connect community resources and schools.* Create connections so that part-day summer school programs are linked to enriching community-based programs, or even integrated into a single comprehensive program. Create systems for communication of learning standards that can be incorporated into summer enrichment programs led by community organizations.

11 *Consider changes to the school calendar, particularly extending the school year to reduce the length of the summer vacation or breaking up the long summer vacation into shorter periods over the year.* However, the research on the effects of modified school calendars is not unequivocal, so any changes at this date should be seen as exploratory.

12 *Preliminary research indicates that giving children books, especially with some reading encouragement from families, can stem summer reading loss.* Bringing such programs to many more children at demonstration sites may be a fruitful direction.

13 *Build community capacity.* Schools, libraries, parks, community-based organizations, colleges and universities, museums, civic and religious organizations, small businesses, youth-serving organizations, recreation centers, and sports facilities may all have resources—from space to expertise—to offer. Intermediaries can play the role of bringing together partners to share assets and build opportunities for youth. Young people need access to high quality summer environments through their developmental years.

14 *Advocate for policy changes at the state and national levels.* Current federal and state policies reveal a lack of understanding of summer learning loss. For example, using annual tests as school accountability levers, without taking summer learning loss into account, unfairly biases results against schools serving low-income children and in favor of schools serving high-income children. Moreover, the curriculum-narrowing results of the current testing regimen stand in conflict with what we have learned about brain development—and learning—over the past decade.

Research Recommendations

We have learned a great deal about summer learning and summer learning loss over the years, thanks to the pioneering efforts of researchers in the field. But there are still many issues and questions to explore. Given the wide variety of summer opportunities, we especially need to increase our understanding of which experiences promote positive academic and developmental outcomes for youth, recognizing that some programs may be particularly successful with certain groups of young people. With that in mind, we have generated a preliminary list of items that can lead to a coordinated and integrated research agenda on summer learning.

1. *Collect nationally representative data on summer experiences of youth.* The information could be obtained as a supplement to an ongoing national data collection effort such as the National Household Education Survey (NHES) or National Longitudinal Study of Youth (NLSY). Important variables such as age, race, ethnicity, family income, and urbanicity should be included in the dataset.

2. *Compare the effectiveness of school calendar redesign strategies, including year-round schools, to academically enriched summer programs.* Comparisons should include costs as well as quality and youth outcomes. Creating year-round schedules with shorter breaks when school is not in session, lengthening the school year, and creating summer programs with equitable access are all possible strategies for reducing the test-score achievement gap and summer learning loss in general. How do these approaches compare in quality, outcomes, and cost?

3. *Conduct high quality evaluations of youth outcomes related to participation in well-implemented summer programs.* Evaluations should include a rich description of program processes and content as well as effects on participants.

4. *Research the efficacy of various models for summer enrichment and learning.* Investigate the role of recreational, academic, and academic enrichment models in reaching positive outcomes for children from various class, racial, and ethnic backgrounds. This research should broadly define outcomes to include "21st century skills" as well as basic skills in reading and math, and explore the implications for our regular education system's curricula and structures as well as contributing to summer program design.

5 *Further examine the evidence on the effects of summer school programs on children from middle- and lower-income backgrounds, or conduct new research.* Previous research suggests that when compared to lower-income students, middle-income children generally benefit more from summer school programs, yet this advantage does not hold for regular school year programs. Could this difference be a result of the punitive nature of many mandatory summer school programs for poor children? Do the results suggest that the content of summer school programs should be expanded (through partnerships or other means) to include a broader spectrum of learning?

6 *Further examine the evidence on the effects of summer programs on African American, Latino and Asian children, or conduct new research.* The few existing studies indicate that African American youth are losing ground both during the school year and during the summer. Examine why this is the case and the role that institutionalized racism plays in this phenomenon, if any.

7 *Conduct studies that investigate the ability of summer programs to build children's cultural, ethnic, or racial identity as well as enhance skills in communication and understanding across boundaries.* Research on ethnic identity demonstrates the importance of this factor in educational success, especially for children of color, while studies of programs in science and math have been shown to increase girls' involvement in these subjects. Children who develop the ability to understand, respect, and work constructively with others across racial, ethnic, and religious differences will be an asset as both citizens and workers. Programs with such goals should be a special interest of researchers looking at summer programs.

8 *Examine the effectiveness of summer program improvement models,* including training, technical assistance, and quality standards in moving programs to a higher level of quality and improve youth outcomes. While there is much agreement that quality is important, we are lacking solid information on the best way to move from where we are now to where programs need to be. In addition, we need quality assessments developed and tested specifically for summer programs to gauge their status and measure improvement.

9 *Develop and test the efficacy of high quality curricula* that embed learning in project-based approaches, thematic learning, or other sequential, intentional, experiential formats. Such curricula may be drawn from existing educational curricula that has been adapted for less formal environments or developed specifically for afterschool programs, summer programs, or youth development.

References

1. National Scientific Council on the Developing Child and FrameWorks Institute. 2007. *The science of early childhood development: Closing the gap between what we know and what we do*. Cambridge, MA: Author.
2. Jensen, E. 2005. *Teaching with the brain in mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
3. National Research Council. 2000. *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
4. Shore, R. 1997. *Rethinking the brain: New insights into early development*. New York: Families and Work Institute.
5. National Center on Education and the Economy. 2006. *Tough choices or tough times: The report of the New Commission on the Skills of the American Workforce*. Washington, DC: National Center on Education and the Economy.
6. Rothstein, R. 2004. *Class and schools: Using social, economic, and educational reform to close the Black-White achievement gap*. Washington, DC: Economic Policy Institute.
7. Lareau, A. 2003. *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.
8. Comer, J.P. 2004. *Leave no child behind: Preparing today's youth for tomorrow's world*. New Haven, Connecticut: Yale University Press.
9. Barton, P.E. 2003. *Parsing the achievement gap: Baselines for tracking progress*. Princeton, NJ: Educational Testing Service.
10. Barnett, W.S. 1992. Benefits of compensatory preschool education. *Journal of Human Resources* 27 (2).
11. Schweinhart, L.J., H.V. Barnes, and D.P. Weikart. 1993. *Significant benefits: The High/Scope Perry Preschool Study through age 27*. Ypsilanti, MI: High/Scope Educational Research Foundation.
12. Campbell, F.A., C.T. Ramey, E. Pungello, J. Sparling, and S. Miller-Johnson. 2002. Early Childhood Education: Young Adult Outcomes From the Abecedarian Project. *Applied Developmental Science* 6 (1):42–57.
13. Vandell, D.L., E.R. Reisner, B.B. Brown, K. Dadisman, K.M. Pierce, D. Lee, and E. Pechman. 2005. *The study of promising after-school programs: Examination of intermediate outcomes in Year 2*. Madison, WI: University of Wisconsin and Policy Studies Associates.
14. Mahoney, J.L. and H. Lord. 2005. An ecological analysis of after-school program participation and the development of academic performance and motivational attributes for disadvantaged children. *Child Development* 76 (4):811–825.
15. Vandell, D.L., K.M. Pierce, and K. Dadisman. 2005. Out-of-school settings as a developmental context for children and youth, in *Advances in Child Development and Behavior*, R. Kail, Editor. Elsevier Press: Cambridge, MA. p. 43–77.

16. National Institute on Out-of-School Time and Intercultural Center for Research and Education. 2005. *Pathways to Success for Youth: What Counts in Afterschool? Brief Report.* Boston, MA: United Way of Massachusetts Bay.

17. Downey, D.B., P.T. Hippel, and M. Hughes. 2005. Are "failing" schools really failing? Using seasonal comparisons to evaluate school effectiveness. Paper read at Annual Meeting of the American Sociological Association, August, at Columbus, Ohio.

18. Chaplin, D. and J. Capizzano. 2006. *Impacts of a summer learning program: A random assignment study of Building Educated Leaders for Life (BELL).* Washington, DC: The Urban Institute.

19. Durlak, J.A. and R.P. Weissberg. 2007. *The impact of after-school programs that promote personal and social skills.* Chicago, IL: Collaborative for Academic, Social, and Emotional Learning (CASEL).

20. Cooper, H., B. Nye, K. Charlton, J. Lindsay, and S. Greathouse. 1996. The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. *Review of Educational Research* 66 (3):227–268.

21. Silva, E. 2007. *On the clock: Rethinking the way schools use time.* Washington, DC: Education Sector.

22. National Commission on Time and Learning. 1994. *Prisoners of time.* Washington, DC: National Commission on Time and Learning.

23. Aronson, J., J. Zimmerman, and L. Carlos. 1999. *Improving student achievement by extending school: Is it just a matter of time?* San Francisco, CA: WestEd.

24. The Forum for Youth Investment. 2004. School's out: A look at summer learning and engagement. *Out-of-School Time Policy Commentary* 7.

25. Frerking, B. 2007. *A new learning day.* San Rafael, CA: Edutopia.

26. C.S. Mott Foundation. 2007. *A new day for learning: Report of the Time, Learning and Afterschool Task Force.* San Rafael, CA: Edutopia.

27. Pennington, H. 2007. *The Massachusetts Expanding Learning Time to Support Student Success Initiative.* Washington, DC: Center for American Progress.

28. Massachusetts 2020. 2005. *Time for a change: The promise of extended time schools for promoting student achievement.* Boston, MA: author.

29. White, W.S. 1906. Reviews before and after school vacation. *American Education* 10:185–188.

30. Lindahl, M. 2001. *Summer learning and the effect of schooling : Evidence from Sweden.* Amsterdam: University of Amsterdam.

31. Cooper, H. 2003. *Summer learning loss: The problem and some solutions* (EDO-PS-03-5). Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education.

32. Burkam, D., D. Ready, V. Lee, and L. LoGerfo. 2003. *Social class differences in summer learning between kindergarten and first grade: Model specification and estimation.* Ann Arbor: University of Michigan.

33. Borman, G.D., L.T. Overman, R. Fairchild, M. Boulay, and J. Kaplan. 2004. Can a multiyear summer program prevent the accumulation of summer learning losses? in *Summer learning: Research, policies, and programs*, G.D. Borman and M. Boulay, Editors. Lawrence Erlbaum Associates: Mahwah, New Jersey. p. 233–254.

34. Downey, D.B., B.A. Broh, and P.T. Hippel. 2004. Are schools the great equalizer? Cognitive inequality during the summer months and the school year. *American Sociological Review* 69:613–635.

35. Entwisle, D.R. and K.L. Alexander. 1992. Summer setback: Race, poverty, school composition, and mathematics achievement in the first two years of school. *American Sociological Review* 57 (February):72–84.

36. Entwisle, D.R., K.L. Alexander, and L.S. Olson. 1997. *Children, Schools, and Inequality.* Boulder, CO: Westview Press.

37. Alexander, K.L., D.R. Entwisle, and L.S. Olson. 2001. Schools, Achievement, and Inequality: A Seasonal Perspective. *Educational Evaluation and Policy Analysis* 23 (2):171–191.

38. Noble, K.G., N. Tottenham, and B.J. Casey. 2005. Neuroscience Perspectives on Disparities in School Readiness and Cognitive Achievement. *The Future of Children* 15 (1):71–89.

39. Hanushek, E.A. and S.G. Rivkin. 2006. School quality and the black-white achievement gap. *NBER Working Paper* 12651.

40. McCall, M., C. Hauser, J. Cronin, G.G. Kingsbury, and R. Houser. 2006. *Achievement gaps: An examination of differences in student achievement and growth.* Northwest Evaluation Association.

41. Phillips, M., J. Crouse, and J. Ralph. 1998. Does the Black-White test score gap widen after children enter school? in *The Black-White Test Score Gap*, C. Jencks and M. Phillips, Editors. Brookings Institute: Washington, DC. p. 229–272.

42. Heyns, B. 1978. *Summer learning and the effects of schooling.* New York: Academic Press.

43. Schacter, J. 2001. *Reducing social inequality in elementary school reading achievement: Establishing summer literacy day camps for disadvantaged children.* Santa Monica, CA: Milken Family Foundation.

44. Kozol, J. 1991. *Savage inequalities: Children in America's schools.* New York: Crown Publishers.

45. Eaton, S. 2006. *The children in Room E4: American education on trial.* Chapel Hill, NC: Algonquin Books.

46. Tatum, B.D. 2007. *Can we talk about race? And other conversations in an era of school resegregation.* Boston, MA: Beacon Press.

47. Heyns, B. 1987. Schooling and cognitive development: Is there a season for learning? *Child Development* 58 (5):1151–1160.

48. Delpit, L.D. 1988. The silenced dialogue: Power and pedagogy in educating other people's children. *Harvard Educational Review* 58 (3):280–298.

49. Tatum, B.D. 1992. Talking about race, learning about racism: The application of racial identity development theory in the classroom. *Harvard Educational Review* 62 (1):1–24.

50. Steele, C.M. 1997. A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist* 52 (6):613–629.

51. Noguera, P.A. 2003. How Racial Identity Affects School Performance. *Harvard Education Letter* 19 (3):1–3.

52. Landsman, J. 2004. Confronting the racism of low expectations. E*ducational Leadership* 62 (3):28–32.

53. Hale, J.E. 2004. How schools shortchange African American children. *Educational Leadership* 62 (3):34–39.

54. Cohen, G.L., J. Garcia, N. Apfel, and A. Master. 2006. Reducing the racial achievement gap: A social-psychological intervention. *Science* 313 (1):1307–1310.

55. Ferguson, R. 2003. Teachers' perceptions and expectations and the black-white test score gap. *Urban Education* 38 (4):460–507.

56. Alexander, K.L., D.R. Entwisle, and L.S. Olson. 2007. Lasting consequences of the summer learning gap. *American Sociological Review* 72:167–180.

57. Wolfe, P. 2001. *Brain matters: Translating research into classroom practice.* Alexandria, VA: Association for Supervision and Curriculum Development.

58. Redd, Z., S. Cochran, E.C. Hair, and K.A. Moore. 2002. *Academic achievement programs and youth development: A synthesis.* Washington, DC: Child Trends.

59. Ross, C.E. and B.A. Broh. 2000. The roles of self-esteem and the sense of personal control in the academic achievement process. *Sociology of Education* 73 (4):270–284.

60. Wentzel, K.R. 1991. Relations between social competence and academic achievement in early adolescence.

61. Coll, C.G. and L.A. Szalacha. 2004. The multiple contexts of middle childhood. *The Future of Children* 14 (2):81–97.

62. Csikszentmihalyi, M. and R.W. Larson. 1984. *Being adolescent: Conflict and growth in the teenage years.* New York: Basic Books.

63. Scales, P.C. and N. Leffert. 1999. *Developmental assets: A synthesis of the scientific research on adolescent development.* Minneapolis, MN: Search Institute.

64. Nichols, S.L. and D.C. Berliner. 2007. High-stakes testing and the corruption of America's schools. *Harvard Education Letter* 23 (2):7–8.

65. Bowles, S. and H. Gintis. 1976. *Schooling in capitalist America: Educational reform and the contradictions of economic life.* New York: Basic Books.

66. Walberg, H. 1984. Improving the productivity of America's schools. *Educational Leadership: Journal of the Department of Supervision and Curriculum Development*, N.E.A 41 (8):19–27.

67. Hofferth, S.L. and J.F. Sandberg. 2001. How American children spend their time. *Journal of Marriage and the Family* 63:295–308.

68. Chin, M.M. and K.S. Newman. 2002. *High stakes: Time poverty, testing and the children of the working poor.* New York: Foundation for Child Development.

69. Wertheimer, R., T. Croan, K.A. Moore, and E.C. Hair. 2003. *Attending kindergarten and already behind: A statistical portrait of vulnerable young children.* Washington, DC: Child Trends.

70. Chin, T. and M. Phillips. 2004. Social reproduction and child-rearing practices: social class, children's agency, and the summer activity gap. *Sociology of Education* 77 (3):185–210.

71. Capizzano, J., S. Adelman, and M. Stagner. 2002. *What happens when the school year is over? The use and costs of child care for school-age children during the summer months* (Occasional Paper Number 58). Washington, DC: Urban Institute.

72. Hofferth, S.L., A. Brayfield, S. Diech, and P. Holcomb. 1991. *The national child care survey 1990.* Washington, DC: The Urban Institute Press.

73. Dickinson, D.K. and P.O. Tabors. 1991. Early literacy: Linkages between home, school, and literacy achievement at age five. *Journal of Research in Childhood Education* 6:30–46.

74. Snow, C.E. 1993. Families as contexts for literacy development. *New Directions for Child Development* 61:11–24.

75. Connell, J.P. and B. Halpern-Felsher. 2000. How neighborhoods affect educational outcomes in middle childhood and adolescence: Conceptual issues and an empirical example, in *Neighborhood poverty: Context and consequences for children*, J. Brooks-Gunn, G.J. Duncan, and J.L. Aber, Editors. Russell Sage Foundation. p. 174–199.

76. Halpern-Felsher, B., J.P. Connell, M.B. Spencer, J.L. Aber, G.J. Duncan, E. Clifford, W.E. Crichlow, P.A. Usinger, S.P. Cole, L. Allen, and E. Seidman. 1997. Neighborhood and family factors predicting educational risk and attainment in African American and white children and adolescents, in *Neighborhood poverty: Context and consequences for children*, J. Brooks-Gunn, G.J. Duncan, and J.L. Aber, Editors. Russell Sage Foundation: New York. p. 146–176.

77. Pettit, G. 1997. After-school experience and social adjustment in early adolescence: Individual, family and neighborhood risk factors. Paper read at Society for Research in Child Development, at Washington, DC.

78. Quane, J.M. and B.H. Rankin. 1998. Neighborhood poverty, family characteristics, and commitment to mainstream goals: The case of African American adolescents in the inner city. *Journal of Family Issues* 19 (6):769–794.

79. Rankin, B.H. and J.M. Quane. 2002. Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems* 49 (1):79–100.

80. Sampson, R.J. 1997. Collective regulation of adolescent misbehavior: Validation results from eighty Chicago neighborhoods. *Journal of Adolescent Research* 12 (2):227–244.

81. Wilson, W.J. 1987. *The truly disadvantaged: The inner city, the underclass, and public policy.* Chicago: University of Chicago Press.

82. Miller, B.M., S. O'Connor, S. Sirignano, and P. Joshi. 1996. *Out-of-school time in three low income communities.* Wellesley, MA: Center for Research on Women, Wellesley College.

83. Beentjes, J.W.J. and T. Van der Voort. 1988. Television's impact on children's reading skills: A review of the research. *Reading Research Quarterly* 23 (4):389–413.

84. Fetler, M. 1984. Television viewing and school achievement. *Journal of Communication* 34:104–118.

85. American Academy of Pediatrics and Committee on Public Education. 2001. Children, adolescents, and television. *Pediatrics* 107 (2):423–426.

86. Hancox, R.J., B.J. Milne, and R. Poulton. 2005. Association of television viewing during childhood with poor educational achievement. *Archives of Pediatrics and Adolescent Medicine* 159 (7):614–618.

87. Sharif, I. and J.D. Sargent. 2006. Association between television, movie, and video game exposure and school performance. *Pediatrics* 118:1061–1070.

88. Littell, J. and J. Wynn. 1989. *The availability and use of community resources for young adolescents in an inner-city and a suburban community.* Chicago, IL: Chapin Hall Center for Children at the University of Chicago.

89. Alexander, K.L., D.R. Entwisle, and S.D. Bedinger. 1994. When expectations work: Race and socioeconomic differences in school performance. *Social Psychology Quarterly* 57 (4):283–299.

90. Putnam, R.D. 2000. *Bowling alone: The collapse and revival of American community.* New York: Simon and Schuster.

91. Schaefer-McDaniel, N.J. 2004. Conceptualizing social capital among young people: Towards a new social theory. *Children, Youth and Environments* 14 (1):153–172.

92. Lee, J.S. and N.K. Bowen. 2006. Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal* 43 (2):193–218.

93. Children's Defense Fund. 2005. *State of America's children 2005.* Washington, DC: Children's Defense Fund.

94. Canada, G. 1995. *Fist, Stick, Knife, Gun.* Boston, MA: Beacon Press.

95. Del Pilar O'Cadiz, M. 2003. Affirming culture and building citizenship through afterschool curricula, in *Afterschool Education: Approaches to an emerging field*, G.G. Noam, G. Biancarosa, and N. Dechausay, Editors. Harvard Education Press: Cambridge, MA. p. 121–126.

96. Suarez-Orozco, M.M. 2003. Globalization and the democratic space: Why what happens after school matters, in *Afterschool education: Approaches to an emerging field*, G.G. Noam, G. Biancarosa, and N. Dechausay, Editors. Harvard Education Press: Cambridge, MA. p. 97–102.

97. Scharf, A. and L. Woodlief. 2000. *Moving toward equity and access in after school programs: A review of the literature* (Working Paper #2). Oakland, CA: California Tomorrow.

98. Miller, B.M. 2003. *Critical hours: Afterschool programs and educational success.* Quincy, Massachusetts: Nellie Mae Education Foundation.

99. Steinberg, L., B.B. Brown, and S.M. Dornbusch. 1996. *Beyond the classroom: Why school reform has failed and what parents need to do.* New York, NY: Simon and Schuster.

100. Connell, J.P., B. Halpern-Felsher, E. Clifford, W.E. Crichlow, and P.A. Usinger. 1995. Hanging in there: Behavioral, psychological, and contextual factors affecting whether African American adolescents stay in high school. *Journal of Adolescent Research* 10 (1):41–63.

101. Catalano, R.F., K.P. Haggerty, S. Oesterle, C.B. Fleming, and J.D. Hawkins. 2004. The importance of bonding to school for healthy development: Findings from the Social Development Research Group. *Journal of School Health* 74 (7):252–261.

102. Duckworth, A. and M. Seligman. 2005. Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science* 16 (12):939–944.

103. Karweit, N. 1984. Time-on-task reconsidered: Synthesis of research on time and learning. *Educational Leadership* 41 (8):32–35.

104. Baker, D., R. Fabrega, C. Galindo, and J. Mishook. 2004. Instructional time and national achievement: Cross-national evidence. *Prospects* 34 (3).

105. RAND Corporation. 2006. *Ready for school: Can full-day kindergarten level the playing field?* Santa Monica, CA: RAND Corporation.

106. Haslem, M.B., B. Pringle, and N. Adelman. 1996. *The uses of time for teaching and learning.* U.S. Department of Education: Office of Educational Research and Improvement.

107. Frazier, J. and F. Morrison. 1998. The influence of extended-year schooling on growth of achievement and perceived competence in early elementary school. *Child Development* 69 (2):495–517.

108. Massachusetts 2020. *Comparing instructional time.* Boston: Massachusetts 2020.

109. Elmore, R. 2006. Three thousand missing hours: Where does the instructional time go? *Harvard Education Letter* 22 (6):8.

110. Waite-Stupiansky and M. Findlay. 2001. The fourth R: Recess and its link to learning. *The Educational Forum* 66 (1):16–25.

111. Larson, R.W. 2005. Positive youth development, willful adolescents, and mentoring. *The Journal of Community Psychology.*

112. Comer, J.P. 1988. Educating poor minority children. *Scientific American* 259 (5):42–48.

113. Tharp, R.G. 1989. Psychocultural Variables and Constants: Effects on Teaching and Learning in Schools. *American Psychologist* 44 (2):349–359.

114. Eccles, J.S. and C. Midgley. 1990. Changes in academic motivation and self-perception during early adolescence. *Advances in Adolescent Development* 2:134–155.

115. Goleman, D. 1995. *Emotional intelligence.* New York: Bantam Books.

116. Bandura, A. 1996. Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development* 67:1206–1222.

117. Cohen, J. 1999. Learning about social and emotional learning: Current themes and future directions, in *Educating hearts and minds: Social emotional learning and the passage into adolescence*, J. Cohen, Editor. Teacher's College Press: New York. p. 184–189.

118. Payton, J.W., D.M. Wardlaw, P.A. Graczyk, M.R. Bloodworth, C.J. Tompsett, and R.P. Weissberg. 2000. Social and emotional learning: A framework for promoting mental health and reducing risk behaviors in children and youth. *Journal of School Health* 70 (5):179–185.

119. Ryan, A. and H. Patrick. 2001. The classroom social environment and changes in adolescents' motivation and engagement during middle school.

120. Cohen, J., ed. 2001. *Caring classrooms/intelligent schools: The social emotional education of young children.* New York: Teacher's College Press.

121. Elias, M.J. 2003. *Academic and social-emotional learning.* Brussels, Belgium: International Academy of Education.

122. Klem, A.M. and J.P. Connell. 2004. Relationships Matter: Linking Teacher Support to Student Engagement and Achievement. *Journal of School Health* 74 (7):262–273.

123. Clark, R.M. 1990. Why disadvantaged students succeed: What happens outside school is critical. *Public Welfare* Spring:17–23.

124. Pollock, J.E. 2007. Improving student learning: *One teacher at a time.* Alexandria, VA: Association for Supervision and Curriculum Development.

125. Rhodes, J. 2004. The critical ingredient: Caring youth-staff relationships in after-school settings. *New Directions for Child Development* 2004 (103):101:145.

126. Commission on Children at Risk. 2003. *Hardwired to connect: The new scientific case for authoritative communities.* New York: Institute for American Values.

127. Connell, J.P., M.B. Spencer, and J.L. Aber. 1994. Educational risk and resilience in African American youth: Context, self, action, and outcomes in school. *Child Development* 65:493–506.

128. Werner, E.E. 1993. Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology* 5 (1993):503–515.

129. Rutter, M. 1987. Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry* 57:316–331.

130. Garmezy, N. 1985. Stress resilient children: The search for protective factors, in *Recent research in developmental psychology*, J. Stevenson, Editor. Pergamon Press: Oxford, England.

131. Blum, R.W., T. Beuhring, and P.M. Rinehart. 2000. *Protecting teens: Beyond race, income, and family structure.* Minneapolis, MN: Center for Adolescent Health, University of Minnesota.

132. Resnick, M.D., P.S. Bearman, R.W. Blum, K.E. Bauman, K.M. Harris, J. Jones, J. Tabor, T. Beuhring, R.E. Sieving, M. Shew, M. Ireland, L.H. Bearinger, and J.R. Udry. 1997. Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *The Journal of the American Medical Association* 278 (10):823–832.

133. McNeely, C. and C. Falci. 2004. School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of social belonging and teacher support. *Journal of School Health* 74 (7):284–292.

134. Marzano, R. 2003. *What works in schools: Translating research into action.* Alexandria, VA: Association for Supervision and Curriculum Development.

135. Pianta, R.C. 1999. *Enhancing relationships between children and teachers.* Washington, DC: American Psychological Association.

136. Rosenthal, R. and D.L. Vandell. 1996. Quality of care at school-age child-care programs: Regulatable features, observed experiences, child perspectives, and parent perspectives. *Child Development* 67:2434–2445.

137. Pierce, K.M., J.V. Hamm, and D.L. Vandell. 1999. Experiences in after-school programs and children's adjustment in first-grade classrooms.

138. Brown, B.B., L. Steinberg, N. Mounts, and M. Philipp. 1990. The comparative influence of peers and parents on high school achievement: Ethnic differences. Paper read at Society for Research in Adolescence, March, at Atlanta, GA.

139. Eccles, J. and J.A. Gootman. 2004. *Community programs to promote youth development* (Report Brief). Washington, DC: National Academy Press.

140. Cook, M.D. and W.N. Evans. 2000. Families or schools? Explaining the convergence in White and Black academic performance.

141. McWhorter, J. 2002. Why the Black-White test gap exists.

142. Henderson, K.A., M.D. Bialeschki, M.M. Scanlin, C. Thurber, L.S. Whitaker, and P.E. Marsh. 2006. Components of camp experiences for positive development. *Journal of Youth Development: Bridging Research and Practice* 1 (3):1:14.

143. Philliber Research Associates. 2005. *Directions: Youth development outcomes of the camp experience.* Martinsville, Indiana: American Camp Association.

144. Piha, S. 2006. *Holding California afterschool programs accountable.* San Francisco, CA: California Committee on Afterschool Accountability.

145. Boggiano, A.K. and T.S. Pittman. 1992. *Achievement and motivation: A social-developmental perspective.* Cambridge, England: Cambridge University Press.

146. Oden, S., M.A. Kelly, M. Zhenkui, and D.P. Weikart. 1992. *Challenging the Potential: Programs for Talented Disadvantaged Youth.* Ypsilanti, MI: High/Scope Press.

147. Csikszentmihalyi, M. 1990. *Flow: The psychology of optimal experience.* New York: Harper and Row.

148. Larson, R.W. 2000. Toward a psychology of positive youth development. *American Psychologist* 55 (1):170–183.

149. Larson, R.W. 1994. Youth organizations, hobbies, and sports as developmental contexts, in *Adolescence in context: The interplay of family, peers, and work in adjustment*, R.K. Silbereisen and E. Todt, Editors. Springer-Verlag: New York. p. 46–65.

150. Larson, R.W. and D.A. Kleiber. 1993. Structured leisure as a context for the development of attention during adolescence. *Loisir et Societe/ Society and Leisure* 16 (1):77–98.

151. Melaville, A., A.C. Berg, and M.J. Blank. 2006. *Community-based learning: Engaging students for success and citizenship.* Washington, DC: Coalition for Community Schools.

152. Lerner, R., J. Lerner, J. Almerigi, C. Theokas, E. Phelps, S. Naudeau, S. Gestsdottir, L. Ma, H. Jelicic, A. Alberts, L. Smith, I. Simpson, E. Christiansen, D. Warren, and A. von Eye. 2006. Toward a new vision and vocabulary about adolescence: Theoretical, empirical, and applied bases of a "positive youth development" perspective, in *Child psychology: A Handbook of Contemporary Issues*, L. Balter and C.S. Tamis-LeMonda, Editors. Psychology Press/Taylor & Francis: New York.

153. Lerner, R.M. 2005. Promoting positive youth development: Theoretical and empirical bases. Paper read at Workshop on the Science of Adolescent Health and Development, September, at Washington, DC.

154. Hansen, D.M., R.W. Larson, and J.B. Dworkin. 2003. What adolescents learn in organized youth activities: A survey of self-reported developmental experiences.

155. Youth Development Institute. 2003. *Strengthening youth development: Increasing the capacity of communities to support their youth.* New York: Youth Development Institute, Fund for the City of New York.

156. Winter, N. 2003. *Civic Engagement Among Youth: Review of Literature Relevant to the City Year Alumni Impact Studies.* Boston, MA: City Year, Inc.

157. Kirshner, B., K. Strobel, and M. Fernandez. 2003. Critical civic engagement among urban youth. *Penn GSE Perspectives on Urban Education* 2 (1):1–20.

158. Gambone, M.A., A.M. Klem, and J.P. Connell. 2002. *Finding out what matters for youth: Testing Key Links in a Community Action Framework for Youth Development.* Philadelphia: Youth Development Strategies, Inc. and Institute for Research and Reform in Education.

159. Krasny, M. and R. Doyle. 2002. Participatory approaches to program development and engaging youth in research: The case of an inter-generational urban community gardening program. *Journal of Extension* 40 (5):1–21.

160. Connell, J.P., M.A. Gambone, and T.J. Smith. 2001. Youth development in community settings: challenges to our field and our approach, in *Youth development: Issues, Challenges, and Directions.* Public/Private Ventures: Philadelphia, PA.

161. Pittman, K., M. Irby, and T. Ferber. 2000. Unfinished business: Further reflections on a decade of promoting youth development, in *Youth development: Issues, challenges, and directions*, G. Walker and N. Jafee, Editors. Public/Private Ventures: Philadelphia. p. 17–64.

162. Benson, P.L. and R.N. Saito. 2000. The scientific foundations of youth development, in *Youth development: Issues, challenges and directions*, G. Walker and N. Jafee, Editors. Public/Private Ventures: Philadelphia. p. 125–148.

163. Connell, J.P. and M.A. Gambone. 2002. *Youth development in community settings: A community action framework* (Draft). Philadelphia, PA: Youth Development Strategies, Inc.

164. Sherrod, L. 1997. Promoting youth development through research-based policies. *Applied Developmental Science* 1 (1):17–27.

165. McLaughlin, M.W., M.A. Irby, and J. Langman. 1994. *Urban sanctuaries: Neighborhood organizations in the lives and futures of inner-city youth.* San Francisco: Jossey-Bass.

166. Dubas, J.S. and B.A. Snider. 1993. The role of community-based youth groups in enhancing learning through nonformal education, in *Early adolescence: Perspectives on research, policy, and intervention*, R.M. Lerner, Editor. Lawrence Erlbaum Associates: Hillsdale, NJ. p. 159–174.

167. Roth, J., J. Brooks-Gunn, L. Murray, and W. Foster. 1998. Promoting healthy adolescents: Synthesis of youth development program evaluations. *Journal of Research on Adolescence* 8 (4):423–459.

168. Heath, S.B. 1994. The project of learning from the inner-city youth perspective. *New Directions for Child Development* 63:25–34.

169. Heath, S.B. and E. Soep. 1998. Youth development and the arts in nonschool hours. *Grantmakers in the Arts Newsletter* 9 (1):9–17.

170. Chavous, T., D. Bernat, K. Schmeelk-Cone, C. Caldwell, L. Kohn-Wood, and M. Zimmerman. 2003. Racial identity and academic attainment among African American adolescents. *Child Development* 74 (4):1076–1090.

171. Arroyo, C. and E. Zigler. 1995. Racial identity, academic achievement, and the psychological well-being of economically disadvantaged adolescents. *Journal of Personality and Social Psychology* 69 (5):903–914.

172. Slavin, R.E. 1995. Enhancing intergroup relations in schools: Cooperative learning and other strategies, in *Toward a common destiny: Improving race and ethnic relations in America*, W.D. Hawley and A.W. Jackson, Editors. Jossey-Bass: San Francisco. p. 219–314.

173. Berger, R. 2003. *An ethic of excellence: Building a culture of craftmanship with students.* Portsmouth, NH: Heinemann.

174. Noam, G.G., G. Biancarosa, and N. Dechausay. 2003. *Afterschool education: Approaches to an emerging field.* Cambridge, MA: Harvard Education Press.

175. Clark, R.M. 2007. In-school and out-of-school factors that build student achievement: Research-based implications for school instructional policy. Learning Points Associates, November 2002 [cited February 10 2007]. Available from http://www.ncrel.org/gap/clark/index.html.

176. Clark, R.M. 1983. *Family life and school achievement: Why poor Black children succeed or fail.* Chicago: University of Chicago Press.

177. Association for Experiential Education. 2007. What is experiential education? [Website]. Association for Experiential Education, 2007 [cited April 1, 2007 2007]. Available from www.aee2.org/customer/pages/php?pageid=47.

178. Conrad, D. and D. Hedin. 1982. Youth participation and experiential education. *Child and Youth Services* 4 (3/4):57–76.

179. Hattie, J., H.W. Marsh, J.T. Neill, and G.E. Richards. 1997. Adventure education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research* 67 (1):43–87.

180. Cason, D. and H.L. Gillis. 1994. A meta-analysis of outdoor adventure programming with adolescents. *The Journal of Experiential Education* 17:40–47.

181. Slavin, R.E. 1990. Research on cooperative learning: Consensus and controversy. *Educational Leadership* 47 (4):52–54.

182. Zeng, L. 2005. Principles and key elements in cooperative learning. *Sino-US English Teaching 2* (2):69–73.

183. Sapp, J. 2007. Cooperative learning: a foundation for race dialogue. Tolerance.org, 2007. Available from www.tolerance.org.

184. Billig, S.H. 2000. Research on K–12 school-based service learning: The evidence builds. *Phi Delta Kappan* 81 (9):658.

185. Youniss, J. and M. Yates. 1997. *Community service and social responsibility in youth.* Chicago: University of Chicago.

186. Curtis, D. 2002. The power of projects. *Educational Leadership* 60 (1):50–53.

187. Thomas, J.W. 2000. *A review of research on project-based learning.* San Rafael, CA: The Autodesk Foundation.

188. Seidel, S. 2002. *Project-based learning in the after-school setting.* Cambridge, MA: Project Zero, Harvard Graduate School of Education.

189. Fabiano, L., L.M. Pearson, E.R. Reisner, and I.J. Williams. 2006. *Preparing students in the middle grades to succeed in high school: Findings from Phase IV of the Citizen Schools evaluation.* Boston, MA: Citizen Schools.

190. Eccles, J.S. and J.A. Gootman. 2002. *Community programs to promote youth development.* Washington, DC: National Academy Press.

191. Blyth, D.A. and N. Leffert. 1995. Communities as contexts for adolescent development: An empirical analysis.

192. Dryfoos, J.G., J. Quinn, and C. Barkin, ed. 2005. *Community schools in action: Lessons from a decade of practice.* New York: Oxford University Press.

193. Irby, M., K. Pittman, and J. Tolman. 2003. Blurring the lines: Expanding learning opportunities for children and youth. *New Directions for Youth Development* 2003 (97):13:28.

194. Steinberg, A., C. Almeida, and L. Allen. 2003. Multiple pathways to adulthood: Expanding the learning options for urban youth. *New Directions for Youth Development* 2003 (97):29–44.

195. Harvard Family Research Project. 2006. Summer success: Challenges and strategies in creating quality academically focused summer programs. *Issues and Opportunities in Out-of-School Time Evaluation 9*.

196. National Reading Panel. 2000. *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: US Government Printing Office.

197. Kim, J.S. 2006. The effects of a voluntary summer reading intervention on reading achievement: results from a randomized field trial. *Educational Evaluation and Policy Analysis* 28 (4):335–355.

198. Kim, J. 2004. Summer reading and the ethnic achievement gap. *Journal of Education for Students Placed at Risk 9* (2):169–188.

199. Eccles, J.S., A. Wigfield, and U. Schiefele. 2000. Motivation to succeed, in *Handbook of child psychology, Fifth edition*, W. Damon, Editor. John Wiley and Sons. p. 1017–1095.

200. Kohn, A. 1993. *Punished by rewards: The trouble with gold starts, incentive plans, A's, praise, and other bribes*. Boston, MA: Houghton Mifflin.

201. Allington, R., A. McGill-Franzen, G. Camilli, L. Williams, J. Graff, J. Zeig, C. Zmach, and R. Nowak. 2003. Ameliorating summer reading setback among economically disadvantaged elementary students.

202. Borman, G.D. and M. Boulay, ed. 2004. *Summer learning: Research, policies, and programs*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

203. Johnston, R.C. 2000. Extra instruction helps Boston students make the grade. *Education Week*, October 4.

204. Northwest Regional Educational Laboratory. 2002. *Summer school programs: A look at the research, implications for practice, and program sampler.* Portland, OR: Northwest Regional Educational Laboratory.

205. Sunmonu, K., J. Larson, Y. Van Horn, E. Cooper-Martin, and J. Nielsen. 2002. *Evaluation of the Extended Learning Opportunities Summer Program.* Rockville, Maryland: Office of Shared Accountability, Montgomery County Public Schools.

206. Roderick, M., M. Engel, and J. Nagaoka. 2003. *Ending social promotion: Results from Summer Bridge.* Chicago: Consortium on Chicago School Research.

207. Portz, J. 2004. Summer School 2000 and 2001; The Boston Public Schools Transition Services Program, in *Summer learning: Research, policies, and programs*, G. Borman and M. Boulay, Editors. Lawrence Erlbaum Associates: Mahwah, New Jersey. p. 103–120.

208. Cooper, H., K. Charlton, J. Valentine, and L. Muhlenbruck. 2000. Making the most of summer school: A meta-analytic and narrative review. *Monographs of the Society for Research in Child Development* 65 (1):1–130.

209. Roderick, M., B.A. Jacob, and A.S. Bryk. 2004. Summer in the city: Achievement gains in Chicago's Summer Bridge Program, in *Summer learning: Research, policies, and programs*, G.D. Borman and M. Boulay, Editors. Lawrence Erlbaum Associates: Mahwah, New Jersey. p. 73–102.

210. Austin, G., B.G. Rogers, and H.H.J. Walbesser. 1972. The effectiveness of summer compensatory education: A review of the research. *Review of Educational Research* 42 (2).

211. Gewertz, C. 2002. More Chicago pupils flunk grade. *Education Week*, October 9, 1.

212. Youth Development Strategies Inc. 2006. *Inspirations: Developmental supports and opportunities of youths' experiences at camp.* Martinsville, IN: American Camp Association.

213. Building Educated Leaders for Life. 2003. *BELL Accelerated Learning Summer Program: 2003 Program Outcomes.* Boston, MA: Building Educated Leaders for Life (BELL).

214. Borman, G.D. and M.M. Dowling. 2006. Longitudinal achievement effects of multiyear summer school: Evidence from the Teach Baltimore randomized field trial. *Educational Evaluation and Policy Analysis* 28 (1):25–48.

215. Massachusetts 2020. 2004. *The transition to success pilot project.* Boston: author.

216. Su, H.C. 2001. After-school programs in Taiwan: Program features and child adjustment. Madison: University of Wisconsin-Madison.

217. Birmingham, J., E. Pechman, C.R. Russell, and M. Mielke. 2005. *Shared features of high-performing after-school programs: A follow-up to the TASC evaluation.* Washington, DC: Policy Studies Associates.

218. Wimer, C., S.M. Bouffard, P. Caronongan, E. Dearing, S. Simpkins, P. Little, and H.B. Weiss. 2006. *What are kids getting into these days? Demographic differences in youth out-of-school time participation.* Cambridge: Harvard Family Research Project.

219. Bouffard, S.M., C. Wimer, P. Caronongan, P. Little, E. Dearing, and S. Simpkins. 2006. Demographic differences in patterns of youth out-of-school time activity participation. *Journal of Youth Development* 1 (1).

220. U.S. Department of Education: National Center for Education Statistics. 1999. *Indicator of the month: Summer activities of students enrolled in grades 1–12.* Washington, DC: U.S. Government Printing Office.

221. Richardson, J.L., B. Radzisewska, C.W. Dent, and B.R. Flay. 1993. Relationship between after-school care of adolescents and substance use, risk taking, depressed mood, and academic achievement. *Pediatrics* 92 (1):32–38.

222. Marshall, N., C.G. Coll, F. Marx, K. McCartney, N. Keefe, and J. Ruh. 1997. After-school time and children's behavioral adjustment. *Merrill-Palmer Quarterly* 43:497–514.

223. Center for Prevention Research and Development. 1998. The effects of latchkey status on middle-grade students: New research findings. Paper read at 25th Annual Conference of National Middle Schools, at Denver, CO.

224. Cohen, D.A., T.A. Farley, S.N. Taylor, D.H. Martin, and M.A. Schuster. 2002. When and where do youths have sex? The potential role of adult supervision. *Pediatrics* 110 (6):1–6.

225. Vandell, D.L., K. Dadisman, K.M. Pierce, B.B. Brown, D. Lee, D. Bolt, E. Pechman, and E.R. Reisner. 2005. *Child developmental outcomes associated with supervised versus unsupervised after-school hours: A study of promising after-school programs (DRAFT).* Madison: University of Wisconsin and Policy Studies Associates.

226. Reisner, E.R., D.L. Vandell, E. Pechman, K.M. Pierce, B.B. Brown, and D. Bolt. 2007. *Charting the benefits of high-quality after-school program experiences: Evidence from new research on improving after-school opportunities for disadvantaged youth.* Washington, DC: Policy Studies Associates.

227. Duffett, A. and J. Johnson. 2004. *All work and no play?: Listening to what kids and parents really want from out-of-school time.* New York: The Wallace Foundation.

228. Fairchild, R., B. McLaughlin, and J.E. Brady. 2006. *Making the most of summer: A handbook on effective summer programming and thematic learning.* Baltimore, MD: Johns Hopkins University.

229. Food Research and Action Center. 2002. *Hunger doesn't take a vacation: Summer nutrition status report.* Washington, DC: author.

230. Von Hippel, P.T. 2007. The Effect of School on Overweight in Childhood: Gain in Body Mass Index During the School Year and During Summer Vacation. *American Journal of Public Health* 97:696–702.

231. Murnane, R.J. and F. Levy. 1996. *Teaching the new basic skills: Principles for educating children to thrive in a changing economy.* New York: The Free Press.

232. Partnership for 21st Century Skills. *Learning for the 21st Century: A report and mile guide for 21st Century skills.* Washington, DC: Partnership for 21st Century Skills.

233. Fairchild, R., B. McLaughlin, and B.P. Costigan. 2007. How did you spend your summer vacation? What public policies do (and don't do) to support summer learning opportunities for youth. *Afterschool Matters* (8):1–21.

234. Granger, R.C. and T.J. Kane. 2004. *Improving the quality of after-school programs* (commentary for Education Week). New York: W.T. Grant Foundation.

235. Grossman, J., M. Campbell, and B. Raley. 2007. *Quality time after school: What instructors can do to enhance learning.* Philadelphia: Public/Private Ventures.

236. Walker, K.E. and A. Arbreton. 2004. *After-School Pursuits: An Examination of Outcomes in the San Francisco Beacon Initiative.* Philadelphia, PA: Public/Private Ventures.

237. Posner, J.K. and D.L. Vandell. 1999. After-school activities and the development of low-income urban children: A longitudinal study. *Developmental Psychology* 35 (3):868–879.

238. Vandell, D.L. and M.A. Corasaniti. 1985. The relation between third graders' after school care and social, academic, and emotional functioning. *Child Development*:1–26.

239. Reisner, E.R., R.N. White, C.A. Russell, and J. Birmingham. 2004. *Building quality, scale and effectiveness in after-school programs.* Washington, DC: Policy Studies Associates, Inc.

240. Fiester, L., R.N. White, E.R. Reisner, and A.M. Castle. 2001. *Evaluation results from the TASC after-school program's second year: Summary of findings.* Washington, DC: Policy Studies Associates.

241. Policy Studies Associates. 2001. *Building quality and supporting expansion of after-school projects: Evaluation results from the TASC after-school program's second year.* Washington, DC: author.

242. Policy Studies Associates. 2001. *Evaluation of the TASC After-School Program: Summary of Year 2 findings regarding after-school staff.* Washington, DC: Policy Studies Associates.

243. Reisner, E.R., R.N. White, J. Birmingham, and M.E. Welsh. 2001. *Building quality and supporting expansion of after-school projects: Evaluation results from the TASC after-school program's second year.* Washington, DC: Policy Studies Associates.

244. Fiester, L., R.N. White, E.R. Reisner, and A.M. Castle. 2000. *Increasing and improving after-school opportunities: Evaluation results from the TASC After-School Program's first year.* Washington, DC: Policy Studies Associates.

245. Bodilly, S. and M. Beckett. 2005. *Making out-of-school time matter: Evidence for an action agenda.* Santa Monica, CA: RAND Corporation.

246. Beckett, M., A. Hawken, and A. Jacknowitz. 2001. *Accountability for after-school care: Devising standards and measuring adherence to them.* Santa Monica, CA: RAND Corporation.

247. Werner, E. and R. Smith. 1982. *Vulnerable but invincible: A longitudinal study of resilient children and youth.* New York: Adams, Bannister, and Cox.

248. Noam, G.G., K. Pucci, and E. Foster. 1999. Development, resilience, and school success in youth: The prevention practitioner and the Harvard-RALLY program, in *Developmental approaches to prevention and intervention*, D. Cicchetti and S. Toth, Editors. University of Rochester Press: Rochester, NY. p. 57–109.

249. Arbreton, A.J., J. Goldsmith, and J. Sheldon. 2005. *Launching literacy in after-school programs: Early lessons from the CORAL Initiative.* Philadelphia, PA: Public/Private Ventures.

250. Bialeschki, M.D., M. Schmid, and J. Tilley. n.d. *The role of supportive relationships: Building camps that care about kids.* Martinsville, IN: American Camp Association.

251. Russell, C.A. and E.R. Reisner. 2006. Supporting social and cognitive growth among disadvantaged middle-grades students in TASC after-school projects. *Journal of Youth Development* 1 (2):1–11.

252. Lauer, P.A., M. Akiba, S.B. Wilkerson, H.S. Apthorp, D. Snow, and M. Martin-Glenn. 2003. *The effectiveness of out-of-school time strategies in assisting low-achieving students in reading and mathematics: A research synthesis.* Aurora, CO: Mid-Continent Research for Education and Learning.

253. O'Connor, S. 2007. personal communication. Boston, MA, March 15, 2007.

254. Gager, R. 1982. Experiential education: Strengthening the learning process. *Child and Youth Services* 4 (3/4):31–39.

255. Conrad, D. and D. Hedin. 1991. School-based community service: What we know from research and theory. *Phi Delta Kappan*:743–749.

256. Campbell, P.B., L. Perlman, and E. Hadley. 2002. *Design It! Building design challenges in after school programs: Final evaluation report.* Groton, MA: Campbell-Kibler Associates.

257. Rickinson, M., J. Dillon, K. Teamey, M. Morris, M. Choi, D. Sanders, and P. Benefield. 2004. *A review of research on outdoor learning.* London, England: National Foundation for Educational Research.

258. American Institutes for Research. 2005. *Effects of outdoor education programs for children in California.* Sacramento, CA: California Department of Education.

259. Horvat, E.M. 2003. The interactive effects of race and class in educational research: Theoretical insights from the work of Pierre Bourdieu. *Penn GSE Perspectives on Urban Education* 2 (1):1–25.

260. California Tomorrow. 2003. *Pursuing the Promise: Addressing equity, access and diversity in after school and youth programs.* Oakland, CA: California Tomorrow.

261. Kennedy, E., J. Bronte-Tinkew, and G. Matthews. 2007. Enhancing cultural competence in out-of-school time programs: What is it, and why is it important? *Research-to-Results* 2007-03:1:6.

262. Perry, T.E. 2003. Up from the parched earth: Toward a theory of African-American achievement, in *Young, Gifted, and Black: Promoting High Achievement Among African-American Students*, T.E. Perry, C.M. Steele, and A.G. Hilliard, Editors. Beacon Press: Boston, MA. p. 1–108.

263. Comer, J.P. 1984. Home-school relationships as they affect the academic success of children. *Education and Urban Society* 16:323–337.

264. Henderson, A.T. and K.L. Mapp. 2002. *A new wave of evidence: The impact of school, family, and community connections on student achievement.* Austin, TX: Southwest Educational Development Laboratory.

265. Brooks-Gunn, J. and L.B. Markman. 2005. The contribution of parenting to ethnic and racial gaps in school readiness. *The Future of Children* 15 (1):139–168.

266. Hill, N., D.R. Castellino, J.E. Lansford, P. Nowlin, K.A. Dodge, J.E. Bates, and G.S. Pettit. 2004. Parent academic Involvement as related to school behavior, achievement, and aspirations: demographic variations across adolescence. *Child Development* 75 (5):1491–1509.

267. Dearing, E., K. McCartney, H.B. Weiss, H. Kreider, and S. Simpkins. 2004. The promotive effects of family educational involvement for low-income children's literacy. *Journal of School Psychology* 42:445–460.

268. Walker, J., K.V. Hoover-Dempsey, D. Whetsel, and C. Green. 2004. *Parental involvement in homework: A review of current research and its implications for teachers, after school program staff, and parent leaders.* Cambridge, MA: Harvard Family Research Project.

269. Harvard Family Research Project. 2007. Family involvement in elementary school children's education. *Family Involvement Makes a Difference* 2 (2):1:12.

270. Le Menestrel, S. 2002. *In the good old summertime: What do parents want for their kids?* (Unpublished paper). Washington, DC: Academy for Educational Development: Center for Youth Development and Policy Research.

271. Weiss, H.B., P. Little, and S.M. Bouffard. 2005. More than just being there: Balancing the participation equation. *New Directions for Youth Development* 2005 (105):15–32.

272. Borden, L., D.F. Perkins, F.A. Villarruel, and M.R. Stone. 2005. To participate or not to participate: That is the question. *New Directions for Youth Development* 2005 (105):33–50.

273. Simpkins, S., M. Ripke, A.C. Huston, and J. Eccles. 2005. Predicting participation and outcomes in out-of-school activities: Similarities and differences across social ecologies. *New Directions for Youth Development* 2005 (105):51–70.

274. Forum for Youth Investment. 2004. *Participation in out-of-school time.* Washington, DC: Forum for Youth Investment.

275. Harvard Family Research Project. 2004. Moving Beyond the Barriers: Attracting and Sustaining Youth Participation in Out-of-School Time Programs. *Issues and Opportunities in Out-of-School Time Evaluation* (6):1–16.

276. Lock, E. and J. Costello. 2001. *Determinants of youth participation in primary support programs* (Working Paper). Chicago: Chapin Hall Center for Children at the University of Chicago.

277. Fiester, L. *Afterschool counts! A guide to issues and strategies for monitoring attendance in afterschool and other youth programs.* New York: Policy Studies Associates, Inc., After School Project of the Robert Wood Johnson Foundation.

278. Cobb, N., S. Harper, K. McCormick, K. McNeil, and M. Miltenberger. 2006. Summer programming: What do children say? *Journal of Youth Development: Bridging Research and Practice* 1 (1):1–7.

279. Council of Chief State School Officers and Forum for Youth Investment. 2001. *Students Continually Learning: A Report of Presentations, Student Voices, and State Actions.* Washington, DC: Council of Chief State School Officers.

280. Innovation by Design and Center for Teen Empowerment. 2002. *After-school programs in Boston: What young people think and want. A report to the Boston After School for All Partnership.* Boston, MA: author.

281. Grossman, J.B., M.L. Price, V. Fellerath, L.Z. Jucovy, L.J. Kotloff, R. Raley, and K. Walker. 2002. *Multiple choices after school: Findings from the Extended-Service Schools Initiative.* Philadelphia, PA: Public/Private Ventures.

282. Pechman, E. and L. Fiester. 2002. *Sustainability in school-linked after-school programs: Leadership, program quality, and sustainability.* Washington, DC: Policy Studies Associates, Inc., Charles Stewart Mott Foundation.

283. Lauver, S. and P. Little. 2005. Recruitment and retention strategies for out-of-school time programs. *New Directions for Youth Development* 2005 (105):71–90.

Appendix A

Characteristics of Effective Summer Programs

What makes summer programs "work"? It is common sense that low-quality programs are unlikely to produce positive outcomes for youth, and the research on afterschool programs as well as summer camps supports this contention. Content matters, but so does the way it is delivered; the relationships that staff develop with children, the emotional climate of the program, and the opportunities for youth to build decision-making and leadership skills all make a difference [13, 16, 19, 139, 142, 195, 217, 228, 234–236]. Research to date on summer programs gives us some sense of what program characteristics are most closely linked to positive outcomes for youth, but we can also learn from the research on afterschool programs.

However wonderful a program may be, participation matters; children will not benefit from programs that are too short in duration, consist of too few hours per week, or they do not attend regularly, so high participation is also a requirement of a successful program. Therefore, we also look at what research tells us about the duration and intensity of successful programs and how they succeed in enrolling and retaining young people.

Research on Effective Afterschool Programs

Early studies of afterschool programs generally compared the outcomes for participating children with a group of children who spent their afternoons elsewhere, whether at home, on their own, or in another setting [for example, 237, 238]. However, more recently, research has begun to focus on the strategies, structures, and processes that promote positive academic and social outcomes for children and youth in afterschool programs [13, 16, 19, 217, 234].

The Massachusetts Afterschool Research Study, or MARS [16], one of the most in-depth studies of program quality to date, obtained information on program characteristics, program quality, and youth outcomes from nearly 4,000 youth between kindergarten and eighth grade attending 78 diverse afterschool programs across Massachusetts. The study examined the program processes and features that resulted in positive change in five youth outcomes: initiative, homework, relationships with adults, relationships with peers, and behavior.

Through the use of multilevel modeling, a sophisticated statistical strategy that takes into account the clusters of children in different programs, the MARS researchers found that staff engagement led to youth engagement, which in turn led to positive changes in youth outcomes such as relationships with peers and adults, initiative, and homework. Programs that were most successful had high quality staff; the leadership of an experienced, educated site director; higher staff compensation; more positive connections to schools and relationships with school personnel; better communication with families; and more extensive staff training.

A six-year evaluation by Policy Studies Associates [239–244] of projects under the auspices of The After School Corporation (TASC) in New York City included 96 afterschool program sites serving 52,000 participants in a school-based model. A substudy [217] examined the characteristics of 10 afterschool programs that test scores indicated had contributed to significant increases in students' academic performance.

Interestingly, the programs that were most effective in raising test scores were *not* the TASC sites most focused on academic content, but rather the programs that were using effective strategies to promote children's development in all areas. The evaluators noted five especially important characteristics of these programs: a broad array of enrichment opportunities; opportunities for skill building and mastery; intentional relationship building; a strong, experienced site manager supported by a trained and supervised staff; and administrative support from the sponsoring agency.

A study conducted by researchers from the Collaborative for Academic, Social, and Emotional Learning [19] provides new insight into the important role played by appropriate, well-implemented curricula in promoting social skills in youth. In this meta-analysis of existing high-quality studies, Durlak and Weissberg found that when programs used four research-based approaches to skill development, children had more growth in personal and social skills. The evidence-based practices included: sequenced activities designed to use active learning approaches to develop skills over time, program content that was focused on particular personal or social skills, and communication of these goals in an explicit fashion.

While these three studies focused on afterschool programs [16, 19, 217], together their findings provide important insights into the characteristics of effective summer programs as well. Programs must have staff with the knowledge and capacity to carry out well-planned, intentional learning activities with youth. They also must be able to develop strong relationships with children that build over time. Furthermore, available evidence [18, 214–217] suggests that if programs are to build children's academic skills effectively, they should consider a holistic approach that focuses on social, emotional, and physical as well as cognitive development.

Quality programs cannot thrive in isolation; they need the support of strong organization structures, professional development, and sustainable funding sources. Programs that benefit children have created meaningful connections with families, schools, and community partners [16, 139, 228, 245, 246]. Many of these lessons are relevant to summer programs, especially those looking to increase children's engagement in learning.

Research on Summer Program Quality

While the research on summer programs is in an early stage, the findings of these initial studies echo the literature on afterschool program quality and the consensus of leaders in the field such as the Center for Summer Learning at Johns Hopkins University [228]. Key research-based factors in successful summer programs include:

- skilled, caring staff
- an appropriate, engaging curriculum
- cultural relevance
- parent involvement
- an appropriate structure

- *Skilled, Caring Staff*

The research on the importance of strong relationships between teachers (or staff) and children is compelling [16, 122, 126, 129, 130, 135, 206, 217, 239, 247–251], and is undoubtedly a critical factor in determining program success. The skill requirements for staff are broad [235], including: the ability to connect as a mentor with individual children, to manage groups, to create a positive social climate, to meet individual needs, to intervene appropriately when

conflicts arise, to share leadership with young people, and to connect with youth personally while maintaining an appropriate role as staff [235].

A recent study of the Beacon Centers in Philadelphia [235] found that youth were most engaged in programs where staff successfully managed groups, provided positive support for young people, and encouraged them to work together. The most successful behavior management techniques were setting ground rules, providing ongoing positive reinforcement, reinforcing expectations fairly, and remaining firm but respectful when ground rules were broken. In addition, youth enjoyed activities more when Beacon staff members facilitated their interactions by having older youth or those with more skills guide less skilled participants, organized them into pairs or small groups for collaborative activities, and modeled positive interactions. Participants were more engaged in the program when they had opportunities for input and the development of activities.

In addition to relational and group-management skills, staff need deep knowledge of program content, including knowing how to individualize the curriculum to adapt to the varied needs and interests of children [206, 252]. Many programs depend on a "mixed" staff of certified teachers, other staff with college degrees, and community members who contribute a wealth of knowledge about cultural arts, sports, or other content areas. Such collaboration can bring the "best of both worlds," combining the academic expertise of teachers with skills in designing curricula and linking activities to learning standards combined with youth development professionals' focus on developing relationships with youth, developing youth leadership, and making activities fun [228], but such staffing patterns create challenges in areas like staff development as well.

Clearly, significant time is necessary for staff to meet these standards, yet finding the time for training, planning and preparation in the context of running full-day programs is a huge challenge. Yet planning, reflection, and continuous improvement are necessary ingredients if program leaders are to succeed.

■ *An Appropriate, Engaging Curriculum*

Programs that aspire to capture children's interest and sustain it over time need to be more than recreational in nature and at the same time different from typical schooling. [208, 214] Creating real-life contexts for academic (and other) content allows children to gain background knowledge, increase engagement, and build cognitive frameworks. The National Research Council's *How People Learn: Brain, Mind, Experience, and School* [3] argues that conceptual frameworks are key to learning new material. As research on brain development demonstrates [2–4, 38, 57, 126], curricula that reinforce connections between physical, social, and cognitive domains [173] will result in the greatest advances in achievement for children and youth.

Successful summer programs use an experiential approach to deepen the enrichment opportunities and skills of children and youth. One strategy is to embrace a thematic approach to curriculum development, where many different activities are linked through a common thread of a content area that interests youth. The Center for Summer Learning promotes thematic approaches because they can "attract and sustain the interest of young people; provide continuity for a wide variety of summer activities; encourage deeper learning; build linkages to community resources; foster collaboration between schools and youth development organizations; offer multiple opportunities for parent and family involvement; and energize staff [228 p. 51]."

For example, the Hasbro Summer Learning Initiative in Springfield, Massachusetts, supports implementation of six different thematic curricula in 22 different summer camps serving nearly 2,000 children [253]. The curricula include: the local environment through study of a watershed; hip hop/drumming; fitness and health; exploration of the city of Springfield; theater arts; and a science-oriented curriculum developed by the Boston Children's Museum. The initiative also provides training and technical assistance, peer leader meetings, enhancement grants, and increased access through a summer fund.

While a well-designed curriculum can help to support good implementation, it is equally important that summer programs do not mimic the didactic, rigid, and passive instruction of some schools [95, 174], especially programs serving children who may arrive with negative educational experiences. Many programs embed academic content into inquiry-based projects,

outdoor education, community service activities, field trips, and other experiential learning opportunities [179, 180, 254–258]. One afterschool program described by Seidel [188] had a boat race, with one group of children working together to discuss what materials float or sink, what design moves fastest, and how density works, while another created a project called Community Museum, which included exhibits of their own memories, interviews with long-time residents, photographs, and other documents, and a third program created a songwriting project that developed out of the children's love of popular music.

■ *Cultural Relevance*

Historically, many camps were developed to serve children from a particular religious, ethnic, or linguistic background and build their cultural identity. Since research indicates that schools are less successful in reducing racial achievement gaps than in counteracting income achievement gaps, especially for African American students [214], summer programs may have an especially important role in building a strong racial and ethnic identity for children in nondominant groups [49–51, 97, 168, 259–260].

Designing a culturally relevant program encompasses staffing, parent involvement, content and curricula, as well as administration [261]. The BELL summer program has historically placed a special emphasis on serving African American children and strives to ensure that its staff reflects and strengthens the racial identity of youth in the program. An afterschool program located in an immigrant community near Los Angeles [95] incorporated project-based learning with a focus on pre-Columbian history for children in third through fifth grade. Activities included reading Aztec myths, making clay artifacts, drawing timelines and maps revealing family histories, measuring these journeys, interviewing family members and writing up these oral histories, and painting murals. These experiences served to build a sense of community among participants as well as validating their cultural heritage, all the while increasing skills directly linked to academic success.

As middle and high school students embark on a journey to develop a healthy personal and racial identity [46], culturally competent programs may help to counteract negative societal messages and reinforce a positive cultural and gender identity [49, 51, 168, 260, 262]. Such programs engage youth in working for social change, provide positive mentors, create racially

and ethnically mixed groups for activities, encourage youth to pursue activities that challenge stereotypes about their groups, incorporate learning about the history and culture of various groups into the curriculum, have high expectations of what youth can achieve, and draw on the interests of young people in developing and implementing a curriculum [50, 51, 97].

- *Parent Involvement*

The research on summer programs is striking in its emphasis on the importance of relationships between programs and parents. Cooper and his colleagues [31, 208] found that programs that included parent involvement generally produced larger gains for children than other programs. Even stronger evidence for the importance of parent involvement comes from research in education [92, 99, 263–268]. The education literature suggests that parents make a difference in several ways: through their relationships with children, their connections to school, and their support for diverse learning experiences outside of school [269].

Parents are key to making sure their children attend a summer program on a regular basis [214]. Especially for younger children, parents' choices are paramount in deciding what programs they will attend. Problems with transportation, getting multiple children to various programs, a lack of trusting relationships between staff and parents, or a family's need for older children to care for younger ones can impede program participation if administrators are not sensitive to parents' needs. Summer school programs, which typically end for the day soon after lunch, present difficult challenges for working parents.

Programs that aim to increase children's skills will benefit by looking to parents to extend learning beyond the seven or eight weeks of the program [204]. If summer programs are successful in getting parents to encourage children to read, as was found in the BELL program evaluation [18], or in reading to them more during family time, the foundation for skills developed during the summer program or school hours will be built upon for months or years to come.

Creating a successful program requires understanding what parents want for their children in the summer—which includes having fun and a chance to relax. However, parents, especially Latino and African American parents, want more as well. Two recent surveys [227, 270] have

found that parents of color are concerned that their children continue to learn in the summer months, in addition to enjoying their time away from school. [227, 270]

■ *An Appropriate Structure*

Programs do not exist in a vacuum. Structural characteristics such as program size, administration, and scheduling can help or hinder the ability of programs to achieve their goals for participating youth. Cooper and his colleagues [208] found that small programs were generally the most successful, presumably due to the stronger relationships that can develop in such a climate. Similar research has been behind the nationwide movement for smaller classes and smaller high schools. Several studies have found that one-on-one or small-group tutoring is an important component of successful academic-enrichment programs, both during the summer and after school hours [31, 206, 208, 252]. In the MARS study [16], larger programs actually had higher-quality activities, probably because they divided children into smaller groups for activities, even though their overall enrollment was high.

Based on the research discussed above as well as experience working with programs across the country and administering Teach Baltimore, the Center for Summer Learning at Johns Hopkins University has designed a handbook for summer programs [228] that focuses on nine key characteristics of effective programs that aim to stem summer learning loss. It recommends an approach to learning that (1) is intentional in its focus on accelerating learning; (2) has a commitment to youth development; (3) takes a proactive approach to summer learning; (4) has a program infrastructure that includes strong, empowering leadership; (5) advanced, collaborative planning; (6) extensive opportunities for staff development; (7) strategic partnerships; (8) a rigorous approach to evaluation and improvement; and (9) a clear focus on sustainability and cost-effectiveness.

Research on Program Participation

A program will not produce positive youth outcomes, no matter how good its quality, unless children are there to experience it. In recent years, increasing attention has been paid to the effects of attendance rates in afterschool programs, leading to a greater understanding of the need for children to attend programs regularly over a significant period of time in order to benefit from their experiences [14, 271–277]. Nearly all the studies discussed in this report

that have examined participation levels have found that the more a child attends a summer program, the stronger its effects [18, 33, 180, 205, 212, 278]. For example, in the YDSI study, children who attended programs for four weeks or more had the strongest assets [212].

Unfortunately, high absenteeism is often a problem in summer programs designed to boost the academic achievement of children, whether through summer school or an enrichment program [18, 211, 214]. Unlike schools, which are mandatory for children into their teen years, summer programs are generally voluntary, and even mandatory summer schools have limited consequences to mete out to students who do not attend.

What makes kids want to come to a summer program? In a word, fun. Like afterschool programs, summer programs need to integrate learning experiences into fun, engaging activities if they are to maintain student participation. In a study of Energy Express [278], an academic enrichment summer program serving children in 80 low-income rural communities in West Virginia, children voiced positive feelings about coming to the program because it was fun. They especially enjoyed the arts: "Children identified both visual and dramatic arts as what they like best, but they seemed particularly drawn to the large, creative visual art activities such as building castles" [p. 6]. Programs are also fun when the children have good social connections, either from previous relationships with peers or from those developed in the context of the program.

Studies of afterschool programs for middle and high school students [227, 236, 275, 279–282] point to the constant challenges of attracting and retaining participants in the face of appealing alternatives such as hanging out with their nonprogram peers, a desire for more freedom, and responsibilities such as paid employment or caring for younger siblings. Summer programs for this age group need to make a special effort in both their recruitment and their retention efforts. Afterschool programs have developed a number of different strategies that may also work for summer programs, including being responsive to youths' needs and interests; offering active, age-appropriate activities that make learning fun; using incentives; and reaching out directly to families, youth, and peer groups in the community [275, 283].

Some summer programs are not long enough to have any lasting effect on most children, with many as short as just one or two weeks [142]. Even the hybrid youth development–academic enrichment programs, which generally have full-day programming for six weeks or more, may have a long-lasting impact only on those children who attend over multiple summers [33], so the boost of each summer experience can prevent the summer learning loss that would otherwise occur. Program designers need to pay attention to "dosage," both over one summer and in creating continuity for children over subsequent summer periods, if youth are to gain the maximum benefit from their experience.

About the Author

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