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Low-income students lose literacy skills in the summer: Do summer programs make a difference?

[1] Minghui Gao, [2] Beverly Boals Gilbert, [3] LaToshia Woods

[1] Associate Professor of Secondary Education, College of Education and Behavioral Sciences, Arkansas State University
[2] Assistant Professor of Teacher Education, College of Education and Behavioral Sciences, Arkansas State University
[3] Assistant Professor of Reading Education, College of Education and Behavioral Sciences, Arkansas State University

This article documents a summer program that attempted to change low-income student achievement in literacy. One hundred and fifty students in grades 3-10 recruited from urban low-income families attended a two week summer program that featured enrichment in literacy skills in reading and writing. Pre- and Post-tests were administered to monitor attendees' changes in literacy interest and skills. Data were treated using frequencies, percentage, and t-test. Results indicate that the summer program contributed to improved student interest in literacy, but had no significant effect on enhancing students' literacy skills. These findings must be interpreted with caution, considering the apparent short time period of enrichment. More research should be conducted to further the current efforts.

Key words: *summer learning loss, literacy skills, low-income students, summer program*

Introduction

Summer vacation has detrimental learning effects for many students, particularly low-income students (McCombs et al., 2011). At the end of the summer, low-income students tend to lose while their higher-income peers tend to gain literacy skills. More disturbing is the fact that the effects of the differential summer learning rates between low-income and higher-income students are cumulative and resultantly contribute substantially to the achievement gap between the advantaged and disadvantaged population. Given the established connection between academic learning time and achievement, and the findings regarding summer learning loss that is particularly acute for low-income students, it is hoped that a structured program of summer instruction could help mitigate this loss, or even produce gains (McCombs et al., 2011). With this thought in mind, we conducted a summer literacy program among a group of low-income students, with the purpose of investigating the effects of summer programs on promoting students' learning.

Summer Learning Loss

Research reveals that students tend to lose literacy skills over the summer holiday. According to a meta-analysis of over a dozen studies that investigated the summer learning experiences of first through ninth graders, upon returning to school in the fall, students perform, on average, approximately one month behind where they perform in the spring (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996). Furthermore, there is a significant association between summer learning loss and student socioeconomic status (SES). Low-income students tend to lose literacy skills while their higher-income peers lose little, or even post gains over the summer holiday (Heyns, 1978, 1987). This association was also confirmed in recent analysis (Benson & Borman, 2010), which documented that middle-income students maintained reading achievement levels over the summer while high-income students improved and low-income students lost ground. In

addition, the literature also suggests that summer learning rates vary with student grade levels. As the grade level goes up, the effect of summer vacation changes from positive to negative (Cooper et al., 1996). First and second graders tend to experience gains in reading achievement, while students in fourth grade and beyond witness significant losses (Paris, 2005).

The effect of summer learning loss is cumulative and contributes to the achievement gap between low-income and higher-income students (McCombs et al., 2011). Upon school entry, low-income and higher-income students do not differ much in summer learning rates; over the course of four subsequent summers, however, the difference in summer learning increases drastically, with low-income students cumulating losses and higher-income students amassing gains (Alexander, Entwisle, & Olson, 2007). Given that low-income students are more likely to lose reading skills than their higher-income peers who tend to gain in certain reading areas during the summer months, low-income students tend to fall further and further behind their higher-income peers as a result of repeated episodes of summer learning loss (McCombs et al., 2011). It was estimated that summer learning loss in the first five years of schooling accounted for approximately two-thirds of the reading achievement gap by ninth grade (Alexander et al., 2007).

Poverty and Achievement Gap

U.S. Census Bureau reported that in 2014, about 46.7 million people in USA lived in poverty, meaning that the poverty rate for 2014 was approximately 14.8 percent, which was 2.3 percentage points higher than in 2007, the year before the 2008 economic recession (DeNavas-Walt & Proctor, 2015). This marks the fourth consecutive year that the number of people in poverty has remained unchanged from the previous year's poverty estimate. The same source also reported that in 2014, 21 percent (15.5 million) of American children lived in poverty. For instance, the state of Arkansas recently reported a poverty-rate of 18.8 percent, making it the second most poverty-stricken state in the nation, as shown in the Rural Profile of Arkansas 2011 (University of Arkansas, 2012). Nearly 29 percent of Arkansas children were living in poverty in 2012, up from 25 percent in 2005, according to a national study released by the Annie E. Casey Foundation (2014).

Along with poverty is the achievement gap between disadvantaged and advantaged students. Despite steady efforts to close the achievement gap over the past decades, significant discrepancies remain. In 2009, on the National Assessment of Educational Progress (NAEP, commonly known as The Nation's Report Card), 49 percent of low-income fourth-grade students scored at the "below basic" level in reading (the lowest proficiency level) compared with 20 percent of their higher-income students (National Center for Education Statistics, 2010). This trend also holds in the eighth grade, where the difference is 40 percent versus 15 percent in reading. Due to the inequitable proportion of low-income minority students, similarly sized achievement gaps are found between white and black children in the United States, white and Hispanic children, and native speakers and English language learners. Depending on the subject and grade level, there has been either a modest reduction or no substantive change in the achievement gap along economic or racial lines since the 1990s.

These achievement gaps are particularly disturbing because they comport with subsequent inequities in educational attainment, in which students from the bottom quartile of the income distribution are more than twice as likely to drop out of high school as students from the top quartile of the distribution (National Center for Education Statistics, 2007). Failure to complete high school has significant ramifications for the individuals themselves and for society as a whole because formal schooling is an increasingly important gateway to future employment, earnings, and attendant life chances (Belfield & Levin, 2007).

Summer Programs

To promote equality in the United States, it is imperative to close the achievement gap in addition to other social, economic, and political strategies (Jencks & Phillips, 1998). Due to the aforementioned association between summer learning loss and achievement gap, preventing summer learning loss, particularly among low-income students, can play a critical role in closing the achievement gap. To this end, researchers and policymakers have offered at least three approaches:

modifying the school calendar, extending the school year, and providing summer program.

Modifying the school calendar is redistributing days across the calendar and replacing the long summer break with several shorter breaks. While this approach does not add instructional days to the calendar, its effectiveness lacks evidence (Cooper, Valentine, Charlton, & Melson, 2003). Extending the school year would provide students with additional days of instruction, given that U.S. students go to school, on average, a month less than students in other developed countries (Wingert, 2010). Unfortunately, this approach is not only expensive but also has encountered tremendous resistance from parents, employers of teenagers, and family recreation businesses (McCombs et al., 2011).

Contrastingly, summer programs are typically offered only to a subset of students. As a result, they are less costly and may be more attractive to cost-conscious schools or districts. Moreover, summer programs provide additional instruction to low-achieving students who are in need of extra time on task to master academic content; resultantly, summer programs have the potential to boost students' learning (McCombs et al., 2011) and close achievement gap (Ketterlin-Geller, Chard, & Fien, 2008). Therefore, educators and policymakers are considering additional learning time to be a key strategy for improving the achievement of low-performing students, many of whom are also low-income. For instance, Title I legislation in the No Child Left Behind Act specifies summer learning time as a key strategy that can be used to turn around schools (U.S. Congress, 2002)

The present study investigated the effects of a two-week summer program on boosting low-income students' literacy skills. It was guided by two general research questions:

1) How do students and parents perceive the summer learning program?
2) What, if any, effect does the summer learning program have on students' literacy skills during summer vacation?

Method

The Summer Literacy Program

The Summer Literacy Program was designed to address the previously described issues and situations of low-income students in the Mississippi Delta Region. The design combined a university campus, a local city neighborhood initiative, an at-risk population, and a summer literacy program. Utilizing the expertise and experience of area teachers and college undergraduate and graduate students, staff, and faculty who are familiar with the needs of the target population, the program aimed to not only help students succeed in their current grades, but in the long run, help them foster a deeper understanding, curiosity, and interest in lifelong learning. Faculty advisers developed and directed the programs with supervision of the curriculum and implementation. The camp teachers/leaders consisted of age and content specific certified teachers and/or appropriate instructors or adjunct faculty at the college level. Graduate or undergraduate students served as assistants to ensure that student-to-staff ratios were maintained to allow for quality program implementation.

Participants

One hundred and fifty (150) children of grades 3-10 from low-income families in the state's northeastern region were recruited with the assistance of the local city government and area schools, and attended a two-week literacy camp on the university campus in summer 2015. They were grouped in six cohorts of 25 children. Daily, from 8:00 – 12:00, three cohorts of children who had completed grades 3-6 and from 1:00-5:00, three cohorts of children who had completed grades 7-10 attended for two-week-period literacy camps.

A total of three classrooms per morning and three classrooms per afternoon were utilized to ensure adequate space to promote reading, writing, and literacy for the camp. Designated space on the university campus was reserved beforehand to ensure adequate space to achieve camp goals.

A collaboration with the local city's neighborhood initiative allowed for the children of grades 3-6 to be transported to the university campus from a central location and attend the morning literacy camp before returning to the designated spot, where a meal was provided. Children of grades

7-10 were transported to campus after a nutritious meal for the afternoon literacy camp. Other types of transportation were also used including the public transportation system and community co-op vans or church vans.

Data Collection & Analysis

Multiple surveys of reading and writing were employed to assess students' attitudes and progress. Each survey used a 3-point scale for responses (1 = not true of me to 3 = very true of me). Particularly, the Summer Program Literacy Survey was used to assess student attitude toward literacy. It was divided into two sections, reading and writing, each consisting of four questions. The surveys were administered at the beginning of the program (pre-test) and again at the end of the program (post-test). The Level 7 DIBELS Daze Progress Monitoring Test was administered to assess basic literacy skills in reading comprehension. In addition, an exit survey was also given to student participants and their parents to assess their experience with the program.

Per the informed consent, participants were free to choose whether or not to respond to the surveys or tests. As a result, not all the 150 participants completed each survey or test, with different numbers of children responding to each survey (reflected in the Degrees of Freedom (df) given in the tables in the Results section). Most of the respondents (about 3 of every 4) were those who would transition into 4th, 5th, and 6th grades. Data were statistically treated using frequencies, percentage, and t-test. Because there was not a strong correspondence between those respondents who filled out pre-surveys and those who filled out post-surveys, independent samples t-tests were used in place of paired-samples t-tests. We used $\alpha = .05$ for all statistical tests.

Results

Effects on student interest in literacy. Forty-one (41) children took the Literacy pre-Survey, and 68 children took the Literacy post-Survey. Both contained the same items; and the numbers of participants vary by analysis in each survey. Table 1 presents the results. None of the literacy questions showed a significant difference between pre- and post-survey. On average, in the reading section of the Literacy Survey, participants agreed that they enjoyed reading (pre mean (M) = 2.61, post M = 2.62) and would like to learn better reading skills (M = 2.54, 2.43). Overall, in the writing section of the literacy survey, the participants agreed that they liked writing (pre M = 2.41, post M = 2.48) and that it was not hard for them (M = 1.39, 1.64). Interestingly, students consistently responded that they wanted to learn to read and write better, suggesting that the summer program could have served an important function in arousing student interest in reading and writing

Table 1

Program effects on child Interest in literacy

Survey Questions		Pre-Mean (*SD*)	Post-Mean (*SD*)	*t* (*df*)	*p*
Reading Section	I am good at reading	2.61 (.628)	2.62 (.574)	-.067 (107)	.947
	Reading is hard for me	1.49 (.675)	1.40 (.626)	.711 (107)	.478
	I like reading	2.34 (.672)	2.42 (.681)	-.584 (105)	.560
	I want to learn to read better	2.51 (.779)	2.38 (.799)	.848 (105)	.399
Writing Section	I am good at writing	2.54 (.674)	2.43 (.701)	.757 (106)	.451
	Writing is hard for me	1.39 (.666)	1.64 (.773)	-1.728 (106)	.087
	I like writing	2.41 (.706)	2.48 (.746)	-.434 (106)	.665
	I want to learn to write better	2.37 (.888)	2.45 (.771)	-.492 (104)	.624

Effects on student literacy skills in reading comprehension. The summer program used the Level 7 BIBELS Daze Progress Monitoring Test to assess basic literacy skills in reading comprehension. In this assessment, each student read a passage from which words had been removed and replaced with three choices from which to choose the correct word. The respondent then circled a word

choice from those three options for each of over 60 missing words across the passage. They had 3 minutes to choose as many appropriate words as possible. Pre-test scores were available for 20 participants, and the total number of correct responses ranged from 10 to 37. For the post-test, 16 students received scores, and the total number of correct responses ranged from 10- 36. As shown in Table 2, scores varied widely, with the majority scoring below 25 (out of 60).

Table 2

Distributions of Pre- and Post-test Sores for Reading Comprehension

Pre/Post	No. of Correct Responses	No. of Students	% of Students
Pre-test (n = 20)	10-15	7	35%
	16-25	7	35%
	26-40	6	30%
Post-test (n = 16)	10-15	9	56%
	16-25	6	38%
	26-40	1	6%

Because there was not sufficient correspondence between the participants who took both the pre-tests and the post-tests, an independent samples t-test was conducted between pre and post samples. Thus, the results do not reflect a true pre-post analysis, but rather an analysis of different groups. As shown in Table 3, no significant difference existed in scores between the pre group and the post group ($t = 1.864$, $p = .071$).

Table 3

Effects on Student Literacy Skills in Reading Comprehension

Independent Samples t-test Statistics	Pre-M (*SD*)	Post-M (*SD*)	*t* (df)	*p*
	20.65 (8.061)	15.94 (6.816)	1.864 (34)	.071

Parents' perceptions of the program effects. Parents of the summer program participants were asked to complete a survey at the end of the program to assess their thoughts on how the program helped their child. Table 4 below indicates the grade levels of the children of the 19 parent respondents. Most of these children whose parents responded to the survey would be between 5th and 7th grades in the fall of 2015.

Table 4

Participants' Current and Coming Grade Levels (n = 19)

Question	What grade will your child be in when school starts?						
Grade Level	3	4	5	6	7	9	10
Frequency (# of Students)	1	2	4	5	4	3	1

When asked about the summer program overall (see Table 5), 100% of the parents agreed or strongly agreed that their child enjoyed the summer program, and that the program was a great one. Most

(89%) indicated that the program impacted their child learned a lot through the program.

Table 5

Program's Overall Effects Perceived by Parents (n = 19)

How much do you agree with each of the following items?	Frequency in %				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My child has enjoyed the summer program.	0%	0%	0%	22%	78%
My child has learned a lot through the program.	0%	0%	11%	17%	72%
The summer program is a great program.	0%	0%	0%	22%	78%

All 19 respondents indicated that their children became more interested in reading and writing, as well as in future careers having to do with reading and writing (see Table 6). Very clearly parents view the program as impacting the literacy skills and interests of their children, with 79% of respondents agreeing or strongly agreeing that their child is a better reader. Parents also view reading as a success of the program; for example, 85% of respondents agreed or strongly agreed that their child now enjoys reading more.

Table 6

Program's Effects on Child Reading Perceived by Parents (n = 19)

After participating in the summer program, my child...	Frequency in %				
	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
- is a better reader.	0%	0%	21%	37%	42%
- enjoys reading more.	0%	0%	16%	53%	32%

Discussion

This study examines the effect of the two-week summer literacy program on students' interest in literacy and their literacy skills. Existing literature (Ketterlin-Geller et al., 2008; McCombs et al., 2011) suggests that summer programs can help promote students' learning. The results of the present study provide further evidence that the summer program did have some effects on enhancing low-income student interest in literacy as a whole as well as student literacy skills in reading comprehension, although these effects are not statistically significant. In addition, this study also examines how parents perceive the impact of the program on their child's literacy skills. The results indicate that parents were very receptive to the summer program, in which students not only developed passion for reading and writing but became better reader and writer as well.

It should be noted that this study does not allow conclusions as to the effects the summer program may have, and the results must be interpreted with great caution. For one, the program lasted just two weeks. Given the relatively short time period of the intervention, it may be difficult to determine any immediate effects in reading and writing—two content areas requiring tremendous, enduring efforts for even modest improvements to become evident. Furthermore, a second goal of the program was to have a long-term impact on student participants, namely, to foster deeper understanding

of literacy through curiosity and desire for reading and writing in the long run. Given the evidenced increase in student interest in literacy, it is hopeful that the benefits from the summer program will appear in the years to come.

Suggestions for future efforts are mainly twofold. On the one hand, in order for summer programs to bring about desired results, it is suggested that future efforts consider extending the current two-week program so that students can be exposed to more enrichment in reading and writing. Since a lack of early literacy experiences contributes to student achievement gaps in reading, intervention efforts such as summer learning programs involving younger children would allow them to receive more, if not equal, opportunities for language interactions with adults. Future research in this area should not only focus on the progress of participants during the intervention, but should also be based on data from both participants and non-participants so as to compare the effects of attending and not attending summer learning programs.

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