Evidence-Based Programs to Address Learning Loss:

Discovery Education Partners with School Districts Nationwide to Accelerate Learning in Remote, Hybrid, and In-Person Settings

In March 2020, the COVID-19 pandemic shuttered schools worldwide and ushered in a new era of remote learning almost overnight. While this transition maintained the continuity of learning for millions, it also exacerbated existing socioeconomic disparities and has resulted in the most vulnerable students experiencing learning loss.

COVID-19 Learning Loss

According to a December 2020 McKinsey & Company analysis, some students had only learned 67 percent of math and 87 percent of reading standards in that year, in comparison to the historical average. This equates to an average of three months of learning loss in math and one-and-a-half months of learning loss in reading. The McKinsey analysis goes on to show that in schools with high minority populations, the learning loss was even more profound, with students learning 59 percent of the math and 77 percent of the reading of other cohorts in a typical school year.[1]

Federal Investment to Combat Learning Loss

In March 2021, the American Rescue Plan Act (ARPA)—which included $123 billion for K-12 state education agencies—was signed into law. The ARPA required states to subgrant 87.5 percent of their allotted funding to school districts but provided wide latitude in how schools could spend these funds. According to the ARPA, while purchases must

align with uses sanctioned through existing federal laws including the Elementary and Secondary Education Act (ESEA), funds could be used for the following:

- purchasing educational technology that "aids in regular and substantive educational interaction" between students and teachers;

- addressing learning loss by administering and using valid and reliable assessments to help teachers assess progress, meet student needs, and differentiate instruction;

- implementing "evidence-based activities to meet the comprehensive needs of students";

- providing assistance to families to support students; and

- improving engagement/tracking attendance in remote learning.

As per the U.S. Department of Education FAQ released in May 2021: "The ARP Act defines the term 'evidence-based' as having the meaning in section 8101(21)

of the ESEA." Accordingly, "evidence-based" includes several tiers of evidence. Specifically, "evidence-based," when used with respect to a state, LEA, or school activity, means an activity, strategy, or intervention that:

- Demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—

  - Strong evidence from at least one well-designed and well-implemented experimental study ("tier 1");

  - Moderate evidence from at least one well-designed and well-implemented quasi experimental study ("tier 2"); or

  - Promising evidence from at least one well-designed and well-implemented correlational study with statistical controls for selection bias ("tier 3"); or

- Demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes and includes ongoing efforts to examine the effects of such activity, strategy, or intervention ("tier 4").[2]

Focus on Accelerating Learning at Scale

As schools and districts look to address learning loss, it is important to consider whether resources are designed for remediation or acceleration. Rather than trying to remediate students who are falling behind by reteaching or lowering expectations, programs that focus on accelerating learning immerse students in concepts through strategies and supports that help them catch up to their peers, develop a deeper understanding of academic subjects, and still meet rigorous, required learning standards. Many studies and practices around accelerating learning revolve around steps outlined in a 2014 ASCD publication, *Learning in the Fast Lane,* by Suzy Pepper Rollins.[3] In it, Rollins explains that acceleration provides a fresh academic start for students every week and creates opportunities for struggling students to learn alongside their peers. By selecting the right content and focusing on the right goals, it's possible to prepare all students for the future while "plugging a few critical holes from the past."

Discovery Education has evaluated Rollins' work, weighed it against school systems' current needs and challenges, and talked to district leaders to deliver an updated list of five key pillars:

1. Prime emotion and spark student curiosity.

2. Establish clear learning goals and continually check for understanding.

3. Scaffold to build background knowledge while focusing on grade-level content.

4. Make learning accessible for all students.

5. Foster a culture of collaborative learning.

Throughout the COVID-19 pandemic, Discovery Education has worked to support remote learning and address growing gaps in equity, and has now turned its attention to accelerating learning and mitigating learning loss. Specifically, it has created evidence-based resources, verified by independent studies, that can be implemented at scale to quickly accelerate learning. While these resources have not yet been rated by IES, they do meet several of the evidence-based standards defined in ESSA.

Discovery Education's robust K-12 learning platform delivers high-quality, curated, supplemental and comprehensive content, ready-to-use digital lessons, unique collaboration tools, and professional learning resources in science, mathematics, social studies, STEM, literacy, and more. These resources meet the following specifications:

- Discovery Education's platform is built upon a logic model steeped in a theory of action about how best to enhance the K-12 teaching and learning experience. A theory of action is a collection of statements that hypothesizes how intentional actions will result in change, based on insights from existing research. Collectively, our theory of action statements describe the philosophical foundation to our teaching and learning approach. Learn more about our research-based approach on our Research & Impact page.

- Content collections are regularly evaluated and updated, and new content added, to ensure accuracy and relevancy.

- All digital resources are built upon the principles of Universal Design for Learning (UDL) and culturally responsive best practices. Features such as closed captioning, video transcripts, and text-to-speech, multiple Lexile levels of core content, authentic Spanish language translation, and 180 additional languages through Google Translate help make content accessible to diverse learners including English language learners and students receiving special education services. Resources are designed to support differentiated and scaffolded instruction.

- Downloadable content for teachers to embed into their own instructional materials and design new and innovative resources for their classrooms.

Evidence-Based Interventions to Accelerate Learning

STEM Program Impacts Secondary Math & Literacy Achievement in Santa Rosa, FL

An independent study conducted in Santa Rosa County District Schools by the University of West Florida and published in the Journal of Education and Social Development in July 2020 looked at how the implementation of STEAM education in a Discovery Education partner district related to achievement on state assessments. The independent variable (STEAM education implementation) was measured by the STEAM classroom observation form data from more than 100 observations collected in 20 elementary schools and six middle and high school schools by trained university observers and the dependent variable was the resulting scores of classrooms of students on standardized tests. The unit of measure used for the current study was the STEAM classroom.

The following observed classroom instructional strategies were found to have significant relationships with classroom achievement scores in mathematics, algebra, advanced algebra skills, and text-based writing skills in language arts standardized testing results: creative inquiry, critical-thinking inquiry, critical thinking, problem solving, critical-thinking logical thinking, communication argumentation, and collaboration investigation skills.[4]

Three Year STEAM Study at Santa Rosa County District Schools

Connecting STEAM Classroom Observation Data to Student Achievement Data: An Empirical Perspective

Sahuarita Partnership Impacts Math, Science & Reading Proficiency in Grades 3-8

Another independent study, conducted by Decisive Data Insights, evaluated the impact of various Sahuarita Unified School District (AZ) initiatives, including one with Discovery Education that focused on increasing the quality of K-8 science, math, and reading instruction. The study was conducted from January 2020 through October 2020 and utilized advanced statistical methods to determine partnership effects on student performance. The Discovery Education implementation started small with just 246 students in year one (2016-17 school year) and grew to impact roughly 900 students across five grades during the 2018-19 school year. Approximately 50 percent of applicable district students used Discovery Education.

The evaluation used Discovery Education usage data as the independent variable across three years. Each year was examined separately, and aggregate effects were examined across the three years. The analysis looked for a differential effect with different levels of Discovery

Education use. The dependent variables included science and reading (informational text) scores. Same-subject scores were used as covariates to control for prior achievement (e.g., prior year's math score used to control for current year performance). Attendance data also were used as a covariate to parcel effects.

The study found that the investment in Discovery Education resulted in increased science, math, and reading proficiency in grades 3-8. Cross-curricular effects are evident, but claims related to subjects other than science should be tempered only because Discovery Education does not make explicit claims that their curriculum leads to those effects. With 18 positive effects across the grade levels, subject, and relatively sparse years of implementation, it can be justifiably concluded that the Discovery Education implementation led to better academic outcomes in every subject and grade level, to some degree, than what would have been attained without its use.

Sahuarita Unified School District and Freeport-McMoRan Foundation Partnership Case Study

STEM Professional Development Program Shifting Culture in Bellevue, NE

A third independent study in Bellevue Public Schools, located in eastern Nebraska, looked at a district-wide elementary school initiative to improve student achievement in STEM subjects. The program was scheduled for planning in 2018-19, implementation in 2019-20 and conclusion in 2020-21, and included three strategies to meet their goals: in-class curriculum support, in-class technology support, and extracurricular activities. The district partnered with Discovery Education Edmentum and GrantProse to meet these goals.

The program evaluations revealed that, despite interruptions due to the global pandemic, Edmentum and Discovery Education provided professional support and technology resources for the staff and school leadership. The Discovery Education STEM Teacher Leader Corps professional development program was implemented. Teachers secured robotics equipment and began using the resources with students. An elementary-level summer school was held that provided daily STEM enrichment. Once the district transitioned into remote learning, Project STEM activities were integrated into students' in-home learning.

The keys to success in this first year have been the proper implementation of technology tools and professional learning activities. While the COVID-19 pandemic has adversely impacted student learning, the program is having a beneficial impact. The staff has consistently given Discovery Education high marks for its professional development program and has stronger attitudes, beliefs, and opinions toward STEM instruction in the 2020-21 year. Teachers are more frequently integrating STEM instructional activities in their weekly curriculum.

[Bellevue Public Schools Project STEM Insights on the Discovery Education Partnership Year 2](#)

Discovery Education Study Reveals Widespread Impact on Achievement Across North Carolina

Discovery Education Research & Analysis compared partner schools in North Carolina to non-partner schools to study the link between Discovery Education and student achievement. Researchers compared the published school level data from the Accountability Services Division of the Public Schools of North Carolina for the 2016-2017 school year to a list of Discovery Education partners for the same time period. There are 116 NC school districts and 2,404 schools in the dataset. Of the 2,404 schools, 62 percent are Discovery Education partners.

There are 34 performance indicators that show that Discovery Education partner schools perform better than those that do not partner with Discovery Education. This positive correlation between Discovery Education partners and better scores found in the overall sample also holds for several different demographic subgroups. Statistically significant advantages were seen on end-of-course assessments and the ACT for schools that utilized Discovery Education digital core curricula for math and science—*Math Techbook* and *Science Techbook*. Additionally, Discovery Education partners had a statistically significant advantage on English end-of-course assessments, ACT English, and ACT Reading.

[North Carolina Statewide Study](#)

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Sources

[1] **Dorn, E.; Hancock, B., Sarakatsannis, J & Viruleg, E.** "COVID-19 and Learning Loss – Disparities Grow And Students Need Help," *McKinsey & Company*, December 8, 2020, URL.

[2] **U.S. Department of Education.** "Frequently Asked Questions: Elementary and Secondary School Emergency Relief Programs Governor's Emergency Education Relief Programs," May 2021, URL.

[3] **Pepper Rollins, S.** "Acceleration: Jump-Starting Students Who Are Behind," *Learning in the Fast Lane*, ACSD, 2014.

[4] **Thompson, C., Barber, K., et al.** "Connecting STEAM Classroom Observation Data to Student Achievement Data: An Empirical Perspective," *Journal of Education and Social Development*, July 2020, 4(1), pp 1-9. URL.

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