Summer Learning Loss: Lessons for 2020-21 Academic Planning

K-12 Research Summary

Introduction

As a result of the COVID-19 pandemic, the K-12 education system in the United States continues to experience an unprecedented wave of school closures.[1] In Ohio, all public, community, and private K-12 schools closed as of March 16th, and the Governor announced on April 20th that schools will remain closed through the rest of the academic year. Further, state and federal legislative actions, such as Ohio House Bill 197 and waivers from the U.S. Department of Education, have removed spring 2020 testing requirements and other school accountability measures.[2]

Districts face the difficult task of planning curriculum and instruction for 2020-21 while still uncertain as to the amount of learning loss students suffered during the 2019-20 academic year. The extraordinary nature of the COVID-19 pandemic means that no direct analogue exists to which districts may look for guidance. However, districts may benefit from understanding other contexts in which students experience considerable out-of-school time. Thus, to support districts' academic planning and student success, Hanover reviewed recent research that examines:

1) How summer learning loss occurs
2) How the effects differ across subject areas, grade levels, and subgroups
3) Whether summer programs/ interventions mitigate these effects and improve student achievement.

Implications for 2020-21 Academic Planning

Looking ahead to 2020-21, Hanover's findings suggest that districts should:

- **Continue** to engage students and families while schools remain closed, offering instructional resources to support learning at home and limit any loss of knowledge and skills.
- **Recognize** that susceptibility to learning loss may differ across grade levels, subject areas, and subgroups, identifying and addressing cases where resource gaps may limit students' out-of-school learning opportunities.
- **Plan** to assess all students at the start of the next school year to gauge achievement levels and measure learning loss, using the results to plan instruction (e.g., how to deliver content all students missed and how to provide more intensive supports to students who experienced more extensive erosion of knowledge and skills).

Methodology

To locate relevant studies, Hanover explored academic databases, including ERIC, EBSCOhost, SAGE Journals, and ProQuest, and investigated other publicly-available sources, such as research reports produced by education agencies, organizations, or institutions. To focus on the most salient recent findings, we sought studies measuring summer loss published in the past 10 years and studies examining the efficacy of summer programs/interventions published in the past five years. For each study included in the review, an accompanying Excel-based "Annotated Bibliography" indicates the title, author(s), publication name/publishing organization, publication year, and resource type. Each entry also specifies the grade level(s) and subject area(s) examined and summarizes the research objectives and results. In this brief, Hanover shares findings from the review, discusses how such insights may inform districts' academic planning efforts for the 2020-21 school year amid ongoing uncertainty surrounding the COVID-19 pandemic, describes the direction of related future research from Hanover, and highlights other Hanover reports and resources on this and similar topics.

Evidence of Summer Learning Loss

Recent research suggests that students typically learn at a faster rate during the school year than during the summer.[3] Yet, whether students actually *lose* learning during the summer—and which grade levels and subject areas seem most affected—remains unclear, as empirical studies draw differing conclusions. A 2015 study by Silvernail and Mazjanis of Maine students in Grades 3-8, for example, found that summer learning loss occurred in both reading and mathematics, albeit to a lesser extent than the authors predicted.[4] Although achievement generally declined less in reading than mathematics, students typically experienced greater summer learning loss in mathematics in lower grade levels and greater summer learning loss in reading in higher grade levels. Meanwhile, a 2013 study by Sandberg Patton and Reschly of reading achievement at a Title I school in rural northeast Georgia revealed that summer learning loss did not impact students in Grades 4 and 5 despite affecting students in Grades 2 and 3.[5]

Even less of a consensus exists regarding the effects of summer learning loss across subgroups. Consider students' socioeconomic status (SES). Silvernail and Mazjanis observed that economically-*dis*advantaged students experienced greater summer learning losses in reading and mathematics than their economically-*ad*vantaged peers across Grades 3-8.[6] Two large studies published in 2010—one by Benson and Borman and another by Ready—that used ECLS-K data to examine learning during the summer between Kindergarten and Grade 1 concluded that literacy skills, despite continuing to grow among high-SES students, largely stagnated among middle-SES students and actually declined among low-SES students.[7] Ready emphasized that such findings did not extend to mathematics, however, and other studies uncovered even less—or, in some cases, no—evidence of a relationship between SES and summer learning loss. Sandberg Patton and Reschly only detected meaningful differences in summer learning loss by SES in Grade 2,[8] while von Hippel and Hamrock declared in a 2019 study that

summer's contributions to test score gaps between advantaged and disadvantaged students remain unclear.[9]

von Hippel's and Hamrock's results warrant further attention because, in using ECLS-K and two other data sets to analyze reading and mathematics achievement from Kindergarten through Grade 8, the authors noted the sensitivity of trends in summer learning gaps to the measures used.[10] Quinn, Cooc, McIntyre, and Gomez arrived at a similar set of conclusions—with respect to SES *and* race—in a 2016 ECLS-K-based study of achievement in both subject areas from Kindergarten through Grade 2.[11] The authors' estimates of summer's impact varied based on whether a model measured inequality in absolute or relative terms. Such factors may help explain seemingly disparate results, such as some authors (e.g., Quinn in 2015) not detecting any significant differences in learning rates or changes in achievement gaps between black and white students during the summer and other authors (e.g., Benson and Borman) finding some evidence of faster growth in summer reading achievement among black students than their white peers.[12]

As indicated by the aforementioned studies, recent research on summer learning loss focuses mostly on elementary school students, especially students in Kindergarten through Grade 2. Accordingly, the literature offers little insight into what happens to middle and high school students' academic achievement during the summer. Recent research on summer learning loss also concentrates mostly on effects in reading and mathematics, a likely consequence of the grade levels studied. However, such an emphasis means that, as with middle and high school students, summer's impact on other subject areas (e.g., science, social studies) also remains relatively unexplored.

Effective Programs/Interventions

Recent research offers encouraging, if mixed, evidence of the capacity of summer programs/ interventions to alleviate summer learning loss in mathematics. A 2018 study by Little, Adelson, Kearney, Cash, and O'Brien found that students in Kindergarten-Grade 2 at two northeastern districts who participated in a summer learning program "focused on mathematics content and discourse" recorded significant gains in mathematics achievement during the summer, whereas non-participants did not.[13] Meanwhile, a 2015 study by Snipes, Huang, Jaquet, and Finkelstein of rising Grade 8 students in six Silicon Valley districts observed that participants in a 19-day intensive summer preparatory course improved significantly more than the control group in terms of mathematics achievement, in general, and algebra readiness, in particular.[14] Notably, the control group's summer learning loss accounted for more than one-third of the course's estimated effect.

A 2017 study by Lynch and Kim—despite generating mixed results in terms of impact on mathematics achievement—suggested that online programming potentially increases mathematics engagement among certain subgroups, an interesting finding in the context of current school closures.[15] The authors randomly assigned students in Grades 3-9 at a large, high-poverty, urban district into three groups. The first group

participated in an online summer mathematics program. The second group participated in the same program *and* received a free laptop computer. The third group constituted the control group. The authors determined that students who participated in the program *and* received a free laptop exhibited significantly greater family/home mathematics engagement during the summer than the control group. Moreover, the relationship proved stronger among students who had internet access at home than among those who did not. Program participation alone also increased family/home mathematics engagement during the summer relative to the control group, albeit not significantly.

Recent evidence of the positive effects of summer programs/interventions on summer learning loss in reading seems more muted. A 2015 study by Zvoch and Stevens investigated the impact of participating in a five-week supplemental summer literacy program on three cohorts of rising Grade 2 students identified as struggling readers.[16] The study leveraged literacy data collected during Grade 1 and Grade 2, as well as during the intervening summer. When in school—including during the summer—students' oral reading fluency improved. In fact, oral reading fluency improved most rapidly during the intensive summer school intervention. In contrast, students' oral reading fluency stagnated or decreased during periods of out-of-school time. Kraft and Montinussbaum, in a 2017 study of 183 families from two elementary charter schools in Rhode Island, explored the efficacy of using text messages to support reading at home during the summer—a relevant setting amid current school closures.[17] The authors randomly assigned 118 families to a treatment group which received two text messages per week throughout the summer. The text messages discussed "specific literacy and enrichment activities" for parents and children, "emphasized the importance of reading and the role of parents in encouraging reading at home," and included "information on resources and ideas for summer learning activities." While the authors noted positive effects on reading comprehension among students in Grades 3 and 4 whose parents received the text messages, such effects were not evident for Grades 1 and 2.

Lastly, a 2016 study by Zeng, Benner, and Silva of a five-week intensive summer literacy program, despite not detecting any significant effects on literacy achievement, appears interesting due to the authors' findings with respect to social-emotional outcomes, a key area of concern throughout the COVID-19 pandemic.[18] The study divided 92 rising Grade 4 students at a northwestern urban district into treatment and control groups. All students had scored below proficient on the state literacy assessment, and nearly all had displayed characteristics consistent with at-risk status for emotional and behavioral disorders. The treatment and control groups received the same five-week intensive literacy instruction. The treatment group also engaged in enrichment activities intended to foster social-emotional learning. Although post-intervention differences in literacy achievement did not prove significant, the treatment group's social-emotional behavior improved significantly, whereas the control group "regressed." The treatment group also exhibited significant improvement relative to the control group with respect to emotional symptoms and peer relationships.

Future Research

In this research summary, Hanover sought relevant insights from the summer learning loss literature to inform districts' efforts to address the loss of instructional time due to COVID-19-related school closures. In future publications, we will continue to apply relevant lessons from similar contexts to assist districts in supporting students, families, and staff not only while schools remain closed, but also as buildings reopen and the 2020-21 school year begins. Specifically, we next will focus on how trauma contributes to learning loss and how districts can mitigate such detrimental effects.

Related Hanover Resources

Supporting Summer Learning

- Effective Program Design for Elementary Summer Learning Programs
- Extended Learning Supports for Secondary Students

Teaching and Learning During COVID-19 School Closures

- Info-Brief: Self-Regulation for Online Learning
- Info-Brief: Personalized Learning Online
- Parent's Guide to Helping Your Child Succeed in Reading and Writing at Home
- Planning and Delivering Online Instruction During COVID-19 School Closures
- Resources on Online Learning

Endnotes

[1] "Map: Coronavirus and School Closures." *Education Week*. https://www.edweek.org/ew/section/multimedia/map-coronavirus-and-school-closures.html

[2] "Coronavirus (COVID-19) Frequently Asked Questions (FAQ) for Ohio's Schools and Districts." Ohio Department of Education. http://education.ohio.gov/Topics/Student-Supports/Coronavirus/Frequently-Asked-Questions-Governor-DeWine%e2%80%99s-Scho#FAQ3878

[3] [1] Benson, J. and G. Borman. "Family, Neighborhood, and School Settings Across Seasons: When Do Socioeconomic Context and Racial Composition Matter for the Reading Achievement Growth of Young Children?" *Teachers College Record*, 112:5, 2010. https://www.researchgate.net/publication/285719563_Family_Neighborhood_and_School_Settings_Across_Seasons_When_Do_Socioeconomic_Context_and_Racial_Composition_Matter_for_the_Reading_Achievement_Growth_of_Young_Children [2] Quinn, D., N. Cooc, J. McIntyre, and C. Gomez. "Seasonal Dynamics of Academic Achievement Inequality by Socioeconomic Status and Race/Ethnicity: Updating and Extending Past Research With New National Data." *Educational Researcher*, 45:8, 2016. Retrieved from SAGE Journals. [3] Ready, D. "Socioeconomic Disadvantage, School Attendance, and Early Cognitive Development: The Differential Effects of School Exposure." *Sociology of Education*, 83:4, 2010. Retrieved from EBSCOhost.

[4] Silvernail, D. and B. Mazjanis "Summer Learning Loss for Maine Public School Elementary Students." Maine Education Policy Research Institute, University of Southern Maine, 2015. https://pdfs.semanticscholar.org/2ae9/a1ae6b89882ae8ea932fa57aeea71ff219ca.pdf

[5] Sandberg Patton, K. and A. Reschly. "Using Curriculum-Based Measurement to Examine Summer Learning Loss." *Psychology in the Schools*, 50:7, 2013. Retrieved from EBSCOhost.

[6] Silvernail and Mazjanis, Op. cit.

[7] [1] Benson and Borman, Op. cit. [2] Ready, Op. cit.

[8] Special education students in Grade 2 also experienced significantly greater summer learning loss than general education students. See: Sandberg Patton and Reschly, Op. cit.

[9] von Hippel, P. and C. Hamrock. "Do Test Score Gaps Grow Before, During, or Between the School Years? Measurement Artifacts and What We Can Know in Spite of Them." *Sociological Science*, 6, 2019. https://www.sociologicalscience.com/download/vol-6/january/SocSci_v6_43to80.pdf

[10] Ibid.

[11] Quinn, Cooc, McIntyre, and Gomez, Op. cit.

[12] [1] Quinn, D. "Black–White Summer Learning Gaps: Interpreting the Variability of Estimates Across Representations." *Educational Evaluation and Policy Analysis*, 37:1, 2015. Retrieved from SAGE Journals. [2] Benson and Borman, Op. cit.

[13] Little, C., J. Adelson, K. Kearney, K. Cash, and R. O'Brien. "Early Opportunities to Strengthen Academic Readiness: Effects of Summer Learning on Mathematics Achievement." *Gifted Child Quarterly*, 62:1, 2018. https://journals.sagepub.com/doi/pdf/10.1177/0016986217738052

[14] Snipes, J., C.-W. Huang, K. Jaquet, and N. Finkelstein. "The Effects of the Elevate Math Summer Program on Math Achievement and Algebra Readiness." U.S. Department of Education, 2015. https://files.eric.ed.gov/fulltext/ED558157.pdf

[15] Lynch, K. and J. Kim. "Effects of a Summer Mathematics Intervention for Low-Income Children: A Randomized Experiment." *Educational Evaluation and Policy Analysis*, 39:1, 2017. https://journals.sagepub.com/doi/pdf/10.3102/0162373716662339

[16] Zvoch, K. and J. Stevens. "Identification of Summer School Effects by Comparing the In- and Out-of-School Growth Rates of Struggling Early Readers." *The Elementary School Journal*, 115:3, 2015. Retrieved from EBSCOhost.

[17] Kraft, M. and M. Montinussbaum. "Can Schools Enable Parents to Prevent Summer Learning Loss? A Text-Messaging Field Experiment to Promote Literacy Skills." *The Annals of the American Academy of Political and Social Science*, 674, 2017. Retrieved from SAGE Journals.

[18] Zeng, S., G. Benner, and R. Silva. "Effects of a Summer Learning Program for Students at Risk for Emotional and Behavioral Disorders." *Education and Treatment of Children*, 39:4, 2016. Retrieved from EBSCOhost.