



## STOPPING SUMMER SLIDE

As the school year begins in earnest following a long summer break, rarely do educators have the opportunity to teach new material that builds upon the previous year's curriculum. Instead, because of "summer slide," or the loss of learning that occurs over these months, according to the Brookings Institute, on average a total of one month of reteaching time is required to get students up to speed.<sup>1</sup> An article recently published by PBS NOVA paints an even more alarming picture, and reports that some states have seen up to two or even three months of lost academic progress for students who "don't stay engaged in their learning over summer vacation."<sup>2</sup>

For parents, educators and policymakers alike, summer slide represents a serious challenge that must be overcome. And yet, while the subject has been researched and debated since the early 1900s<sup>3</sup>, the problem remains. For students from low-income families, the results of summer slide are even more profound. In their paradigm-shifting book, "Children, Schools, and Inequality," Johns Hopkins University researchers Doris Entwisle, Karl Alexander and Linda Olson explain this phenomenon with what they call the "Faucet Theory."

Using the analogy of a faucet, the researchers explain that public schools create a stream of resources (meals, books, teachers, engaging activities, etc.) that benefit students throughout the year. While the flow of educational support continues for children with middle- and upper-class backgrounds due to the types of enrichment activities provided by their families, the same is not always true for lower-income students. Through no fault of their own, their "faucet" of resources tends to dry up in the summer due to lack of support.

The researchers found that this early lack of summer enrichment had a compounding effect, and that two-thirds of the ninth-grade reading achievement gap in their sample size could be attributed to how these same students spent their summers during elementary school.<sup>4</sup>

## THE EFFECTIVENESS OF SUMMER PROGRAMMING

The introduction of the Faucet Theory brought with it a renewed national interest in combating the effects of summer slide. It spurred significant research in the field, including the Rand Corporation's landmark study, "Learning from Summer - Effects of Voluntary Summer Programs on Low-Income Urban Youth," published in 2016. Rand's team of researchers had set out to test the long-term effects of summer educational programming. To do this, the group began with 5,600 third-graders across the country who were randomly selected to attend a summer educational program (the treatment group), or to not participate in a program (the control group), for two years.<sup>5</sup>

The results were both significant and impressive:

- There is promising evidence that students with high attendance in one summer benefited in mathematics and that these benefits persisted through the following spring.
- There is promising evidence that students with high attendance in the second summer benefited in mathematics and language arts and that these effects persisted.
- There is promising evidence that students with high attendance in the second summer benefited in terms of social-emotional outcomes.<sup>6</sup>

The Rand Corporation's research contributed greatly to promoting the effectiveness of summer programming. Most importantly, the research showed that attending an educational summer experience can lead to improved academic performance during the school year. These positive effects were even more pronounced for students who returned to the same summer camp two years in a row.<sup>7</sup>

Partnering with the Burton D. Morgan Foundation and Dr. John Falk, Co-Director of the Institute of Learning Innovation at Oregon State University, the National Inventors Hall of Fame® (NIHF) found similar results researching the effectiveness of our flagship summer enrichment program, Camp Invention®:

## THE BENEFITS OF ATTENDING CAMP INVENTION

- Participating in just one week of Camp Invention resulted in statistically significant improvements in creativity, STEM interest and the ability to use and apply problem-solving techniques.
- Students who attended multiple sessions of Camp Invention over a four-year period showed significantly higher levels in creativity, STEM interest and problem-solving aptitude as compared to students with no previous (or only limited) Camp Invention experience.

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A Camp Invention participant shows off her invention

1. Quinn, D. M., & Polikoff, M. (2017, September 14). Summer learning loss: What is it, and what can we do about it? Retrieved from <https://www.brookings.edu/research/summer-learning-loss-what-is-it-and-what-can-we-do-about-it/>

2. Nova Education. (2017, June 22). How to Minimize Summer Slide. Retrieved from <https://www.pbs.org/wgbh/nova/article/>

3. [minimizing-summer-slide/](https://www.brookings.edu/research/summer-learning-loss-what-is-it-and-what-can-we-do-about-it/)

3. Cooper, H., Nye, B., Charlton, K., Lindsay, J., & Greathouse, S. (1996, September 1). The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analytic Review - Harris Cooper, Barbara Nye, Kelly Charlton, James Lindsay, Scott Greathouse, 1996. Retrieved from [https://](https://journals.sagepub.com/doi/abs/10.3102/00346543066003227)

[journals.sagepub.com/doi/abs/10.3102/00346543066003227](https://journals.sagepub.com/doi/abs/10.3102/00346543066003227)

4. Alexander, K. L., Entwisle, D. R., & Olson, L. S. (2007). Lasting Consequences of the Summer Learning Gap. *American Sociological Review*, 72(2), 167-180. doi: 10.1177/000312240707200202



Two Camp Invention participants test their parachutes

## USING TITLE I FUNDING FOR SUMMER OPPORTUNITIES

Due to both recent changes to the Elementary and Secondary Education Act – now renamed the Every Student Succeeds Act, or ESSA – educators now have greater autonomy in using their allocated Title I resources. Instead of purely measuring the effectiveness of this funding using standardized testing performance, for the first time, districts now have a say in how they define their accountability measures.<sup>9</sup>

These exciting revisions allow districts to use their funds on educational programming backed by evidence. Specifically, ESSA encourages districts to invest in “evidence-based interventions” that “have proven to be effective in leading to desired outcomes, namely improving student achievement.”<sup>10</sup> To qualify under this category, the program in question must fit into one of four tiers.

### THE FOUR TYPES ESSA EVIDENCE:

#### Tier 1 – Strong Evidence:

Supported by one or more well-designed and well-implemented randomized control experimental studies.

#### Tier 2 – Moderate Evidence:

Supported by one or more well-designed and well-implemented quasi-experimental studies.

#### Tier 3 – Promising Evidence:

Supported by one or more well-designed and well-implemented correlational studies (with statistical controls for selection bias).

#### Tier 4 – Demonstrates a Rationale:

Practices that have a well-defined logic model or theory of action, are supported by research, and have some effort underway by an SEA, LEA or outside research organization to determine their effectiveness.

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Both the Rand Corporation research and Burton D. Morgan/Falk study qualify for a Tier 3 categorization and contribute to a growing body of research that confirms the effectiveness of summer enrichment. Qualifying studies like these should help districts design and offer more effective academic programming and aid them in using their federal funding as effectively as possible.

## INVESTING IN EARLY CHILDHOOD EDUCATION

While researchers and policymakers differ on how to best combat the effects of summer slide, there is near universal agreement that the earlier children receive investments in their education, the greater effects these investments will have. Popularized by the work of Nobel Prize-winning economist James Heckman, research has shown that early childhood represents “the most economically efficient time to develop skills and social abilities.”<sup>12</sup>

For students who come from lower-income backgrounds, and therefore suffer most from learning loss during the summer months, research suggests that early educational investments are most effective.

**According to Heckman, “efforts should focus on the first years for the greatest efficiency and effectiveness. The best investment is in quality early childhood development from birth to five.”<sup>13</sup>**

However, the type of investment is just as important as when it’s applied. Fortunately, Heckman provides further guidance on this issue and warns against placing too much emphasis on cognitive and academic skill development. While these are important, so too is the cultivation of social skills that develop a person’s creativity and work ethic.<sup>14</sup> Known also as “whole child” education, this approach seeks to ensure that every child is healthy, safe, engaged, supported and challenged.<sup>15</sup> This means that educators must view students as individuals rather than metrics, and embrace activities that engage their natural interest and curiosity. By offering programs that have the power to reinvigorate a child’s interest in learning, educators can overcome the lack of opportunities during the summer months.

5. Pitcock, S. (2018, March 16). The Case for Summer Learning. Retrieved from <https://www.aft.org/ae/spring2018/pitcock>  
6. Augustine, C. H., McCombs, J. S., Pane, J. F., Schwartz, H. L., Schweig, J., McEachin, A., & Silver-Evans, K. (2016, September 7). Summer Learning Programs Benefit Low-Income Urban Students. Retrieved from [https://www.rand.org/pubs/research\\_reports/RR1557.html](https://www.rand.org/pubs/research_reports/RR1557.html)  
7. Ibid  
8. Burton D. Morgan Foundation. Research Findings on Camp Invention Benefits. (2019, March 7). Retrieved from <https://www.bdmorganfdn.org/news/research-findings-camp-invention-benefits>

9. The Understood Team. (2019, October 17). The Difference Between the Every Student Succeeds Act and No Child Left Behind. Retrieved from <https://www.understood.org/en/school-learning/your-childs-rights/basics-about-childs-rights/the-difference-between-the-every-student-succeeds-act-and-no-child-left-behind>  
10. ESSA Team. Evidence-Based Interventions Under the ESSA. (2019, July 10). Retrieved from <https://www.cde.ca.gov/re/es/evidence.asp>  
11. Ibid  
12. Heckman Equation Flyer. (2017, February 7). Retrieved from <https://heckmanequation.org/resource/heckman-equation-flyer/>

13. Invest in Early Childhood Development: Reduce Deficits, Strengthen the Economy. (2017, February 15). Retrieved from <https://heckmanequation.org/resource/invest-in-early-childhood-development-reduce-deficits-strengthen-the-economy/>  
14. Heckman Brochure. (2013). Retrieved from [https://heckmanequation.org/assets/2014/05/F\\_Heckman\\_Brochure\\_041515.pdf](https://heckmanequation.org/assets/2014/05/F_Heckman_Brochure_041515.pdf)  
15. The Whole Child Approach to Education. (2015). Retrieved from <http://www.wholechildeducation.org/about/>