



## School Calendar and the Socioeconomic Achievement Gap

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### Abstract

*The purpose of this quantitative study was to examine the statistical significance of the relationship between year-round education and achievement scores in reading and mathematics among fourth grade students from low socioeconomic backgrounds in the public schools of a Southeastern state. The results of this study revealed that school calendar, in isolation, is not a factor that can conclusively predict or improve the academic outcomes of students attending schools with large populations of students from low socioeconomic backgrounds. This study extends the body of knowledge on the influence of school calendar on student learning outcomes and provides useful information for educational stakeholders regarding the influence of school calendar on academic achievement.*

**Keywords:** year-round education, socioeconomic achievement gap, school calendar, summer learning loss

### 1. Introduction

In the United States, 21% of children are living in poverty (DeNavas-Walt & Proctor, 2015). Many of these impoverished children attend public elementary schools. Due to the socioeconomic achievement gap, this needy and underserved population of American students is less likely to achieve the same level of academic success as students from more affluent backgrounds (Alexander, Entwisle, & Olson, 2007).

In an effort to address and combat the socioeconomic achievement gap, educational stakeholders have encouraged school leaders to evaluate and reconsider strategies in every aspect of the educational process, including the school calendar, in order to provide better academic experiences for low-performing students from low socioeconomic backgrounds (Alexander et al., 2001, 2007; McCall et al., 2006; van Laar & Sidanius, 2001). This study was conducted in order to determine whether a modified school calendar could influence the academic achievement of students from low socioeconomic backgrounds.

### 2. Background

#### 2.1. School calendars

Traditional school calendars provide nine months of instruction followed by three months of vacation, which typically occur during the summer months (O'Sullivan, 2013). Year-round school calendars reorganize the typical 180 day school year by dividing the three month summer vacation into more frequent breaks over a 12 month period (O'Sullivan, 2013). The most significant differences between the calendars are the frequency and duration of vacation periods. Although there are many calendar variations in year-round schools, the most popular models follow the pattern of nine weeks in school followed by a three week break or 12 weeks in school followed by a four week break (O'Sullivan, 2013).

#### 2.2. Achievement discrepancies

Students from low socioeconomic backgrounds typically start each school year on the same academic level that they achieved during the spring of their previous school year, and students from more affluent backgrounds typically start each school year on a higher academic level than the one that they achieved at the conclusion of their previous school year (Alexander et al., 2007). This could indicate that students from higher socioeconomic backgrounds are learning or engaging in significant academic enrichment during the summer months while students from lower socioeconomic backgrounds are



gaining substantially less academic knowledge or enrichment when they are not in school. Alexander et al.,(2001) also found that gaps in achievement scores between ninth grade students from low and high socioeconomic backgrounds can be traced back to differences in summer learning and summer learning loss incurred during the elementary school years. These study results indicate that summer learning loss incurred in elementary school can negatively influence the achievement of individual student's in future academic years.

### 3. Literature Review

#### 3.1. Summer learning loss

Summer learning loss is defined as the information that students forget during the long summer break at traditional calendar schools (Alexander et al.,2007). The cause of summer learning loss has been attributed to reduced opportunities for academic practice during the long summer break and the susceptibility of certain fact based or procedural knowledge to be easily forgotten without continued practice (Cooper et al.,1996). Over 100 years of research on this topic has confirmed that most students experience a decrease in their academic skills during the months of their summer vacation from school (Alexander et al.,2001; Alexander et al.,2007; Cooper et al.,1996; White,1906). A meta-analysis of 13 studies related to the influence of summer vacation on students' academic achievement indicated that summer learning loss is equal to a loss of one month of grade level material(Cooper et al.,1996). von Hippel(2007) confirmed this finding through a large, longitudinal study, which concluded that disadvantaged students in kindergarten and first grades were able to maintain their academic performance during the school year, but fell behind during the summer months. The longitudinal research on elementary school students conducted by Alexander et al. (2001) aligned with the findings of von Hippel and also revealed that the academic performance of students from higher socioeconomic backgrounds actually improved over the summer months, allowing those students to start the new school year on a higher level than the one they achieved during the previous term. This difference in academic growth was attributed to summer learning

differences experienced by students from low socioeconomic backgrounds and their more affluent peers(Alexander et al.,2001; O'Sullivan,2013). Students from higher socioeconomic backgrounds may be exposed to more educational opportunities during their summer vacations than students from low socioeconomic backgrounds.Theoretically, this uneven academic growth experienced by both social classes during the summer months may widen the socioeconomic achievement gap.

#### 3.2. The socioeconomic achievement gap

The socioeconomic achievement gap refers to the difference in academic performance between students from economically disadvantaged and middle class families(Rothstein, 2008). Research has shown that students from low socioeconomic backgrounds exhibit lower levels of academic achievement than their more affluent peers(Alexander et al.,2001;Fram,Miller-Cribbs,&Van Horn,2007;McCall et al.,2006; van Laar&Sidanius,2001; Welner&Burris,2006). This difference is apparent in the classrooms and academic achievement scores of high poverty schools across the United States. Students attending schools with large populations of economically disadvantaged children are more likely to earn low scores on academic achievement tests and less likely to receive valuable educational opportunities (Fram et al.,2007; Thibodeau,2011).

While some researchers have concluded that the achievement gap is stable, if not narrowing slightly(McCall et al.,2006; Williams, 2011) others have proposed that the gap is widening over time for social reasons unrelated to schools(Alexander et al., 2001). These findings affirm that the socioeconomic achievement gap is not narrowing quickly enough and the education of both high and low-performing students is being sacrificed as a result. The socioeconomic achievement gap has been attributed to unsafe, impoverished neighborhoods and the lack of educational resources or intellectual stimulation provided for children raised in low-income families(van Laar&Sidanius,2001). Researchers agree that the socioeconomic achievement gap originates from conditions children experience in their homes and communities(Alexander et al.,2001; Rothstein,2008). The lack of educational and practical



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resources available to families from low socioeconomic backgrounds interferes with students' ability to actively participate in learning activities. Many students from low socioeconomic backgrounds are predisposed to experience decreased academic success before they even begin school.

Research has shown that individuals impacted by the socioeconomic achievement gap are more likely to experience negative outcomes such as a decreased rate of success in school and an increased likelihood of future incarceration (Alexander et al., 2001; Fram et al., 2007; McCall et al., 2006; van Laar & Sidanius, 2001; Welner & Burris, 2006; Williams, 2011). Students from low socioeconomic backgrounds are more likely to drop out of high school and less likely to finish college (Kao & Thompson, 2003). Without adequate education these young people will struggle to find gainful employment, which may cause them to maintain their low socioeconomic status and pass it on to future generations. When these individuals become parents their children will likely experience the negative outcomes of the socioeconomic achievement gap. Without significant school reforms and reforms that address socioeconomic inequalities the achievement gap may never be narrowed (Rothstein, 2008; Williams, 2011).

### **3.3 Academic achievement in year-round schools**

Research findings on the influence of year-round school calendars on academic achievement have been inconsistent (Anderson, 2009; Coopersmith, 2011; Evans, 2007; Korth, 2005; Lindsay-Brown, 2010; Mitchell-Hoeffler, 2010; Ramos, 2006; von Hippel, 2007). Several researchers have found a positive relationship between year-round education and improved academic achievement (Anderson, 2009; Evans, 2007; Coopersmith, 2011; Korth, 2005; Ramos, 2006; Smith, 2011; Winkelmann, 2010). Many of these researchers also noted that mathematics achievement scores were significantly higher for students at year-round schools (Anderson, 2009; Evans, 2007; Ramos, 2006; Winkelmann, 2010). This phenomenon could be explained by previous research findings, which state

that fact based or procedural knowledge is easily forgotten over the summer break in traditional calendar schools (Cooper et al., 1996). Attending school on a more consistent schedule provides fewer opportunities for this kind of knowledge to be forgotten.

Several studies have indicated that the year-round school calendar has no influence on students' academic achievement (Lindsay-Brown, 2010; McMullen & Rouse, 2012; Mitchell-Hoeffler, 2010; Merrill, 2012). According to McMullen and Rouse (2012), learning loss may not be accelerated by the number of consecutive days that students are out of school. Students may need to spend more time in school in order to improve their academic performance. In this case, an extended school year format of year-round education would be effective because it would increase the existing number of teaching days and add additional instructional hours.

One researcher (Graves, 2010) found that year-round education had a detrimental effect on reading and mathematics scores related to students' national percentile ranks. The results of this longitudinal study were attributed to the frequency of educational breaks, which interrupt the continuity of learning that is needed for long term concept retention (Graves, 2010). It is possible that students require the sustained instructional periods found in traditional school calendars in order to achieve meaningful understanding of educational concepts. More research is needed to determine whether these results can be replicated. Research on continuous learning and brain function would also support or refute the findings of this study.

### **3.4 Year-round education and low income students**

The majority of studies related to the relationship between year-round education and academic achievement focus on entire student populations without disaggregating results to explain the influence on specific student subgroups. The findings from studies that have provided information on the influence of year-round education on students from low socioeconomic backgrounds have been conflicting (Coopersmith, 2011;





Evans,2007;Graves,2011;Korth,2005;Lindsay-Brown,2010;Merrill,2012;Smith,2011;Winkelmann,2010).Some researchers found that attending a year-round school significantly improved the mathematics and reading performance of students from low socioeconomic backgrounds(Coopersmith, 2011; Evans,2007;Korth,2005;Smith,2011;Winkelmann,2010).Coopersmith(2011)and Smith(2011) found that attending a year-round calendar school resulted in increased academic performance in all subject areas for students from low socioeconomic backgrounds. Evans (2007) reported that year-round schools with large populations of students eligible for the federally supported free or reduced-cost lunch program received higher scores on state standardized reading and mathematics tests than traditional calendar schools with similar populations.

Other researchers determined that year-round education had no significant influence on, or was detrimental to the academic performance of students from low socioeconomic backgrounds(Graves,2011; Lindsay-Brown, 2010;Merrill,2012). Graves(2011) used detailed longitudinal data to conclude that year-round education had significant negative effects on the academic performance of students from low socioeconomic backgrounds. Lindsay-Brown(2010)and Merrill(2012) found that attending year-round schools produced no significant improvement in academic performance for students from low socioeconomic backgrounds.

#### **4. Rationale and Justification**

This study was designed to address the gaps in research related to year-round education. There are few current studies that specifically measure the influence of year-round education on the reading and mathematics achievement of elementary school students from low-income communities.While previous studies have examined the influence of year-round education on entire school or district populations(Anderson,2009; Mitchell-Hoefer, 2010; von Hippel,2007) few have examined the influence of year-round education on students from low-performing subgroups(Evans,2007; Lindsay-Brown,2010).The existing literature on year-round education lacks research related to the influence of year-round education on the academic achievement of students from specific low-

performing subgroups such as students from low socioeconomic backgrounds.

#### **5. Research Questions**

*RQ1.* What is the relationship between the type of academic calendar and achievement in reading and mathematics for students from low socioeconomic backgrounds?

*RQ2.* Does the type of academic calendar affect the amount of summer learning loss experienced by students from low socioeconomic backgrounds?

#### **6. Methods**

##### **6.1. Participants**

The sample for this study was comprised of year-round and traditional calendar schools in a Southeastern state where more than 40% of the student populations were classified as economically disadvantaged.

##### **6.2. Data collection**

Data for this quantitative, causal-comparative study was collected through a detailed record review of existing archival data. Each year the Department of Public Instruction of a Southeastern state posts the percentage of students performing at or above grade level on state standardized reading and mathematics tests on a school report cards website.

##### **6.3 Data analysis**

The first research question sought to understand the relationship between year-round education and achievement in reading and mathematics among fourth grade students from low socioeconomic backgrounds. In order to address this research question an independent samples t test was used to determine the statistical significance of the relationship between academic calendar and academic achievement.

The second research question queried whether year-round education could reduce the amount of summer learning loss experienced by fourth grade students from low socioeconomic backgrounds. In



order to address this research question, improvement scores were calculated to compare the differences between the reading and mathematics scores of third grade and fourth grade classes from traditional and year-round calendar schools serving large populations of students from low socioeconomic backgrounds. After calculating improvement scores, an independent samples t test was used to determine whether there was a statistically significant difference between the improvement scores of classes from year-round and traditional calendar schools.

## 7. Results

The results of the statistical analyses conducted to answer the reading portion of the first research question revealed that there was no statistically significant difference between the reading achievement of fourth grade classes in this sample of year-round and traditional calendar schools. Similar results were found in regards to the math achievement of fourth grade classes in schools with large populations of students from low socioeconomic backgrounds. These results indicate that school calendar, in isolation, is not likely to influence achievement in reading or mathematics among fourth grade students in schools with large populations of students from low socioeconomic backgrounds

The results of the statistical analyses related to the second research question revealed that there was no significant difference between the reading or math improvement scores in year-round or traditional calendar schools. Traditional calendar schools consistently exhibited greater levels of improvement than their year-round counterparts, but the differences in improvement were not significant. These results indicate that the school calendar, in isolation, does not significantly influence the amount of summer learning loss experienced by fourth grade students in schools with large populations of economically disadvantaged students.

## 8. Discussion

Academic achievement among students from low socioeconomic backgrounds is likely to be influenced by a number of research based factors

including, smaller class sizes, high quality teachers, and decreased teacher turnover (Borg, Borg, & Stranahan, 2012). This study focused exclusively on the school calendar as a factor that might lead to student learning improvement and did not investigate other factors that might influence academic performance among economically disadvantaged students. The findings of this study reveal that the school calendar is not a factor that is related to the academic success of students attending schools with large populations of students from low socioeconomic backgrounds. These findings add weight to the argument that school calendars are not likely to influence students' psychosocial functioning, educational experiences, or levels of academic achievement. The more continuous instructional schedule provided by a year-round school calendar has not proven to be an effective strategy for narrowing the socioeconomic achievement gap.

## 9. Implications

If school calendar is not a variable that can be used to predict academic success or failure among students from low socioeconomic backgrounds, then perhaps there is another factor that could. It is important to identify the influence of all variables in the educational environment in order to determine the benefit, detriment, or insignificance of each one. This process will enable educational leaders to design school environments that exploit factors related to desirable outcomes, and improve the academic experiences of students from low socioeconomic backgrounds.

The results of this study also implied a need for additional research that investigates the influence of school calendars on smaller subsets of the economically disadvantaged student population, such as African-American students and students with limited English proficiency. Understanding the influence of school calendars on students from these populations may help to address their educational needs and improve the quality of their academic experiences.

Educational decision-makers can use the results of this study to guide decisions regarding the structure of academic calendars in schools with large populations of students from low socioeconomic



backgrounds. School administrators and members of school governing boards can use the results of this study to rule out the school calendar as a singular factor that could significantly influence academic achievement in schools with large populations of economically disadvantaged students.

## 10. Limitations

1. It was not possible to determine the socioeconomic status of students in participating schools that were not enrolled in the federally supported free or reduced cost school lunch program.
2. It was not possible to determine or control the number of students in traditional calendar schools who participated in academic enrichment activities during their summer break without compromising the anonymity of participants.
3. It was not possible to determine or control the length of time that students in participating schools attended year-round or traditional calendar schools without compromising anonymity of participants.
4. It was not possible to control additional variables that could influence reading and mathematics achievement scores such as teacher effectiveness, individual students' learning difficulties, or class size.

## 11. Conclusions

This study was unique because it focused on public schools with large populations of economically disadvantaged students. There was a gap in the research related to the impact of school calendar on

this population of students. This study contradicts most of the current research on this topic, which states that students from low socioeconomic backgrounds were more academically successful in year-round schools (Coopersmith,2011;Evans,2007; Smith, 2011; Winkelmann,2010). This study supports the findings of Lindsay-Brown(2010) and Merrill(2012) which indicate that the school calendar has no influence on the academic achievement of students from low socioeconomic backgrounds. The results of the study also show that year-round schooling had no influence on the summer learning loss experienced by students from low socioeconomic backgrounds.

Since this study focused on students from low socioeconomic backgrounds it was necessary to address the socioeconomic achievement gap. The results of this study reveal that the school calendar, in isolation, may not be a factor that can be used to bolster student performance in an effort to narrow the socioeconomic achievement gap. Another issue related to students in low-income school populations was the quality of their educational experiences. Research has shown that schools with large populations of students from low socioeconomic backgrounds typically deliver lower quality academic experiences than schools with more affluent student populations(van Laar&Sidanius,2001;Fram et al.,2007;Thibodeau,2011). It was suggested that a more continuous school year could better meet the needs of this historically underperforming subset of students, and therefore improve the quality of their educational experiences. Based on the results of this study, it does not seem reasonable to assume that school calendar modification, in isolation, could have the strong positive effect that would be needed in order to improve the educational experiences of students from low socioeconomic backgrounds.

## References

- Alexander, K. L., Entwisle, D., & Olson, L.(2007). Lasting consequences of the summer learning gap.*American Sociological Review*, 72(2), 167-180.
- Alexander, K., Entwisle, D., & Olson, L.(2001). Schools, achievement, and inequality: a seasonal perspective.*Educational Evaluation and Policy Analysis*, 23(2), 171-191.



- Anderson, J. A. (2009). *The effect of modifying the traditional public school calendar on student achievement in English and Mathematics in selected school populations in Hawaii* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (304893244)
- Borg, J. R., Borg, M. O., & Stranahan, H. A. (2012). Closing the achievement gap between high-poverty schools and low-poverty schools. *Research in Business and Economics Journal*, 5, 1-24.
- Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S. (1996). The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. *Review of Educational Research*, (66)3, 227-268.
- Coopersmith, M. (2011). Effects of year-round education on Texas middle school student performance (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (922678448)
- DeNavas-Walt, C., & Proctor, B. (2015). *Income and poverty in the United States: 2014*. Retrieved from <https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-252.pdf>
- Evans, R. (2007). A comparative study of student achievement between traditional calendar schools and year-round schools in Indiana (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (304837889)
- Fram, M. S., Miller-Cribbs, J., & Van Horn, L. (2007). Poverty, race, and the contexts of achievement: Examining educational experiences of children in the U.S. south. *Social Work*, 52(4), 309-319.
- Graves, J. (2010). The academic impact of multi-track year-round school calendars: A response to school overcrowding. *Journal of Urban Economics*, 67(3), 378-391.
- Graves, J. (2011). Effects of year-round schooling on disadvantaged students and the distribution of standardized test performance. *Economics of Education Review*, 30(6), 1281-1305.
- Kao, G., & Thompson, J. S. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology*, 29(1), 417-442.
- Korth, K. A. (2005). Is year-round calendar education more effective academically than the traditional calendar system for students of low socioeconomic status and/or limited English speakers? (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (305033700)
- Lindsay-Brown, S. (2010). Year-round school versus traditional school: The impact of academic calendars on student achievement at selected elementary schools in north central South Carolina (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (751915069)
- McCall, M., Hauser, C., Cronin, J., Kingsbury, G., Houser, R., & Northwest, E. A. (2006). *Achievement gaps: An examination of differences in student achievement and growth*. Retrieved from [http://www.nwea.org/sites/www.nwea.org/files/409\\_AchivGapStudy\\_Finallowres\\_111006a.pdf](http://www.nwea.org/sites/www.nwea.org/files/409_AchivGapStudy_Finallowres_111006a.pdf)
- McMullen, S. C., & Rouse, K. E. (2012). School crowding, year-round schooling, and mobile classroom use: Evidence from North Carolina. *Economics of Education Review*, 31(5), 812-823.
- Merrill, C. A. (2012). The impact of year-round education on fifth grade African-American reading achievement scores in an urban Illinois school (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses (1428387881)





- Mitchell-Hoefler, M.(2010). The effects of a year-round school calendar in a high-risk elementary school: a comparative study (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (746179069)
- O'Sullivan, M.(2013). The ten-month school year: Are we ignoring educational research in order to preserve summer vacation? Finding a compromise between educational advancement and over-schooling. *Brigham Young University Education & Law Journal*, 2,395-415.
- Ramos, B. K.(2006). Academic achievement of year-round and traditional calendar elementary students in a school-within-a-school setting (Doctoral dissertation).Retrieved from ProQuest Dissertations and Theses (305316880)
- Rothstein, R. (2008). Whose problem is poverty?.*Educational Leadership*, 65(7), 8-13.
- Smith, A.(2011). Are year-round schools a viable option for improving student achievement, combating summer learning loss in disadvantaged youth, controlling expenses, and reducing teacher burnout? (Doctoral dissertation) Retrieved from ProQuest Dissertations and Theses. (887097986)
- Thibodeau, R.(2011). The collective identity of social class: A social-psychological perspective on socioeconomic status and postsecondary achievement (Doctoral dissertation)Retrieved from ProQuest Dissertations and Theses. (881735779)
- vanLaar, C., &Sidanius, J.(2001). Social status and the academic achievement gap: A social dominance perspective.*Social Psychology of Education*, 4(3/4), 235-258.
- von Hippel, P. (2006, October), "What happens to summer learning in a year-round school?", paper presented at the Annual Meeting of the American Sociological Association, New York, NY.
- Welner, K., & Burris, C. C.(2006). Alternative approaches to the politics of detracking.*Theory into Practice*, 45(1), 90-99.
- White, W. (1906). Reviews before and after vacation. *American Education*, 185-188.
- Williams, A. (2011). A call for change: Narrowing the achievement gap between white and minority students. *Clearing House*, 84(2), 65-71.
- Winkelmann, A. T. (2010). A comparative study of student achievement in year-round and traditional calendar schools in Chicago (Doctoral dissertation)Retrieved from ProQuest Dissertations and Theses. (728153337)