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ABSTRACT

This policy brief reviews research on the effectiveness of summer-school programs. It begins with a short history of the current school calendar, including how 19th century agrarian life required children to stay home during the summer to attend to crops or livestock. Next, a meta-analysis of 13 studies brings to light the effects long summer breaks have on students, such as the loss of 1 month on achievement test scores, and the significant loss of math and spelling skills. A history of summer school and summer-school goals follows. Goals include preventing delinquent behavior, remediating or preventing learning deficits, helping to meet minimum competency requirements, breaking the poverty cycle, and accelerating progress for gifted students. A review of research on summer school's effectiveness follows, which demonstrates a dominantly positive effect on students. The brief concludes with recommendations that policymakers should continue to fund summer-school programs, require that funds for summer school be spent on mathematics and reading instruction, and set aside funds for the purpose of fostering participation in summer programs, especially by disadvantaged students. Practitioners should plan early, provide program and staffing continuity from year to year, and integrate summer teaching with staff development. (Contains 18 references.) (RT)

Policy BRIEF

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Summer School: Research-Based Recommendations for Policymakers

by Harris Cooper, Ph.D.

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Overview

In 1999, a Cox Newspapers survey of the nation's ten largest school districts revealed a 20% increase in summer school enrollment during 1998, to well over 600,000 students (Mollison & Brett, 1999). By summer 2000, the *New York Times* reported the number of summer school attendees in these ten districts had jumped to over 850,000 (Wilgoren, 2000). The Cox Newspapers research also revealed that nationwide about five million students, or 10% of students attending elementary through high school, were enrolled in summer school. Further, between 1991 and 1999, the percentage of public elementary schools eligible for Title I poverty aid that used the federal funds to subsidize summer school programs rose from 15% to 41%.

There is good reason to believe that the demand for summer school will continue to grow throughout the next decade. This prediction is based on three national trends. First, the nature of the American family has undergone dramatic changes. Reynolds Farley (1996), using results from the last four U.S. Census endeavors, found that most common today is a family headed by a single parent or one in which both parents work outside the home. The changes in American families suggest that the years ahead will bring increasing demands for government-sponsored, school-based services for children when regular classes are not in session.

Second, in the past two decades, many policymakers have become concerned about the global competitiveness of the American economy and the education system that drives it. Statistics from the National Commission on Time and Learning (1993) suggest that students in the United States spend less time in school than students in many other industrialized nations, as well as less time studying core subjects.

Finally, in addition to issues of global competitiveness, an emphasis has emerged nationally on higher academic standards and minimum competency requirements. The new standards and requirements have provided the impetus for increased use of summer schools. For example, Chicago Public

Schools has a policy that establishes districtwide standards of promotion for students completing third, sixth, and eighth grades. If students do not meet minimum grade-equivalent reading and math scores, report card grades, and attendance criteria, they are either retained or must attend the Summer Bridge Program (Chicago Public Schools, 1997). In all, 27% of the nation's school districts now impose summer school on poor-performing students as a condition for promotion (Mathews, 2000).

In sum then, the push for more summer learning opportunities for children and adolescents will gather momentum from changes in the American family and from a focus on increasing the time children spend in formal education as a means of meeting higher academic standards and improving America's global economic position.

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This policy brief reviews research on the effectiveness of summer school programs. It begins with a short history of the current school calendar and a summary of research examining the impact of the long summer break on students' achievement test scores. This is followed by a history of summer school and its goals. Next, a review of research is presented on whether summer school is effective and, if so, which program characteristics are associated with the most effective programs. Finally, the brief concludes with some recommendations for policymakers and practitioners.

Historical Roots of the Current School Calendar

In the 19th century, school calendars reflected the needs of the families and communities served by each school district (Richmond, 1977). Children who lived in agricultural areas rarely attended school during summer or during planting and harvesting so they could be free to help tend crops or livestock. If children lived in urban areas, it was not unusual for them to attend school for at least two of summer's three months.

By the turn of the century, family mobility and the growing integration of the national economy made it important to standardize the school curricula. Families moving from one community to another needed to find that children at the same age were learning and were expected to know roughly the same things in their new community as in their old one. This need for standardization resulted in the current nine-month calendar compromise between town and country, and summer became a time without school, regardless where children lived (Association of California School Administrators, 1988).

Summer Learning Loss

The three-month hiatus in the American school calendar raises the question of what impact the long summer break might have on students. To find out, Cooper, Nye, Charlton, Lindsay, and Greathouse (1996) undertook a synthesis of the research on summer learning loss, or more specifically, whether students' achievement test scores declined over the summer vacation. Thirty-nine studies were found examining the effects of summer vacation, 13 of which provided enough information for use in a statistical synthesis. A statistical combination of these results, called a *meta-analysis,* indicated that summer learning loss equaled at least one month of instruction. On average, children's achievement test scores were at least one month lower when they returned to school in fall than when students left in spring.

This meta-analysis also found dramatic differences in the effect of summer vacation on different skill areas. Summer loss was more pronounced for math facts and spelling than for other tested skill areas. An explanation of this result rests on the observation that both math facts and spelling skills involve the acquisition of factual and procedural knowledge, whereas other skill areas—especially math concepts, problem solving, and reading comprehension—are more conceptually based. Without practice, cognitive psychology suggests, facts and procedural skills are most susceptible to being forgotten (e.g., Cooper & Sweller, 1987).

The meta-analysis also suggested that summer loss was more pronounced for math overall than for reading overall. It may be that children's home environments provide more opportunities to practice reading skills than to practice mathematics.

In addition to the influence of subject area, numerous differences among students were tested in the meta-analysis. Overall, there was little evidence to suggest that intelligence had an impact on the effect of summer break. Likewise, neither the student's sex nor ethnicity appeared to have a consistent influence on summer learning loss. Educators

expressed special concern about the impact of summer vacation on the language skills of students who do not speak English at home, but the literature search found little evidence bearing on this issue.

Finally, the subject of family economics was examined as an influence on what happens to children over the summer. The meta-analysis revealed that all students, regardless of the resources in their home, lost roughly equal amounts of math skills over summer. However, substantial economic differences were found for reading. On some measures, middle-class children showed gains in reading achievement over summer, but disadvantaged children showed losses. Reading comprehension scores of both income groups declined, but more so for disadvantaged students. Again, the income differences may be related to differences in opportunities to practice and learn reading skills over the summer, with more books and reading opportunities available for middle-class children.

The loss in achievement test scores suggests that it might be beneficial to continue summer remedial and enrichment programs. For all students, a focus on mathematics instruction in summer would seem to be most effective. Alternatively, if summer programs had the purpose of lessening inequities across income groups, then a focus on summer reading instruction for disadvantaged students would be most beneficial.

Table 1
Summer Learning Loss

Research reveals that

- **On average, children lose one month on achievement test scores over the summer vacation.**
- **Summer loss is greatest in math facts and spelling.**
- **Summer loss is greater in math than reading.**
- **Summer vacation increases disparities between middle-class and disadvantaged students' reading scores.**

It is important to point out, however, that the existence of summer learning loss cannot *ipso facto* be taken to mean summer educational programs will be effective remedial interventions. Summer school might not change the educational trajectory of students who took part in such programs. The impact of summer educational programs has to be evaluated on its own merits.

Summer School

As with the school calendar, in general, the impetus for summer programs for school-aged youth first resided in economic considerations. As the 20th century took hold, the economy of the United States shifted from an agricultural base to an industrial one. Most children were either immigrants from abroad who made their homes in large urban areas, or they were part of the great migration of Americans from the farm to the city. Many children and adolescents held jobs during the summer, and those who were idle were a cause of concern for city dwellers (Dougherty, 1981). However, the passage of the first child labor law in 1916 meant that school-aged children had little to do during their vacation from school. Community leaders demanded that organized recreational activities be made available for students when school was out. Today, the purposes of summer programs stretch far beyond the prevention of delinquent behavior, but this certainly remains among summer school's latent, if not overt, functions.

By the 1950s, educators realized that summertime held opportunities to remedy or prevent learning deficits (Austin, Rogers, & Walbesser, 1972). Because the wealthy were able to hire tutors for their children, the educational summer programs made available through schools largely served students from disadvantaged backgrounds.

Goals of Summer School

Summer programs to remedy learning deficits can be grouped into four categories. First, some summer programs are meant to help students meet minimum competency requirements for graduation or grade promotion. The Chicago Public Schools program mentioned earlier is of this sort. Second is the type of program most people think of as "summer school": secondary-school students who fail a particular course during the regular academic year use summer school as an opportunity to retake the course.

A third type of remedial summer school occurs in response to the movement to ensure students with disabilities receive a free and appropriate education. In 1979, the United States District Court

Table 2
Goals of Summer School

- **Prevent delinquent behavior**
- **Remediate or prevent learning deficits**
- **Help meet minimum competency requirements**
- **Repeat failed courses or grade levels**
- **Prevent regression for students with learning disabilities**
- **Break the cycle of poverty**
- **Provide flexible high school course scheduling**
- **Accelerate progress for gifted students**
- **Offer teachers additional compensation**

ruled that the Pennsylvania Department of Education had to provide a program beyond the regular school year for children with disabilities. The ruling was based on the premise that the long summer break would lead to regression of skills in students covered by the Individuals with Disabilities Education Act.

Fortunately, the Elementary and Secondary Education Act of 1965 and its successors recognized the special needs of students residing in areas with high concentrations of poverty. These programs were meant to break the cycle of poverty through the provision of supplemental educational services. To accomplish this goal, the law suggested that children have full access to effective high-quality regular school programs and receive supplemental help through extended-time activities. The latter injunction has led to the establishment of educational summer programs for disadvantaged youth.

With the passage of time, the purposes of summer school have grown beyond the provision of remedial education. In 1959, Conant recommended that boards of education provide summer opportunities not only for students who were struggling in school but also for those who needed more flexible course schedules or who sought enriched educational experiences. Conant suggested that students who were heavily involved in extra-curricular activities or who held work-study positions could use summer school as a way to lighten their academic burden without delaying their graduation. Students who wished to graduate early could speed up their accumulation of credits. School administrators in the 1960s, faced with the space crunch created by the baby boom, saw the use of summer school to speed graduation as a way to make room for the growing number of students.

Recently, summer vacation has also been embraced as an ideal time to provide specialized programs for students with academic gifts and other talents. Such programs often involve offering advanced instruction that goes beyond the typical course of study. At the high school level, the content of these courses might be based on college-level curricula. Many enrichment and acceleration summer programs operate out of colleges on a fee basis, sometimes with scholarships available.

Finally, summer school provides opportunities for teachers. Summer schools allow teachers to make additional money and to develop professional competencies.

The Effectiveness of Summer Programs

A meta-analysis of summer school research conducted by Cooper, Charlton, Valentine, and Muhlenbruck (2000) summarized the results of 93 program evaluations. Five principle conclusions were drawn from the research. **First, summer school programs focused on lessening or removing learning deficiencies have a positive impact on the knowledge and skills of participants.** Overall, students completing remedial summer programs can be expected to score about one-fifth of a standard deviation higher than the control group on outcome measures. This conclusion was based on the convergence of numerous estimates of summer school effects.

The overall impact of summer school should be viewed as an average effect found across diverse programs evaluated with a wide variety of methods. These variations influence the effect of programs in significant ways. Put in practical terms, the overall estimate of effect could guide policy decisions at the broadest level, say by federal or state policymakers. However, a local official about to implement a specific summer program for a particular type of student may find effects quite different from the overall finding. Generally, however, both the overall findings and those associated with specific categories of programs suggested the effect of most programs is likely to be greater than zero.

The second conclusion from the meta-analysis was that summer school programs focusing on acceleration of learning or on other goals also have a positive impact on participants, roughly equal to programs focusing on remedial goals. However, because of the smaller number of evaluations, the robustness of these findings could not be tested across student, program, and outcome variations.

The third conclusion from the meta-analysis was that summer school programs have more positive effects on the achievement of middle-class students than on students from disadvantaged backgrounds. The difference between the economic groups was significant whether or not effects were adjusted for methodological confounds and regardless of the assumptions used to model error variance. This finding may be due to the availability of more resources for middle-class families supplementing and supporting the activities occurring in the classroom in ways that may augment the impact of the summer program. Alternatively, summer programs in middle-class school districts may have better resources available, leading, for example, to smaller classes. Heyns (1978) suggested that these economic differences in summer school outcomes might occur because "programs are less structured and depend on the motivation and interest of the child." Finally, the learning problems of disadvantaged youth may be simply more intransigent than the problems of middle-class students.

Two points should be emphasized. First, even though the effect was larger for middle-class students, all estimates of summer school's impact on disadvantaged students were significantly different from zero. Second, if summer programs are targeted specifically at disadvantaged students, they can serve to close the gap in educational attainment.

The fourth conclusion of the meta-analysis was that remedial summer programs have larger positive effects when the program is run for a small number of schools or classes or in a small community, although even the largest programs showed positive average effects. The size-related program characteristics may serve as proxies for associated differences in local control of programs. That is, small programs may give teachers and administrators greater flexibility to tailor class content and instruction to the specific needs of the students they serve and to their specific context. Small programs also may facilitate planning and may remove roadblocks to the efficient use of resources. Among the reasons cited by teachers and parents for the failure of summer programs was the last-minute nature of decision making and the untimely arrival of needed materials. These problems may be more prevalent with large programs. As a caution to this interpretation, the size-related program variables might also be related to the economic background of the community being served, with larger programs serving poorer communities. If this is the case, then economics might be the underlying causal factor, not local control.

Finally, the meta-analysis revealed that summer programs that provide small-group or individual instruction produced the largest impact on student outcomes. Further, those evaluations that solicited comments from teachers about the positive aspects of summer school often suggested that small group and individual instruction were among the program's strengths. There is no reason why the more general educational literature showing a relation between class size and achievement ought not apply to summer programs as well (Mosteller, 1995).

In addition to these principal conclusions, there were five other conclusions drawn from the research, but with less confidence. First, summer programs that required some form of parent involvement produced larger effects than programs without this component. Second, remedial summer programs may have a larger effect on math achievement than on reading. It is possible to interpret this finding in relation to summer learning loss. Recall that the review of summer loss research revealed students' achievement scores in math showed more of a drop during summer than reading achievement scores. If this is the case, then control-group students in summer school studies likely received less practice in math than in reading. Thus, the difference in the experiences of students not in summer programs may explain the difference in summer school effects.

The finding that summer school may be more efficacious for math than reading outcomes should not create the impression that promoting literacy ought to be a secondary goal of summer programs. Summer school has positive effects on reading as well as math. Further, illiteracy is a strong predictor of negative social behavior in both children and adults (Adams, 1991).

The third tentative conclusion from the meta-analysis was that the achievement advantage gained by students who attend summer school might diminish over time. However, this finding should not be taken to indicate that summer school effects are themselves not long-lasting. Multiple, subtle processes were uncovered that might serve to obscure lasting effects, the most obvious of which is that students who do not attend summer programs may receive similar programs during the school year that are not needed by summer attendees. Also, summer school may have positive effects on developmental trajectories that go unnoticed due to how a study is carried out.

Fourth, remedial summer school programs had positive effects for students at all grade levels, although the effects may be most pronounced for students in early primary grades and secondary school than in middle grades. The underlying cause of this finding may be the existence of three largely independent approaches to summer instruction associated with different grade levels. For example, Albuquerque Public Schools (1985) described the results of interviews with teachers following a summer program for all students. The interviews revealed elementary school teachers felt summer school gave them the opportunity to be more creative and to individualize instruction. Middle school teachers said they emphasized study and organizational skills more than during regular session. High school teachers, because of the credit structure, taught classes in a manner that adhered most closely to regular session classes. If these differences in approaches to summer school hold generally, we might expect the greatest

achievement gains in the earliest and latest grades because it is here that teachers place the greatest emphasis on instruction in subject matter. Summer school in the middle years may place more emphasis on the teaching of subject-related study skills that eventually, but not immediately, have an impact on achievement outcome measures.

Finally, summer programs that undergo careful scrutiny for treatment fidelity, including monitoring to ensure that instruction is being delivered as prescribed, monitoring of attendance, and removal from the evaluation of students with many absences may produce larger effects than unmonitored programs.

There were two findings of the meta-analysis that deserve mention because they did not reveal consistent or significant results. First, there was inconsistent evidence regarding whether or how the achievement label given to students was associated with the amount of benefit they derived from remedial summer programs. As noted earlier, one impetus for summer school is the federal mandate requiring that extended-year services be available to children with disabilities. The meta-analysis showed clear and reliable benefits of summer school for these children, but these benefits appeared no greater in magnitude than the benefits for other students.

Second, summer school remedial programs that require attendance appeared no less effective, and perhaps are more effective, than programs that were voluntary. While volunteering may serve as an indicator of motivation and engagement that would positively influence the impact of the summer program, it may be that compulsory attendance requirements are associated with student performance levels that are most likely to benefit from summer school activities.

Table 3
Effectiveness of Summer School

Research reveals that

- **Remedial summer school programs have a positive academic impact on participants.**
- **Summer school programs focusing on multiple goals or acceleration also have a positive impact on participants.**
- **Summer school programs have more positive effects on middle-class students than on students from disadvantaged backgrounds.**
- **The effect of remedial programs may diminish over time.**

Remedial summer programs have larger positive effects

- **When the program is run for a small number of students and schools in a small community.**
- **When the program provides small-group or individual instruction.**
- **When parent involvement is required.**
- **On math achievement than on reading.**
- **In early primary grades and high school than in middle grades.**
- **When they undergo careful scrutiny for treatment fidelity.**

Implications for Summer School Policies and Practices

The research results can be used to propose some guidelines to policymakers and program implementers concerning the funding, development, and operation of summer schools. Most obviously, federal, state, and local policymakers should continue to fund summer school programs. The research demonstrates that summer programs are effective at improving the academic skills of students taking advantage of them. Further, summer school likely has positive effects well beyond those that have been measured in past research. For example, summer programs may inhibit delinquency among idle youth.

To ensure that summer programs are most effective and are accepted by the general public, policymakers should require that a significant portion of funds for summer school be spent on instruction in mathematics and reading. For single-parent families and for families in which both parents work outside the home, summer school will serve a childcare function. For children who live in high-crime and high-poverty areas, summer programs will provide safe and stimulating environments clearly preferable to the alternatives. Furthermore, summer programs are proven vehicles to remedy, reinforce, and accelerate learning, and this opportunity should not be missed.

Third, policymakers should set aside funds for the specific purpose of fostering participation in summer programs, especially participation by disadvantaged students. Summer programs often face serious problems in attracting students and maintaining their attendance. They compete for youthful attention with alternative activities that are often more attractive, but less beneficial. Even the most well-conceived program would fail if students chose not to enroll or attend. Policymakers should earmark funds for

transportation to and from summer programs and for food service at the program site. Policymakers might even make provisions for siblings to attend summer programs so that parents will not keep older brothers and sisters home to provide childcare for younger family members.

Policymakers should offset the mandate for reading and math instruction by providing for significant local control concerning program delivery. The research suggests the possibility that flexible delivery systems may lead to important contextual variations that significantly improve the outcomes of summer programs. Therefore, policymakers ought to resist the temptation to micromanage programs and give local schools and teachers leeway in how to structure and deliver programs.

Finally, policymakers should require rigorous formative and summative evaluation of program outcomes. Credible evaluations provide the accountability that is called for to justify expenditure of public funds. Policymakers can make a substantial contribution to future decision making by requiring and providing funds for systematic, ongoing program evaluation.

There are numerous suggestions for how summer programs should be implemented that can be gleaned from the research. For example, surveys of teachers often point to a lack of planning time and late-arriving program materials as two of the most severe impediments to the success of a summer program. Thus, just as policymakers need to provide stable and continuing sources of funds for summer schools, program implementers need to plan early. The pragmatics of program operation will take on a higher priority as summer schools come to be seen less as "add-ons" and more as integral parts of the array of services provided by schools.

Related to planning is the need for program implementers to provide continuity from year to year. Priority for staffing should be based on past participation in the summer program itself so that teachers, administrators, aides, and support staff who took part in past years are given the first opportunity to be involved again. Evaluations should be used to continue successful elements of a program, from site locations to program content, and to discontinue unsuccessful ones.

Finally, program implementers might also consider integrating summer staff development activities for teachers with the teaching of summer school. The relatively small classes and relaxed atmosphere that many summer programs provide could make them an ideal laboratory for teachers to experiment with new curricula or pedagogical approaches. For example, teachers might learn about and discuss a new teaching strategy in the afternoon and then practice the approach using the next morning's summer school class. The coupling of staff development and summer teaching might also increase the pool of teachers interested in taking part.

Policymakers and practitioners might also consider more innovative ways of recasting summer school to take advantage of what the research reveals about summer learning loss and successful summer programs. For example, a "Running Start" summer program might commence close to the beginning of the new school year rather than follow on the heels of the old year, as is typical of many current programs. It might also enlist the participation of regular classroom teachers, although they need not be full-time summer instructors. Regular class teachers might function as the resource teacher who pulls out students from the ongoing summer class routine. The teachers would meet with, get to know, assess the strengths and weaknesses of, and begin instructing students who will be in their class when the new regular session begins. This strategy would seem most beneficial for students who are struggling in school, need special attention, or have the potential to present behavior problems when school begins.

Table 4
Implications of Research for Summer School Policies and Practices

Policymakers should

- **Continue to fund summer school programs.**
- **Require that funds for summer school be spent on instruction in mathematics and reading.**
- **Set aside funds for the purpose of fostering participation in summer programs, especially by disadvantaged students.**
- **Provide for significant local control concerning program delivery.**
- **Require rigorous formative and summative evaluation of programs.**

Practitioners should

- **Plan early.**
- **Provide program and staffing continuity from year to year.**
- **Use evaluations to identify successful sites and program content.**
- **Integrate summer teaching with staff development.**

This running start might smooth the transition to the new school year by causing less time to be spent reviewing material when classes begin and, hopefully, diminishing disruptions caused by struggling students. These outcomes should benefit all class members, not just the program participants.

CONCLUSION

The nine-month school calendar was adopted in America to accommodate the needs of a family-based, agrarian economy. In areas of the country where the nine-month school did not fit the economy, summer programs were quickly developed to prevent the negative social behaviors associated with idle youth. Educators soon discovered the potential of summer programs to improve learning. Summer education programs were viewed as especially attractive for children from homes with limited resources and for students with special learning needs. Although the benefit varies according to characteristics of the child and program content and delivery, the generally positive effects of summer school for those who participate are unmistakable.

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