



PROMOTING FAMILY ENGAGEMENT AND STUDENT SUCCESS THROUGH INVENTION EDUCATION

When it comes to maximizing students’ social and academic growth, support outside of the classroom is crucial. To promote the essential role of families in helping maintain and grow students’ progress over time, educators and policymakers have increasingly emphasized the importance of family engagement.

While many definitions exist of this term, one of the most respected comes from the National Family, School and Community Engagement Working Group (now called the NAFSCE Policy Council). The organization highlights three distinct pillars of effective family engagement¹:

The Components of Effective Family Engagement

- ✓ **Family engagement is a shared responsibility in which schools and other community agencies and organizations are committed to reaching out to engage families in meaningful ways and in which families are committed to actively supporting their children’s learning and development**
- ✓ **Family engagement is continuous across a child’s life and entails enduring commitment but changing parent roles as children mature into young adulthood**
- ✓ **Effective family engagement cuts across and reinforces learning in the multiple settings where children learn — at home, in prekindergarten programs, in school, in afterschool programs, in faith-based institutions and in the community**

Though the importance of family and community involvement in a child’s education is a topic that has been historically promoted and well-researched, decreasing public school enrollment² and startling nationwide increases in chronic absenteeism³ have brought this topic into further national prominence.

Fortunately, recently published research conducted by Learning Heroes and TNTP, in partnership with researchers Karen Mapp,

professor of practice at Harvard University Graduate School of Education, and Todd Rogers, Weatherhead Professor of Public Policy at the Harvard Kennedy School of Government, supports the idea that strong family engagement can mitigate both troubling trends.

The report, “Investigating the Relationship Between Pre-pandemic Family Engagement and Student and School Outcomes,” found that schools that had strong family engagement prior to the COVID-19 pandemic “experienced better-than-expected attendance, achievement, and school climate outcomes post-pandemic.”⁴

In an article published in Education Week, Eyal Bergman, senior vice president of Learning Heroes, spoke about how the report’s findings give schools a tangible strategy to address chronic absenteeism.



A Camp Invention participant continues working on their invention at home.

“What this data reveals is that there are ways to mitigate [chronic absenteeism],” Bergman said. “Schools that actually have invested in building strong family engagement are seeing improvements in their chronic absenteeism. This data actually gives us an answer about what to do about it.”⁵

Perhaps the most significant finding from the report was that among the 3,000 schools that were surveyed, those with strong family engagement had student attendance rates that were 25% better compared to those with weaker engagement.⁶

1. National Association for Family, School and Community Engagement. (n.d.). Family Engagement Defined. <https://nafsce.org/page/definition>

2. Pandey, E. (2023, January 8). America’s Public Schools Are Losing Students. America’s Public Schools Are Losing Students. <https://www.axios.com/2023/01/08/public-school-enrollment-decline>

3. Toness, B.V. (2023, August 11). Millions of Kids Are Missing Weeks of School as Attendance Tanks Across the US. AP NEWS. <https://projects.apnews.com/features/2023/missing-students-chronic-absenteeism/index.html>

4. Learning Heroes, & The New Teacher Project. (2023, October). Investigating the Relationship Between Pre-Pandemic Family Engagement and Student and School Outcomes. Learning Heroes. <https://bealearninghero.org/wp-content/uploads/2023/10/FACE-Impact-Study.pdf>

5. Peetz, C. (2023, October 24). New Research Finds a Crucial Factor in Reducing Chronic Absenteeism. Education Week. <https://www.edweek.org/leadership/new-research-finds-a-crucial-factor-in-reducing-chronic-absenteeism/2023/10>

6. Ibid.,

The Profound Impact of Family Engagement

The positive impacts of family engagement on student success are wide-ranging. Thanks to advancements in brain science, the use of improved research methods and the inclusion of more diverse population samples, a large body of research has emerged to reveal the wholistic ways in which family engagement supports students in areas from academics to health:

Academics⁷

Healthier Relationships and School Environments:

Family engagement has demonstrated an ability to mitigate disciplinary issues within academic settings, enhance overall school environments, and foster positive parent-teacher and teacher-student relationships.

Enhanced High School Success:

Students whose parents or guardians actively participated during their child's elementary years achieved higher grades and exhibited reduced rates of high school dropout and greater likelihood of completing high school on schedule.

Heightened Engagement and Academic Achievement:

Recent experimental studies have highlighted the impact of interactive teacher-parent communication, showcasing how it fosters increased parental involvement, boosts student engagement and enhances academic performance.

Health

Improved Health Outcomes:

Family engagement with healthcare professionals has been proven to enhance care coordination and yield positive health outcomes.

Reduced Health Risk Behaviors:

Children are less likely to engage in risky health behaviors when their families are actively engaged in their lives.

Promotion of Healthier Behaviors:

Family engagement can lead to greater participation in positive health practices, including school-related physical activities and improved educational attainment.

Barriers to Ensuring Family Engagement

While there exists a strong desire among families of all socioeconomic, racial, ethnic and educational backgrounds to support their children's educational success,⁸ there remain a few distinct barriers that often can prevent schools and families from effectively engaging and communicating with one another.

In a recent nationwide survey conducted by Panorama Education and the Harvard Graduate School of Education that included over 18,000 parents and guardians from schools across the country, researchers found⁹:

- **Over half (54%)** of respondents listed their **busy schedules** as a “medium” to “very large problem” when it comes to being involved with their children's schools
- **25%** of parents and guardians cited **child care** as a “medium” to “very large problem”
- **21%** of parents and guardians worry that school staff will treat their child differently if the parent or guardian **raises a concern**
- **18%** feel their child's school does **not provide enough information** about opportunities to be involved

These challenges are compounded by persistent economic and structural inequalities throughout the country,¹⁰ signaling an urgent need for schools to provide equitable family engagement solutions that are inclusive, accessible and flexible enough to adapt to the unique needs of individual families.



A Club Invention® participant collaborates with others online.

Providing Accessible Family Engagement With Invention Education

One effective solution embraced by school districts nationwide is invention education — a hands-on pedagogy that invites students to solve real-world challenges by creating invention prototypes.

Akron Public Schools, located in Akron, Ohio, used this strategy to great effect, supporting students who were negatively impacted by the COVID-19 pandemic. The district worked with the National Inventors Hall of Fame® in the summer of 2022 to develop a customized program that included both a four-week English Language Arts (ELA) enhanced version of Camp Invention®, the nonprofit's flagship K-6 summer STEM program, and a collection of individually packaged Invention Project® kits. These kits, which provided creative materials and instructions for completing innovative challenges, were made available to all Akron Public Schools students to bring home and explore with their families.

To ensure the effectiveness of this program, the National Inventors Hall of Fame partnered with an independent research organization, the Summit Education Initiative (SEI), to measure its impact.

7. Youth.gov. (n.d.). Impact of Family Engagement. Impact of Family Engagement. <https://youth.gov/youth-topics/impact-family-engagement>

8. Ibid.,

9. Breese, E. (2017, March 25). How to Reduce Barriers to Family Engagement. Getting Smart. <https://www.gettingsmart.com/2017/03/25/how-to-reduce-barriers-to-family-engagement>

10. Siripurapu, A. (2022, April 20). The U.S. Inequality Debate. Council on Foreign Relations.

The results were immediate, and according to SEI, students who participated:¹¹

- **Increased their GPA** during the first marking period of the 2022-23 school year
- Increased their **i-Ready® mathematics and reading scores**
- **Had fewer absences (1.9)** during the first marking period of the 2022-23 school year compared to the overall average of 3.3



Two siblings work together to build and design their invention prototype.

In an interview with the National Inventors Hall of Fame, Diana Kingsbury, SEI's former senior director of research and analytics, explained the significance of her team's findings.

“There’s really no doubt that students who participated in National Inventors Hall of Fame programs — likely just by virtue of participating in that program — were staying on track for academic success,” Kingsbury said. “We believe as an organization and in our work with the Out of School Time Network, that engagement for students outside the classroom is critical for student success.”¹²

Following in the tradition set by some of the world’s most impactful and accomplished inventors — National Inventors Hall of Fame Inductees — the Hall of Fame’s approach to invention education embraces using easily attainable materials like rubber bands, cardboard and tape to construct invention prototypes. Not only does this allow for faster iteration, but it also enables students to continue exploring at home, providing opportunities for immersive family engagement.

This active approach to education places students in control of their learning and encourages them to incorporate their interests and passions directly into the problem-solving process.

Giving participants the freedom and agency to come up with their own solutions is one of the guiding principles that Ashley Giordano, manager of program management at the National Inventors Hall of Fame, uses when helping develop our PreK-8 curricula.

“I believe this is one of invention education’s core strengths — its ability to inspire students to dream and perhaps more importantly,

take concrete steps to make those dreams a reality,” Giordano said. “It’s a privilege to be able to create hands-on learning experiences that hundreds of thousands of children each year can enjoy with their families.”

11. The National Inventors Hall of Fame. (n.d.). Proven Benefits of National Inventors Hall of Fame Education Programs. https://www.invent.org/sites/default/files/2022-09/Proven_Benefits_2022.pdf

12. The National Inventors Hall of Fame. (n.d.). SEI Research Shows NIHF Program Boosts Attendance, Grades and Test Scores. https://www.invent.org/sites/default/files/2023-07/June_2023_White_Paper_NIHF_Program_Boosts_Attendance_Grades_and_Test_Scores_7.pdf