Study Group

FROM SEED FUNDING TO SCALE

U.S. Department of Education and Institute of Education Sciences' Small Business Innovation Research (ED/IES SBIR) Program Impact Analysis (2012–2022)

AUGUST 2025

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Since 2002, the U.S. Department of Education and Institute of Education Sciences' Small Business Innovation Research program **(ED/IES SBIR)** has provided seed funding for entrepreneurial firms to develop, evaluate, and commercialize new education technology products to address pressing needs in education and special education. Until now, no study has assessed the overall social or economic return on investment. Commissioned by The Study Group, a nonprofit applied research and design organization, this report presents the first portfolio-level analysis of outcomes for 104 firms that received ED/IES SBIR Phase I or II awards totaling $91.89 million between FY 2012 and FY 2022. All findings are reported in aggregate; no individual firm data are disclosed.

Key Findings

Product Development: 73 of 104 firms (70%) fully developed and commercially launched at least one research-based education technology product as a result of ED/IES SBIR awards. Of the 73 firms, 69 responded to a follow-up survey providing data on the social and economic impact of their products. 75% of responding firms reported their product would not exist without ED/IES SBIR and an additional 22% said it may or may not exist. Only 2% of the responding firms indicated their product would exist with or without ED/IES SBIR.

Reach: As of May 2025, the 69 firms reported their products were used by an estimated 131 million students, educators, and administrators—equating to a cost of about $0.70 per user in federal funding.

Economic Leverage: Responding firms attributed $828 million in combined revenue, follow-on funding, and acquisition proceeds to their ED/IES SBIR projects—over $9 in return for every $1 of federal investment.

Scale via Acquisition: Nineteen of 104 firms (18%) were acquired by larger education companies as a direct result from or partly because of ED/IES SBIR, enabling and accelerating scale-up for many products.

Innovation Pipeline: 36% of the projects originated from academic research and 19% from classroom-based innovations, highlighting the program's role in connecting researchers and educators to innovators to successfully ready many evidence-based research and novel models for use as scalable products.

Spillover Effects: Responding firms reported additional benefits, including new collaborations, continuing research to evaluate commercialized products, and technology spin-offs.

Although these results are self-reported by firms, in many cases rely on estimated data, and lack a formal comparison group, they suggest that ED/IES SBIR has achieved substantial social and economic impact in education relative to its program cost.

EXECUTIVE SUMMARY

What is ED/IES SBIR and why does it matter?

Established in 1982, the federal Small Business Innovation Research (SBIR) program requires United States government agencies with extramural R&D budgets over $100 million to set aside a portion (currently 3.2%) for seed funding small for-profit firms to drive innovation and commercialization.[1] The Department of Education's SBIR program, administered by the Institute of Education Sciences and known as **ED/IES SBIR**, funds early-stage R&D and pilot testing of new education technology products aimed at improving outcomes for students, educators, and administrators in general and special education.

Funded projects typically progress through **Phase I** (iterative prototype development), **Phase II** (full product development and pilot evaluation), and **Phase III** (commercial launch and scale-up, supported by non-SBIR funding). While only about half of Phase I projects advance to Phase II, many firms continue development independently by securing other funding or self-funding.

Over the past two decades, ED/IES SBIR has supported the creation of a wide range of innovative products, including AI-based personalized learning programs, diagnostic and formative assessments, tutoring systems, learning games, multimedia environments, AR/VR tools, educator dashboards, and assistive technologies. These products are commercialized through direct sales to schools, licensing agreements, or acquisition by larger companies—often enabling wide-scale adoption. Many firms also continue to partner with researchers to conduct evaluations after commercialization.

*For examples of product types, commercialization pathways, and research partnerships, visit the **ED/IES SBIR Success Story** page.*

Purpose of this report

This impact analysis synthesizes self-reported data from 104 companies that received ED/IES SBIR Phase I or Phase II awards between FY 2012 and FY 2022, representing a total of $91.89 million in funding. It estimates the program's social reach and economic return on investment (ROI) achieved with those public funds. All findings are reported in aggregate, no firm-level results are disclosed, to encourage participation and protect proprietary information.

[1] *The Small Business Technology Transfer (STTR) program provides similar "seed" awards to non-profit research partners. ED/IES SBIR does not operate an STTR program; hence this report does not cover STTR.*

EXECUTIVE SUMMARY

Portfolio-Level Findings at a Glance

1 Products fully developed and commercially launched

Of the 104 firms that were recipients of an ED/IES SBIR award, 73 (70%) fully developed and then commercialized one or more research-based products. *69 of 73 of these firms completed the survey, 4 indicated they developed and commercialized a product but did not complete the survey.*

2 Social Reach

Approximately 131 million students, educators, and administrators have used ED/IES SBIR – supported products – equating to about $0.70 in federal funding per user.

3 Economic Leverage

Cumulative product revenues, follow-on capital, and disclosed acquisition proceeds total roughly $828 million, yielding an aggregate economic ROI of approximately 9:1 (private-sector return per public dollar invested).

- **3a. Sales & Licensing:** $268.1 M
- **3b. Non-dilutive follow-on grants/awards:** $110.7 M
- **3c. Dilutive equity investment:** $85.3 M
- **3d. M&A proceeds (11 disclosed deals):** $363.5 M

4 Firm Growth

Among 61 firms that provided data on employment at the time of the first award and in May 2025 at the time of the data collection (or at the time of acquisition), full-time employment grew from 643 to 1,225 (a 91% increase).

5 Research and Practice to Products Used at Scale

25 of 69 responding firms (36%) indicated that at least one of their SBIR supported products originated as academic research and an additional 13 companies (19%) reported that their product originated in a classroom by an educator.

6 Spillover Effects

Awardees reported new R&D collaborations, derivative product lines, and greater engagement with schools and communities.

Portfolio-Level Findings at a Glance *(Continued)*

Interpreting the results, ED/IES SBIR demonstrates social and economic benefits across many areas in the education technology ecosystem:

High catalytic value: Underscoring the program's role in creating marketable research-based products rather than merely subsidizing small businesses, in response to the question whether their product would have been developed, evaluated, and commercialized without ED/IES SBIR funding, 52 of 69 (75%) responded no, another 15 of 69 (22%) indicated maybe, and only 2 (3%) indicated the product would exist without SBIR funding.

Efficient use of public funds: With less than $1 of federal funding per user, ED/IES SBIR seeded research-based products deployed at scale in classrooms and out-of-school learning settings.

Robust private-sector follow-through: Every $1 of ED/IES SBIR funding leveraged roughly $9 in sales, investment, and acquisition value—comparable to or even exceeding the ROI reported by larger SBIR programs at other federal agencies.

Workforce gains: The program not only funds new products, but also helps small firms grow. Among the 61 firms that developed and launched a product and that responded to the survey question, total full-time employment roughly doubled from the start of the award until now (or at the time of acquisition), adding over 580 positions.

Pipeline for scaling research and classroom innovation: By supporting firms to partner with both university researchers and school-based educators, ED/IES SBIR creates a pathway for many research and evidence-based and practitioner-led innovations to be transformed into commercially viable and scalable products.

Building a research-based education ecosystem: All Phase II projects are required to conclude with a pilot test of the promise of the product to lead to the intended outcomes, and more than half of firms who developed and commercialized a product partnered with researchers for additional research and evaluation after the project periods, demonstrating the role of ED/IES SBIR in growing a research-based ecosystem in education technology.

EXECUTIVE SUMMARY

Study Limitations

The findings rely on self-reported, unaudited data. In some cases when an acquisition of a product or a licensing agreement with another organization occurred, firms could not track wider usage or revenue metrics after licensing or acquisition, so the reported totals could be conservative. The analysis also lacks a comparison group, and usage counts are cumulative (not annual), limiting any growth-rate analysis. Nonetheless, the study accounted for all 104 companies that received ED/IES SBIR Phase I or Phase II awards between 2012 and 2022, and the questionnaire captured 95% (69 of 73) of the firms that had commercialized a new product and provides the most comprehensive snapshot of ED/IES SBIR's impact to date.

Implications for Policymakers

1. **Modernize and Increase SBIR-Inspired Investments in AI for Teaching & Learning**
   The program's broad reach and ~$9:1 economic ROI make a strong case for upgrading the approach in alignment with "Winning the Race: America's AI Action Plan" as a central stream of future federal education R&D and innovation investments.

2. **Compliment this Approach With Scale Up Phase Investments**
   With nearly one in five firms acquired by larger companies, the program could explore complementary initiatives or public-private partnerships to further assist successfully developed research and evidence-based products in achieving widespread adoption in schools.

3. **Strengthen Investment Data Infrastructure**
   Pair expansion of SBIR inspired education technology AI investments with routine, lightweight outcome reporting (for example, brief annual surveys linked to procurement or employment data) to improve future ROI estimates and reduce reliance on recall.

4. **Encourage Researchers and Practitioners to Partner with Firms to Develop and Commercialize AI-Powered Teaching and Learning Solutions**
   Conduct outreach and support researchers and educators to forge partnerships with firms to ready evidence-based research and innovative classroom-based models for deployment at scale as education technology products.

Even under conservative assumptions, ED/IES SBIR has demonstrated substantial social and economic returns. It has brought research-based technologies to well over 100 million users, catalyzed hundreds of millions of dollars in public and private investment, helped small firms grow (nearly doubling their collective workforce), and provided a mechanism for researchers and practitioners to partner with firms to advance innovations into commercially viable products used at scale. As federal education priorities evolve, these data provide a clear quantitative case for upgrading and expanding federal investments in combination of rigorous R&D and market-driven innovation.

INTRODUCTION

The SBIR program was established by the Small Business Innovation Development Act of 1982 and is authorized through FY 2025. It mandates that federal agencies with extramural R&D budgets above $100 million set aside 3.2% of those funds for competitive awards to U.S.-owned small businesses.[2] Today, 11 agencies participate, collectively investing about $4 billion annually (U.S. Small Business Administration, 2024) in what is often called 'America's Seed Fund.' SBIR's statutory goals (SBIR.gov, n.d.) are to: (1) stimulate technological innovation; (2) meet federal R&D needs; and (3) foster commercialization of federally funded research through a tiered program in three phases: Phase I (feasibility), Phase II (prototype development and early validation), and Phase III (commercialization).

Since 2002, the Department of Education and Institute of Education Sciences' Small Business Innovation Research program, known as **ED/IES SBIR**, has served as the primary mechanism for supporting early-stage, research-driven and commercially viable technology innovation in education. According to the ED/IES SBIR website, the program has issued approximately 360 Phase I and Phase II contracts for small business firms to turn ideas into new research-based products for students, educators, and administrators to address needs in general and special education. In recent years, the Department has signaled a desire to focus research investments on learner-centered outcomes and to elevate programs that translate rigorous evidence into practice.

Gap in program evaluation

Congress and oversight bodies have long called for rigorous evidence of SBIR outcomes across many federal agencies. In fact, Congress tasked the National Academies of Sciences, Engineering, and Medicine (National Academies) with comprehensive evaluations of SBIR programs at the Department of Defense (DoD), National Institutes of Health (NIH), National Science Foundation (NSF), Department of Energy (DOE), and National Aeronautics and Space Administration (NASA) to ensure these initiatives meet national needs and spur innovation (National Research Council, 2008a). Despite meeting all statutory reporting requirements (e.g., annual reports to the Small Business Administration and responses to GAO inquiries), ED/IES SBIR has never undergone a comprehensive portfolio-wide assessment of its social or economic return on investment. An analysis of ED/IES SBIR would provide valuable information for policymakers and stakeholders to gauge its contribution to federal R&D objectives, the education sector, and the broader innovation ecosystem.

[2] The Small Business Technology Transfer (STTR) program provides similar "seed" awards to non-profit research partners and requires an addition set aside for agencies whose program allocates more than $100N through its SBIR program. ED/IES SBIR does not operate an STTR program; hence this report does not cover STTR.

INTRODUCTION

Purpose of Impact Scan

Consistent with National Academies' SBIR evaluations at other agencies, this report provides the first comprehensive analysis of ED/IES SBIR award outcomes from FY 2012 through FY 2022. It is intended to inform policymakers and stakeholders in advance of upcoming budget and reauthorization discussions about the program's future. In particular, this impact scan:

1. **Quantifies the program's scale and reach (number of awards, number of firms, project origins, and total funding)**
2. **Examines dissemination outcomes (product availability, user adoption, and follow-on R&D funding)**
3. **Assesses commercialization and economic outcomes (revenue generation, follow-on funding, acquisitions, job creation, and other spillovers);**
4. **Highlights recurring themes and lessons to inform program management and future reauthorization deliberations.**

Findings are based on a scan of 104 unique small business firms that received 211 Phase I and Phase II awards concluding by spring 2024. Seventy-three of the 104 firms (70%) developed and commercialized a product as a result of ED/IES SBIR funding. This scan presents findings from 69 of the 73 firms that agreed to complete a questionnaire providing information on the social and economic impact of the program. (4 firms did not complete the questionnaire.) All quantitative results are reported in the aggregate to protect proprietary data and to focus attention on program-level performance rather than firm-level outcomes.

Overview of ED/IES SBIR

ED/IES SBIR releases its annual solicitations, or requests for proposals, one time per year, and proposals submitted by firms are independently evaluated by personnel from within government, including experts in education technology, research, and practice. The program is structured in three Phases:

PHASE I
≈$250,000 over 9 months for prototype development with end users and initial feasibility testing.

PHASE II
≈$1,000,000 over 2 years for full product development with iterative user testing, a pilot study of outcomes (usability, feasibility, promise), and detailed commercialization planning. (Since FY 2022, a Direct-to-Phase II option allows previously evidence-based research projects to bypass Phase I.)

PHASE III
No ED/IES SBIR funds; firms launch the commercial product in the private marketplace and seek revenue for use at scale and sustainability over time.

ED/IES SBIR awards are highly competitive—historically only ~5–10% of Phase I proposals (and ~50% of Phase II proposals) are funded. During the project, program officials provide technical assistance on product design, research methods, and business strategy.

INTRODUCTION

ED/IES SBIR uses open topic solicitations where firms propose field initiated projects for the research and development of products for use by students, educators, or administrators to improve outcomes in general education and special education, from pre-Kindergarten to adult education. The program has invested in a wide array of emerging technologies used across the education sector, such as AI-driven personalized learning programs, formative and diagnostic assessments, tutoring platforms, learning games, multi-media and simulated environments, AR/VR interventions, educator and administrator dashboards, tools to improve educator efficiency, and assistive technologies. Abstracts with information on the types of technologies and the focus of all projects are posted on the **ED/IES SBIR award page**.

Distinctive Features of ED/IES SBIR

Within the broader SBIR framework, ED/IES SBIR emphasizes research-driven, commercially viable development of education technology. Key design elements include:

- **Rigorous research requirements.** Each funded project must involve a qualified education researcher and undergo iterative user testing, followed by a pilot study to assess usability, feasibility, and initial promise for improving outcomes. Many firms partner with researchers and organizations to conduct ongoing evaluations of products after the ED/IES SBIR project ends.
- **Commercialization focus.** Awardees are required to develop go-to-market plans to ensure products can be disseminated to end users at scale and sustained through revenue beyond the SBIR funding period, such as through direct sales by firms, licensing agreements with partner organizations, and acquisitions to enable integration into broader product suites and use at scale.

Need for a Program-Level Impact Assessment

While **individual success stories** on the ED/IES SBIR website and events (e.g., the **ED Games Expo**) show anecdotal successes, decision makers need portfolio-wide outcomes to evaluate overall program impact and inform funding decisions. National Academies studies have documented SBIR returns on investment at agencies such as DoD, DOE, NIH, and NSF. This report extends that evaluation to the education sector, providing data-driven insights into how ED/IES SBIR contributes to:

- Economic activity (e.g., revenue generation, follow-on investment, job creation); and
- Federal R&D objectives (e.g., advancing research and evidence-based practice and technology transfer).

By situating ED/IES SBIR within both the SBIR statute and contemporary education-policy priorities, this report aims to provide a balanced, systematic scan that can guide program management and appropriation deliberations. Measuring the impact and results of an R&D program is intrinsically difficult because there is no system in place to track social and economic outcomes after the awards end, outcomes often unfold over long timeframes, and are shaped by multiple external factors and may not be easily attributable to any single product. SBIR's statutory goals include not only commercialization and innovation, but also meeting agency R&D needs. In education, those needs translate to research-based products to support effective products for teaching and learning and how schools are administered. Therefore, evaluating ED/IES SBIR also means examining how it advances research-based practice.

INTRODUCTION

Research-Questions

- **Product Development & Commercialization.** How many companies that received ED/IES SBIR awards between 2012 and 2022 report that they fully developed, rigorously evaluated, and commercially launched a new, research-based education-technology product as a result of their award(s)? Did the product originate as a university-based project, by an educator, or as an entrepreneurial idea?
- **Societal Reach & Benefit.** What social impacts did awardees attribute to their ED/IES SBIR funding—specifically, how many end users (students, educators, administrators) have been served by the resulting products?
- **Economic Outcomes.** What economic benefits have flowed from these awards, including (a) aggregate product sales and licensing revenue, (b) follow-on grants or equity investment, and (c) mergers, acquisitions, or other exits that expanded market reach?
- **Spillovers & Ecosystem Effects.** What indirect or spillover effects did companies report—such as new R&D partnerships, additional product lines, or contributions to industry standards—and how do awardees characterize the ED/IES SBIR program's broader impact on the education-technology ecosystem?

Methods – sample scope and timeframe

This analysis covers every ED/IES SBIR project that received a Phase I award between FY 2012 and FY 2022[3] and had its Phase I or II contract conclude by March 2024. Projects still ongoing after March 2024 (for example, FY 2023 Phase II awards or Phase I awards from 2022 that converted to Phase II in 2023) were excluded so that only fully realized outcomes were analyzed.

Similar to other SBIR evaluations, a multi-year window (approximately ten years) was used to allow time for outcomes to materialize—some SBIR-supported technologies require a decade or more from Phase II to full commercialization. This ten-year span balances two priorities:

- **Analytical scope.** A decade of awards provides a large enough cohort to support program-level inferences about social and economic outcomes.
- **Practical feasibility.** Ending the observation window at early 2024 allowed data collection and analysis to be completed within the report's six-week timeframe.

Projects still ongoing after March 2024 (for example, FY 2023 Phase II awards or Phase I awards from 2022 that converted to Phase II in 2023) were excluded so that only fully realized outcomes were analyzed.

[3] The sample excludes (a) Phase II awards in 2012 that originated from 2011 Phase I awards, and (b) Phase I awards from 2022 that became Phase II projects in 2023.

INTRODUCTION

Universe of awards

Using the publicly available **ED/IES SBIR Awards** website page, we enumerated all Phase I and Phase II contracts executed between FY 2012 and FY 2022. In total, the program issued 211 Phase I and II awards to 104 unique small businesses, representing $91.89 million in federal R&D obligations (**Table 1**). Of the 104 firms:

- 47 were recipients of a "Phase I-only award" to develop a prototype of a new education product that after a competitive review process by the program did not progress to a Phase II award to fully develop and evaluate an education technology product with SBIR funds.
- 56 were recipients of at least one "Phase I to II award combination," where a Phase I award led to a Phase II award for the same project after a competitive program review. In addition to the Phase I to II award, 11 of the 56 firms were awarded multiple Phase I to II contracts to create distinct product lines or to create a novel component to be integrated with their existing product. In addition, 10 of the 56 firms in this category also were awarded a separate Phase I award for a different project that did not advance to a Phase II.
- One was a recipient of a new program launched in 2022 called a "Direct to Phase II award," which was made without a prior Phase I.

For the analyses in this report, all firms who responded to the survey provided consolidated figures across all of its ED/IES SBIR–supported products to ensure program-level (not project-level) measurement.

Table 1
ED/IES SBIR Phase I and II Award Funding by Fiscal Year (2012–2022)

1	Phase I (awards)	Phase II (awards)
2012	$1,649,088 (11)	--
2013	$2,098,857 (14)	$8,099,838 (9)
2014	$2,081,875 (14)	$2,699,996 (3)
2015	$1,942,380 (13)	$7,197,766 (8)
2016	$1,249,668 (9)	$4,499,890 (5)
2017	$1,647,674 (11)	$6,297,582 (7)
2018	$2,979,805 (15)	$5,399,888 (6)
2019	$2,993,411 (15)	$7,196,134 (8)
2020	$3,196,265 (16)	$7,163,497 (8)
2021	$3,600,000 (18)	$9,900,000 (11)
2022	--	$10,000,000 (10)
TOTAL	$23,439,023 (136)	$68,454,591 (75)
TOTAL FROM 2012 to 2022:		**$91,983,614**

INTRODUCTION

Rationale for firm-level aggregation

Consistent with National Academies guidance on SBIR evaluation, all quantitative findings are reported at the aggregate program level rather than at the individual company level. This approach (i) protects sensitive commercial information, (ii) mitigates the risk of re-identification, and (iii) focuses attention on portfolio-level return on investment—the central issue for program reauthorization deliberations.

Limitations to the sample

- The sample omits recent awards whose outcomes are not yet observable, which could bias results toward more mature projects.
- Non-responses and untracked post- acquisition data may lead to underestimation of user counts and revenue totals.
- Without a matched comparison group of unfunded applicants, causal attribution is limited—observed outcomes should be viewed as program-associated rather than program-caused.

Despite these caveats, the ten-year period provides the most comprehensive, policy-relevant snapshot feasible given the study's timeframe.

Survey Design

In order to quantify the ED/IES SBIR portfolio's economic and social return on investment (ROI) and to gather awardee perspectives, we designed a mixed-method questionnaire comprising two parts:

- **Structured items** requesting information on product-development lineage and commercialization status; estimated unique user counts; cumulative product sales, licensing revenue, and follow-on capital (grants, equity, debt); merger, acquisition, or other exit events (including disclosed deal value); and company judgements about whether the focal product would have been pursued absent ED/IES SBIR funding.
- **Open-ended prompts** soliciting reflections on the impact of the program and spillover effects (e.g., new product lines, R&D partnerships).

The survey instrument drew on prior SBIR surveys (TechLink, 2014) and captured key commercialization metrics such as product completion status; revenue attributable to SBIR-developed products; number of end users; follow-on R&D contracts or investments; and exit events (e.g., acquisitions or spin-offs). A draft survey was piloted with a panel of awardees and external experts familiar with ED/IES SBIR. Their feedback was used to refine wording, reduce respondent burden, and confirm face validity.

In designing the survey, we addressed issues raised in prior SBIR evaluations (National Research Council, 2004a) regarding commercialization metrics—for example, we distinguished direct product sales and licensing revenue from grants and investments that were added-on to and extended the ED/IES SBIR products, and clarified the timeframes for reported outcomes. These careful definitions were designed to ensure that revenue attributable to the SBIR project was interpreted consistently by respondents.

INTRODUCTION

Recruitment & Confidentiality

All 104 firms with Phase I or II ED/IES SBIR awards (FY 2012–2022) were contacted via their work email and, when necessary, through LinkedIn. The invitation letter:

- emphasized that quantitative data would be reported only in aggregate;
- guaranteed that any information linking a company to its data would remain confidential and not be accessible beyond the lead researcher; and
- explained that only firms with a fully developed, commercialized product stemming from their award(s) were asked to complete the full questionnaire.

Consistent with SBIR program evaluation best practices (NASEM, 2020), all firm-specific data were kept confidential and only aggregated results have been reported. This approach encourages candid responses and keeps the analysis focused on program-level performance rather than individual success stories.

Response & Sample Characteristics

Of the 104 firms in the sample, 73 (70%) reported developing and commercializing one or more research-based education technology product as a result of ED/IES SBIR funding. Of the 73 firms invited to complete a survey; 69 (95%) responded, representing 66% of the total sample. Four firms did not complete a survey despite having developed a product and launched it commercially.

Nineteen firms explicitly stated they did not develop or commercialize a product. An additional 12 did not respond to emails or LinkedIn messages from the researcher despite multiple attempts. Based on prior knowledge and online research showing no evidence of a product, these firms were categorized as not having fully developed or commercialized a product. In all, 31 of 104 firms (30%) in the sample were categorized as "no-product" and excused from the request to complete the survey, which focused on gathering information on the social and economic impact of products that were developed and commercially launched through ED/IES SBIR.

Firms with multiple awards completed a single survey, reporting aggregate data across all supported products. The high response rate among product-developing firms of 95% helps minimize response bias.

INTRODUCTION

Data Management & Analysis

Survey responses were collected via Microsoft Forms, exported to Excel, and then processed as follows:

Cleaning & aggregation – Summed numeric fields across firms (user counts, revenue, follow-on funding).

Qualitative coding – The lead analyst iteratively coded open-ended responses into thematic categories.

No imputation Missing or "prefer not to answer" entries were left blank, so all reported totals represent lower-bound estimates.

Confidentiality controls Only de-identified, aggregate statistics are presented in this report.

Limitations

The findings rely on self-reported data that were not independently verified; many respondents indicated that revenue and user counts were estimates based on licenses, classroom seats, or district roll-outs because log files with exact counts do not exist; revenue and user counts in particular may be understated due to partial non-response or companies' reluctance to disclose sensitive information. Future evaluations could enhance validity by linking survey data with third-party market intelligence databases or government procurement records.

Like many earlier SBIR evaluations that relied on observational data, this study did not include a matched comparison group of unfunded applicants. Recent analyses have attempted to construct such comparison groups, but significant challenges remain in attributing causality due to selection bias. Therefore, consistent with the National Academies (2016) review of the NASA SBIR program, the results should be viewed as descriptive of the program's reach and economic contribution rather than as a definitive causal impact assessment.

Product Development & Commercialization

Of the 104 firms that received an ED/IES SBIR award in 2012–2022, 73 (70%) reported developing at least one research-based education technology product and successfully commercializing it in the marketplace.
More than two-thirds of ED/IES SBIR projects fully developed an education technology product that was successfully commercialized. This rate aligns with SBIR outcomes at other agencies; for instance, 64% of Navy SBIR Phase II projects from 2000–2013 generated product sales (U.S. Department of the Navy, 2016).

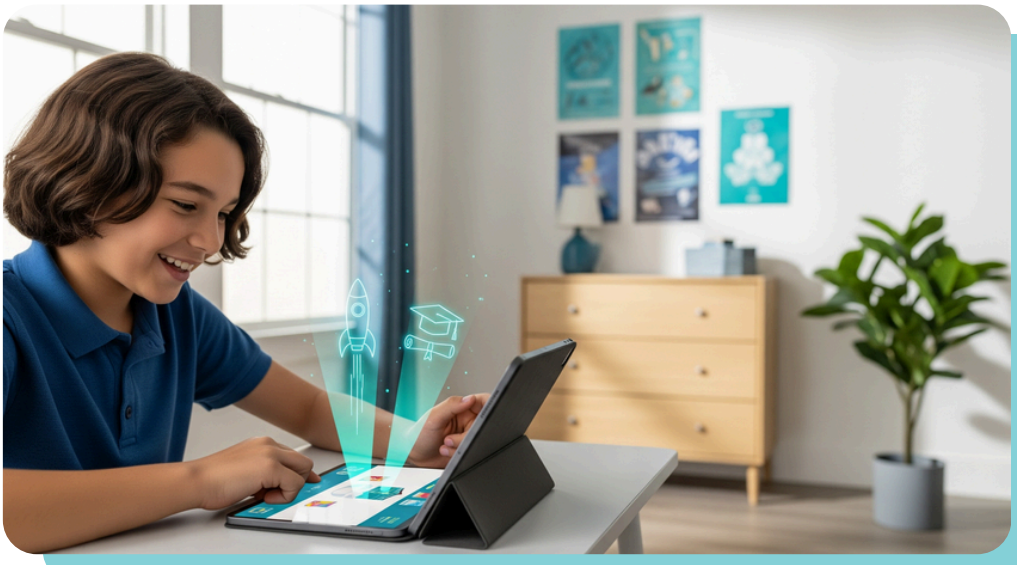
Phase I-Only Firms

Of the 47 firms that received a Phase I-only award, 23 (49%) successfully developed and commercialized a product despite not receiving a subsequent Phase II award. Fifteen of 23 firms leveraged their Phase I prototypes to secure additional funding (federal or private). The remaining 24 firms of Phase I-only firms (51%) did not fully develop or commercialize a product. The progression rate among Phase I–only firms suggests that even funding for prototype development can seed viable products; however, additional time or complementary capital may be required for those products to reach the market.

Firms that progressed from Phase I to Phase II Awards

Of the 57 firms awarded one or more Phase I and Phase II awards, 50 (88%) successfully developed and commercialized a product compared to 7 (12%) that completed Phase II but did not commercialize a product. The high conversion rate suggests that when firms have sufficient funding and time, they are well-positioned to complete development and achieve commercialization.

Of the 11 of 57 firms that were awarded multiple combinations of Phase I and II projects, several commercialized more than one distinct product while others used successive grants to add major components or functionality to extend an existing product.



Counterfactual Importance of ED/IES SBIR

Table 2 presents how 69 firms responded when asked whether their education technology product would have been developed, evaluated, and commercialized without ED/IES SBIR support. These data underscore the program's catalytic role:

Table 2
The role of the ED/IES SBIR program in supporting the product development, evaluation, and commercialization.

Would the product have been developed, evaluated, and commercialized without ED/IES SBIR?	Count	Share
No	52	75%
Maybe	15	22%
Yes	2	3%

Overall, without SBIR funding, 75% indicated their product would not have progressed through R&D, evaluation, and commercialization, another 22% indicated this may or may not have happened, and only 2% indicated the product would have been successfully with or without ED/IES SBIR. This finding highlights the program's indispensable role in catalyzing educational innovations that were used at scale, that might never otherwise reach the market, and this high level of "additionality" emphasizes SBIR's role in enabling projects that private capital would often deem too risky.

Societal Value and Return on Investment - Aggregate Reach

Of the 69 of 104 firms in the 2012–2022 cohort that reported at least one SBIR-supported product was developed and commercialized, respondents estimate that their products were used by approximately 130.59 million unique end users (students, educators, or administrators) from launch through May, 2025, the date the survey was completed.

The program-level cost per reported user is about $0.70, calculated by dividing the total Phase I and II funding ($91.89 million) by the total reported user count (130,598,770).

Reaching approximately 130 million students, educators, and administrators at an effective cost of under $1 per user represents a potent public return on investment. Other agencies often gauge SBIR impact with mission-specific metrics (e.g., NIH counts new drug approvals; DoD counts defense technologies fielded). In contrast, ED/IES SBIR's broad reach highlights the program's success at diffusing innovation at scale in the education sector. Moreover, cost-per-user (approximately $0.70 per learner) is a novel efficiency indicator in this context. Framing impact in terms of cost per users provides a tangible value-for-money perspective on how effectively ED/IES SBIR delivers educational innovation to a broad population.

Scale Distribution across Firms

While the 69 firms reported that they commercialized an education technology product developed through ED/IES SBIR, the level of traction after launch varied widely. Among the 68 firms that provided data (one did not provide commercialization information), roughly 30% reported more limited marketplace penetration of less than 100,000 users, with some firms only achieving an even smaller scale local adoption in a few schools with limited revenue. In some cases, such as for products launched between 2020 and 2022, scale may not yet have been achieved due to the limited time on the market. In other cases—such as commercializing assistive technologies for students with disabilities—the numbers may reflect a smaller niche market of users, rather than lack of impact.

Twenty-six firms of 68 firms (38%) reported more than 500,000 users, with an aggregate total across these firm's products of 125.6M, represent about 95% of the total user base across all companies—illustrating a classic "power-law" pattern often seen in innovation, where a few firms achieve outsized impact. Further, five firm's products were used by approximately 85M users. While many products reached only modest scale, the presence of many larger-scale successes suggest a strong return on federal investment.

This level of variation is typical of high-risk, high-reward innovation programs and aligns with patterns observed in other SBIR initiatives. Overall, ED/IES SBIR's commercialization outcomes appear comparable to or stronger than those of peer programs, indicating effective project selection and support for high-potential innovations.

Table 3

The distribution of user counts across firms is highly skewed (n=68).

User-count bracket	Firms	Share of respondents	Cumulative users (approx.)
<100,000 users	21	31%	~.5M
100,001–500,000	21	31%	~5.2M
>500,001 to 9.99M	21	31%	~38.6M
>10 million	5	7%	~85M*

Note: The five largest-scale firms account for ~65% of all reported users.

Administrative Tools

Two projects targeting school- or district-level administrators achieved particularly broad uptake:

- **Product A –** implemented in approximately 2,000 U.S. schools;
- **Product B –** adopted by over 1,000 districts nationwide.

Because these products concentrate users at the institutional (rather than individual) level, their reach should be considered separately from learner-facing products when benchmarking scale.

Potential Undercount due to Acquisitions

Several respondents from firms which were subsequently acquired by large education-solution providers reported losing the ability to track product-specific usage after acquisition. For example, three respondents indicated that their parent companies serve between 50 % and 90 % of U.S. schools, indicating that the 130 million-user figure is conservative.

Data Quality and Limitations

- **Source heterogeneity:** Approximately half of the firms provided log-file usage counts, while the rest provided estimates based on licenses, classroom seats, or district roll-outs. No external audit of usage data was feasible within the study timeline.
- **Active vs. cumulative use:** The figures represent cumulative lifetime reach, not monthly active users. Year-over-year growth and attrition in user numbers were not captured.
- **Non-response bias:** Usage data are missing for 35 firms (those that did not respond or did not commercialize a product). If low-scale products are overrepresented among nonrespondents, aggregate reach is understated; if high-scale products predominate among nonrespondents, it may be overstated. On balance, the results likely understate the actual impact given the non-responses and other factors.
- **Attribution:** The counts include all users of the commercial products, and causality between SBIR funding and eventual adoption cannot be isolated without a rigorous counterfactual analysis.

FINDINGS

Project Originations and Continuing Research and Evaluation

While all awards were made to small business firms, respondents were asked whether their project was originated by an academic or graduate student in a university setting, in a classroom by an educator, or by an entrepreneur outside of research or classroom practice. Twenty-five of 69 respondents (36%) indicated that at least one of their SBIR supported products originated from research by a university academic or graduate student. An additional 13 companies (19%) reported that their product originated from a classroom educator. These findings highlight the program's dual role in translating evidence-based research into scalable solutions and elevating effective classroom practices into widely usable products—bridging the gap between innovation and real-world application.

All ED/IES SBIR projects followed an iterative, research-driven development model: formative user testing, iterative refinement, and a school-based pilot almost always led by a PhD-level researcher. This program requirement for each ED/IES SBIR Phase II project to include a pilot study likely enhanced the quality and credibility of the resulting products. Notably, NIH's SBIR program, which has a similar requirement for a pilot study, has shown that SBIR-funded projects can produce knowledge outputs (e.g., patents, publications) comparable to those from traditional research grants— demonstrating that a commercialization focus need not come at the expense of scientific rigor. To this point, findings demonstrate that research is germane to the cohort of ED/IES SBIR awardees as 39 of 69 firms (57%) reported conducting additional pilot or efficacy research after project close-out in partnership with researchers or organizations, with 26 securing external grants or contracts for this work and 13 self-funding evaluation activities.

Key Takeaway

Based on self-reported data, ED/IES SBIR delivered an estimated cost of $0.70 per lifetime user reached across a decade of awards—a figure that favorably compares to similar federal seed-funding benchmarks, while acknowledging the methodological caveats noted above. SBIR's statutory purpose is to meet federal R&D needs—in ED's case, effective learning tools. Attracting ~130 million users strongly suggests those needs are being addressed at scale. A future ROI assessment incorporating learning-outcome effect sizes—not just user counts—would provide a richer picture of social impact.

(All dollar amounts in 2025 USD; self-reported by companies unless noted.)

Product-Generated Revenue

Fifty-eight of the 69 survey respondents (84%) supplied revenue data for the products developed under their ED/IES SBIR awards, reporting $268.1 million in cumulative sales, licensing fees, and contracts. As presented in **Table 4**, the distribution is highly skewed. One-third of the firms reported under $600,000 in life time product revenue, demonstrating that many products make it to market but are only able to generate small to modest returns, some over many years. More than one-third of firms earned between $700,000 and $4.5 million, while another third exceeded $4.8 million in sales, signaling that the program is not only launching a substantial number of innovations that are also gaining traction in the education market.

Limitations
Firms could not always track revenue after a product was licensed or acquired; figures also ignore time-on-market differences (a 2022 launch is treated the same as a 2015 launch), so growth trajectories cannot be inferred.

Table 4
Lifetime product revenue of products developed through ED/IES per firm (n=58)

	Firms	Share
<$.6M	20	35%
$0.7M–$4.5M	20	35%
>$4.8M	18	30%

Follow-On Capital

ED/IES SBIR awardees successfully leveraged product development to secure new avenues of funding, as 86% of firms (59 of 69) firms that developed and commercialized a product reported securing $196.0 million in follow-on funding to advance or scale their SBIR-derived products, slightly above the ~60–80% range observed in other agencies' SBIR programs (National Academies of Sciences, Engineering, and Medicine, 2020, 2022, 2023). This suggests that ED/IES SBIR's portfolio performs on par with or above its peers in translating R&D to market and attracting additional investment.

Fifty-one firms were awarded non-dilutive grants from over 30 distinct non-dilutive sources, including government research and evaluation programs across many agencies and philanthropic fundets, underscoring the catalytic role of an initial ED/IES SBIR "credential" in unlocking complementary resources.

Thirty-four firms secured dilutive capital beyond their initial SBIR award from venture capitalists, venture studios, or angel investors, often to move products beyond R&D and evaluation to prepare for use at scale.

Table 5
Follow-on Funding Amount Firms that Developed and Commercialization a Product through ED/IES SBIR

Source type	Firms	Capital raised
Non-dilutive grants/awards (e.g., NSF, NIH, IES, foundations)	51	$110.9 M
Dilutive equity (VC, angels, accelerators, friends & family)	34	$85.3 M

Mergers & Acquisitions

Nineteen of the 104 funded firms (18 %) were acquired between the time after their ED/IES SBIR award and window data collection in May, 2025. Eighteen participated in the survey; 11 disclosed deal values totalling $363.5 million. Among acquired firms:

- 56 % said their product would not have been able to be developed, evaluated, and commercialized absent SBIR support and 38 % indicated that product development, evaluation, and commercialization may not have been possible without SBIR. Only one firm indicated that the product would exist with or without ED/IES SBIR.
- 0 % reported that the acquisition of their firm would have occurred regardless of ED/IES SBIR funding.

The 19 ED/IES SBIR firm acquisitions indicate that education technology innovations attracted private-sector integration, helping many reach wider scale. A similar dynamic appears in the Air Force program, which logged 447 acquisitions (2000-2013), underscoring that buy-outs are a common SBIR scale pathway. (TechLink, 2019).

Employment Growth and Aggregate Economic Return

Employment data from 61 firms show headcount rising from 643 FTEs at award start to 1,225 FTEs at the time of data collection or exit—an average increase of 91% per company.

Combining product revenue, disclosed acquisition proceeds, and reported follow-on capital yields $827.5 million in economic output linked to the ED/IES SBIR portfolio. Against the $91.89 million in federal awards issued to these firms over 2012–2022, this equates to an economic ROI of ≈ 9:1—every public dollar attracted nearly nine dollars in private-sector revenue, investment, or exit value.

An approximately 9:1 ROI places ED/IES SBIR at—or above—the return levels documented in larger SBIR programs. For instance, Navy's SBIR investments (U.S. Department of the Navy, 2016) yielded about $6 in sales for every $1 invested (2000–2013 cohort), and the DoD-wide study found roughly $8 in direct sales per $1 (for 1995–2018 Phase II projects). ED/IES SBIR's ROI, which includes both revenues and follow-on capital, indicates a comparable level of economic productivity of its R&D funding (TechLink, 2019).

More than 85% of firms raised follow-on capital, suggesting a measurable 'SBIR halo' that boosts credibility with later funders. This phenomenon has been observed across SBIR programs: empirical studies find SBIR grants can help overcome capital constraints and lead to greater venture capital or partnerships post-award (e.g., studies cited in the National Academies NIH report show SBIR firms are more likely to raise VC). In the ED context, such follow-on funding is often vital for scaling educational products (for marketing, customer support, etc.), so the program's success in catalyzing ~$800M in outside investment and sales reflects favorably on its effectiveness.

It's important to note these self-reported figures likely underestimate true totals – some firms could not fully account for revenue after being acquired or licensing technology, and some may be cautious in attributing causality. This conservative bias was similarly observed in DoD's SBIR study, which acknowledged that even their $121B sales figure was likely an undercount due to non-responses and confidentiality concerns.

It is worth noting that these figures only capture direct outcomes. Broader economic impact models used in other studies (e.g., input-output analysis) suggest that the total contribution is even greater once indirect effects are considered. The Air Force SBIR impact study found that for every dollar in sales by SBIR firms, an additional $1.51 in sales was generated in the wider economy through supply chain and household spending effects (TechLink, 2019). Applying a similar multiplier, the $827.5 million in direct sales from ED/IES SBIR-funded products could correspond to more than $2.1 billion in total economic output—demonstrating that the program's impact likely extends well beyond what is captured by direct revenue figures alone.

SBIR-attributed revenues and investments might correspond to well over $1.5 billion in total economic output. Such an extrapolation, while approximate, underscores that ED/IES SBIR not only returns dollars to the firms and investors but also stimulates the broader economy.

Although not explicitly measured in this ED study, successful SBIR projects generally contribute to job creation and government tax revenues as companies grow and generate sales. For perspective, the Navy SBIR program's impacts included nearly 15,000 full-time jobs sustained annually and roughly $4.9B in new federal, state, and local tax revenue over its study. Given the magnitude of revenues reported by ED/IES SBIR firms ($827.5M), one can infer that hundreds of high-tech jobs were created or sustained at these small businesses and their partners, and some portion of the economic returns likely flowed back as tax receipts. (TechLink, 2015).

While education technology products are the primary output, ED/IES SBIR projects also generated knowledge spillovers. Several firms engaged in further research (such as randomized trials in classrooms or additional product evaluations) after their SBIR phase, contributing to the evidence base on what works in education. This parallels what has been observed in health and science SBIR programs – for instance, SBIR-funded firms tend to produce more scientific publications, spreading knowledge beyond their immediate commercial aim. In ED's case, the analogous spillover is rigorous research findings that can inform educators and policymakers, thereby influencing practice even beyond the users of the specific product.

Caveats & Future Data Needs

- All figures are self-reported and unaudited; totals likely understate true values owing to non-response, undisclosed deal terms, and revenue reporting cut-offs.
- The analysis does not adjust for product age, making it impossible to discern longitudinal growth or failure rates.
- No comparison group of unfunded applicants was surveyed; causal inferences rest on awardees' counterfactual judgements.

Future assessments could strengthen precision by linking awardees to third-party market-intelligence databases, federal procurement records, and longitudinal employment files (e.g., BLS QCEW).

Table 6
Economic Outcomes Associated with ED/IES SBIR Awards (2012 – 2022)

Metric	Value	Coverage
Cumulative product revenue	$268,051,563	58 firms
Follow-on capital (Non-dilutive + Dilutive in total) (all sources)	$196,005,432	57 firms
• *Non-dilutive grants/awards*	*$110,660,593*	*51 firms*
• *Dilutive equity*	*$85,344,839*	*34 firms*
Disclosed acquisition proceeds	$363,450,000	11 firms
Total documented economic output	$827,506,995	Aggregated
Economic ROI (output ÷ $91.89 M awards)	≈ 9.1:1	Portfolio level
Full-time employees	643 → 1,225	61 firms

Note: All revenue figures represent lifetime gross proceeds through May, 2025 and are not adjusted for inflation. Six acquired firms declined to provide deal terms, so the M&A total is a lower-bound estimate. Five firms did not report employment; growth figures exclude non-commercializing firms.

The survey included two open-ended prompts:

- Describe any indirect or "spill-over" benefits arising from your ED/IES SBIR project (beyond usage and revenue data).
- Explain the overall impact of ED/IES SBIR funding on your company, product, or users.

Spillover Effects

Sixty-five of 69 responding firms provided spill-over examples; all 69 described program impact. Responses were coded independently by two analysts, reconciled, and then grouped into common themes. Representative quotations (verbatim) appear below.

Spill-over Benefits Reported by Firms

Theme	Illustrative quotations
Research capacity & partnerships	"Increased our focus on research and level of sophistication in this area, developing our capacity and data collection to collaborate with researchers in later projects." "Partnerships with scientists, educators and school districts support efficacy testing and iterative development for specific populations"
Technology extensions & new markets	"Led to an additional online tutoring program now doubling our annual revenue." "The intellectual property that was developed is used by another company in their product to help children with assessing executive function skills."
School & community collaboration	"Many of the core schools and districts we partnered with continue to work and collaborate with us outside of the ED/IES SBIR project." "We've continued working with subject-matter experts, instructional designers, and teachers who were part of the original initiative."
Peer networking & spin-outs	"We developed business partnerships with other ED/IES SBIR companies in our same cohort." "The team built to work on this project has gone on to develop new and exciting Ed Tech startups using the skills honed on these SBIRs"

This pattern of indirect benefit mirrors findings in other SBIR programs – for instance, SBIR awards often create a 'halo effect' for attracting outside partners and capital (National Research Council, 2004a), and can spawn additional innovations (DOE's SBIR investments were shown to spur follow-on patents by other firms in the same field). The ED/IES SBIR's reported spin-offs and research collaborations thus align with the broad innovation ecosystem impacts observed across SBIR.

The collaborative 'halo' of SBIR can manifest in partnerships – e.g., a university researcher joining forces with an SBIR firm. The symposium on SBIR evaluation noted that SBIR awards often enable firms to connect with networks they otherwise wouldn't, amplifying the reach of their innovation. In the ED/IES SBIR portfolio, over half the companies report new partnerships (with research institutions, school systems, or even other companies) that arose thanks to the SBIR project. These relationships often lead to further product improvements or entirely new projects, seeding continued innovation.

Perceived Impact of ED/IES SBIR on Firms and Users

Theme	Illustrative quotations
Company formation & viability	"The SBIR funding launched every aspect of the company." "Our company would likely not exist without the grant funding from the ED/IES SBIR program."
Product validation & market entry	"The program provided third-party validation of our approach, which helped during commercialization." "A lot of new sales, upsells, and cross-sells resulted from this project. It informed our product roadmap and helped us meet market needs."

Several firms emphasized the program's role in bridging research and practice. One noted: "The original version of our product was first developed in 1998 and then tested in four randomized clinical trials. The SBIR provided the funds to technology-enhance all the curriculum materials so that they are now market-ready."

Limitations

- The narrative impacts described above are self-reported and may reflect positive response bias.
- Non-responding firms (n = 35) may differ systematically from respondents.
- Spill-over benefits were not independently verified; examples are illustrative, not exhaustive.

Key takeaway

Firms credit ED/IES SBIR with catalyzing research partnerships, technology spin-offs, market validation, and ongoing collaboration—spill-overs that extend beyond direct user counts and revenue metrics, reinforcing the program's role as an innovation seed fund in the education sector.

DISCUSSION

Purpose and Scope

This study constitutes the first portfolio-wide examination of the ED/IES SBIR program's social and economic performance over a full decade (FY 2012 – 2022). The design prioritized breadth over granularity: data were collected at the aggregate level to (a) maximize firm participation, (b) minimize survey burden, and (c) safeguard proprietary information. No individual-company metrics are disclosed.

Key Take-aways

High conversion to market: Seventy-three of 104 awardee firms (70 %) brought at least one research-grounded product to market; among survey respondents, 97 % said SBIR funding was essential or probably essential to that outcome**.**

Scalable pathway: 36 % of products originated in universities and 19 % in classrooms, showing the program converts both research insights and frontline ideas into market-ready tools.

High reach, low cost: an estimated 130.6 million users reached—for roughly $0.70 in federal funds per user

Robust economic leverage: Self-reported revenues, follow-on capital, and disclosed acquisition proceeds total $827.5 million, yielding an aggregate economic ROI of roughly 9 : 1 on the $92 million in federal awards. 86 % of firms that developed and commercialized a product secured follow-on or external funding leveraging their SBIR "credential," and 19 exits enabled further scale.

Firm-level capacity built: full-time staff at 61 reporting firms nearly doubled—from 643 to 1,225 (+91 %).

Wider learning benefits: Ultimately, the societal benefit of SBIR-funded innovations can dwarf their measured financial returns. In education, effective tools can improve student achievement or save educator time. While this impact scan did not directly measure learning outcomes, it's reasonable to assume that the wide adoption of these SBIR products is driven by perceived value in improving education. This implies a likely positive impact in terms of educational outcomes – a hypothesis supported by follow-on efficacy trials some firms conducted.

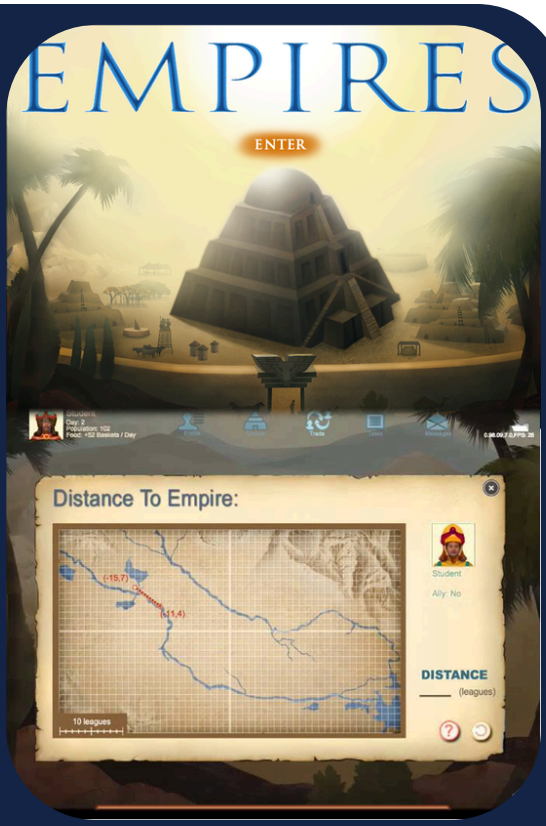
Growing a culture of research: All ED/IES SBIR products are required to be developed with iterative feedback from end-users and to be pilot tested to assess usability, feasibility, and promise. After projects ended, 57% of firms reported conducting additional research—including some efficacy trials—through follow-on grants or self-funding. Many more firms indicated they would have continued research but that applications for funding were not accepted. This underscores the program's role in fostering a research-driven culture among industry developers, where rigorous evidence is seen as essential to product success.

See case studies for examples of research conducted by two firms and their partners during and after their ED/IES SBIR projects.

CASE STUDIES

Sirius Thinking Case Study
Developed by Sirius Thinking through ED/IES SBIR from 2014 to 2017, Tutoring with the Lightning Squad is a blended online and in-person multimedia intervention where pairs of struggling readers in grades 1 to 3 collaborate to read stories, with a tutor providing support. Since commercial launch, the intervention has been used in over 1,200 schools by more than 300,000 students. A randomized controlled trial that was conducted during the SBIR project with 150 struggling readers. After the SBIR project ended in 2019, the Success for All Foundation received an Education Research Grant from IES to conduct a larger-scale cluster-randomized efficacy study across 23 schools with 390 struggling readers. Results from both studies demonstrated that students in the treatment increased significantly in reading achievement from pre-to-post test compared to the control group.
Click here for more details.

MidSchoolMath Case Study
Developed by MidSchoolMath through ED/IES SBIR from 2012 to 2014, EMPIRES is a blended online and in-person game where middle school students apply mathematical reasoning to navigate a simulated trade economy in Ancient Mesopotamia. Hundreds of thousands of students have played the game since its commercial launch. During the SBIR project, pilot testing with 12 teachers and nearly 800 students demonstrated the game's usability and feasibility for classroom use, with students reporting high levels of engagement. Following the SBIR phase, the company self-funded two independent evaluations by SRI International. Results from two randomized controlled trials of EMPIRES with 435 and 265 students respectively demonstrated that students in the treatment group made significantly greater gains than the control group on measures of mathematical thinking.
Click here for more details.



Note: *These two firms voluntarily opted to disclose their information and data publicly.*

DISCUSSION

Limitations

Despite the encouraging outcomes reported, this analysis has important limitations in methodology, data, and interpretation. These constraints temper the confidence one can place in the findings and should be considered when using the results to inform policy or program decisions.

METHODOLOGICAL LIMITATIONS

DATA LIMITATIONS

INTERPRETATION LIMITATIONS

Methodological Limitations – Design and Scope

The evaluation was a retrospective portfolio scan without a formal comparison or control group. Because there was no matched cohort of unfunded applicants, the analysis cannot conclusively attribute observed outcomes to the SBIR program—associations can be noted, but causality cannot be established. The study's sampling frame was also constrained to awards made up to 2022. Very recent ED/IES SBIR projects (from the past 1–2 years) were excluded, since their outcomes were not yet observable. This exclusion biases the analysis toward more mature projects and may overlook impacts from newer awards that simply have not had time to reach the market or scale up. Additionally, the evaluation did not examine the educational effectiveness of the products beyond reach and revenue metrics. For instance, while all projects conducted pilot studies or many conducted additional evaluations including some efficacy trials, this study did not appraise those studies' rigor or the magnitude of learning outcomes. As a result, the quality of educational impact (e.g., improvements in student learning) remains outside the scope of this analysis.

Data Limitations – Self-Report and Missing Data

The outcome data were self-reported by the participating firms and were not independently verified or audited. Key metrics such as user counts and revenue figures came directly from company estimates (in roughly half of cases based on internal records rather than system-generated usage logs). This reliance on unaudited self-report introduces uncertainty and potential bias. In general, the figures should be viewed as lower-bound estimates of the underlying values, since some firms may under-report (or lack precise tracking) of all users or sales. There were also selective data gaps. Several companies that had been acquired by larger firms could not disaggregate or report post-acquisition usage and revenue for their SBIR-developed products, meaning some of the program's reach and financial outcomes could not be captured in our totals. A handful of survey respondents omitted certain metrics (for example, a few firms did not report changes in employment, and non-commercializing firms were not asked about workforce growth), further limiting the completeness of the dataset. Moreover, about one-third of the SBIR awardee firms were not asked to complete a survey at all. It is possible that non-responding firms differ systematically from respondents (for instance, they may include more projects that failed to commercialize), which could skew the aggregated results.

DISCUSSION

Finally, to maximize response rates and minimize burden, the survey instrument was intentionally brief (approximately 10 minutes in length). The brevity of the survey limited the granularity of data collected – for example, the study did not gather detailed time-series data on product adoption year by year, and it did not collect comprehensive information on costs or profit margins. This means we could not normalize outcomes by time on the market: a product launched in 2022 is treated the same as one launched in 2014, potentially understating the long-term outcomes of newer innovations that have not yet had as many years to grow. In sum, heterogeneity in how data were reported, missing inputs from some firms, and the lean scope of data collection all contribute to a conservative picture of program results.

Interpretation Limitations – Analysis and Bias

Given the methodological and data issues above, any interpretation of the results should be made with caution. No causal inference can be made – the outcomes observed (such as revenue generated or users reached) are associated with participation in ED/IES SBIR, but they are not proof that the SBIR funding alone caused those outcomes. Awardees likely had other contributing factors to success, and without a counterfactual (what would have happened to similar firms without SBIR support), the program's added value can only be inferred indirectly. The results are also time-bound and preliminary. Many SBIR-supported products are still in relatively early stages of commercialization; their ultimate educational and economic impact may evolve over a longer horizon than this study captured. Interpretation should account for the fact that a snapshot in 2025 may not reflect the full lifecycle of a 2022 awardee's product. Finally, it is important to recognize that "reach" does not equal impact. The report highlights large numbers of users and substantial revenues, but it does not evaluate how those products performed in terms of improving student learning or other educational outcomes. Policymakers should avoid interpreting user counts or revenue as proxies for educational effectiveness.

Looking Ahead

Strengthening Future Evaluations

These limitations point to several ways that future evaluations of the ED/IES SBIR program could strengthen the evidence base. First, implementing more systematic data collection would greatly improve accuracy – for example, establishing routine annual reporting requirements after the award period ends or linking awardees to administrative data systems could provide verified usage, revenue, and outcome data over time rather than relying on one-time self-reports. Second, introducing a well-matched comparison group (such as unfunded applicants or similar firms outside the program) in the evaluation design would enable more rigorous estimates of program additionality and causality. Third, future studies should incorporate measures of educational effectiveness at scale – for instance, analyzing whether schools or students using SBIR-funded products see improvements in desired outcomes relative to those who do not. By addressing the current study's methodological and data shortcomings in these ways, subsequent evaluations will be able to provide more definitive and actionable evidence on the SBIR program's impact. Each of these steps would help ensure that the promising signals identified in this report are validated with stronger proof, and that any future course adjustments for the program are grounded in robust data. In summary, acknowledging and addressing these limitations will be critical for translating this preliminary analysis into sustained, evidence-backed policy insights. Future evaluations that build on these improvements can more confidently inform decisions and demonstrate how federal seed investments translate into educational and economic value.

DISCUSSION

Future Directions for ED/IES SBIR Program Evaluation

Rigorous longitudinal evidence is critical for demonstrating the educational and economic value of the ED/IES SBIR program. Establishing an evaluation infrastructure aligned with National Academies standards and best practices at DoD, NIH, NSF, and DOE requires five reinforcing actions.

- **Continuous data pipelines must be institutionalized**
- **Evidence on learning outcomes must be strengthened after the award period ends**
- **Comparative benchmarks should provide essential evaluative context**
- **Commercialization metrics should be codified**
- **Return-on-investment frameworks should be refined**

First, continuous data pipelines must be institutionalized. Awardees should submit standardized annual data files for at least five years post-project, including anonymized usage logs, licensing counts, and segmented revenue data. An IES-managed analytics platform should aggregate and timestamp these files, providing dashboards for longitudinal analyses across cohorts and categories.

Second, evidence on learning outcomes must be strengthened after the award period ends. The program could publish structured pilot-study summaries detailing design, sample characteristics, and effect sizes and connect these findings to usage data over time. Supplemental funding or partnerships should facilitate independent replication of promising studies, prioritizing projects serving high-need populations or showing significant impacts.

Third, comparative benchmarks should provide essential evaluative context. A matched control group of high-scoring unfunded applicants should be created using propensity-score methods based on sector, maturity, and geography. Annual follow-ups with this group will assess program additionality. Additionally, linking SBIR records to external databases on patents, grants, and venture capital can benchmark growth against broader innovation trends. Piloting increased Phase II funding and inclusive outreach practices following NSF and NIH recommendations is also recommended.

Fourth, commercialization metrics should be codified. Firms must regularly document follow-on financing events, such as district contracts or equity rounds, and key commercialization milestones. Aggregated, anonymized commercialization statistics should be publicly reported annually to enhance accountability and confidence.

Lastly, return-on-investment frameworks must be refined. Beyond basic cost-per-user analyses, standardized educational outcomes—like measured effect sizes—should be integrated into social return estimates. Adopting cost-effectiveness ratios, such as dollars per tenth of a standard deviation gain, enables policymakers to effectively compare SBIR investments with similar federal programs.

Institutionalizing these data and evaluation practices will provide ED/IES SBIR and comparable federal R&D initiatives a transparent, independently verifiable evidence base, clarifying how public investments translate into sustained educational and economic impacts.

CONCLUSION

> **From 2012 to 2022, roughly 70% of participating small businesses successfully brought a new research- based educational technology product to market, collectively reaching approximately 130.6 million students, educators, and administrators nationwide.**

The evidence gathered in this impact analysis indicates that the ED/IES SBIR program has delivered substantial outcomes in both educational reach and economic return. From 2012 to 2022, roughly 70% of participating small businesses successfully brought a research- based educational technology product to market, collectively reaching approximately 130.6 million students, educators, and administrators nationwide. This expansive reach – achieved at an effective public cost of about $0.70 per user – exemplifies the efficient, mission-aligned diffusion of innovation. ED/IES SBIR awardees also attracted significant follow-on funding: 86% of firms secured additional investment or R&D support after their SBIR awards. In total, the self-reported product revenues, private investments, and acquisition proceeds linked to ED/IES SBIR projects amount to roughly $827.5 million – an estimated economic return of about $9 for every $1 of federal SBIR funding. Furthermore, nearly one-fifth of awardees (18%) were acquired by larger education-sector companies, illustrating one pathway through which SBIR-supported innovations can scale via industry integration.

These outcomes demonstrate a strong alignment between the ED/IES SBIR program and the broader SBIR mission – namely, fostering high-impact technological innovation and leveraging public R&D investments to generate economic and societal returns. The program's high commercialization rate and robust private follow-on funding indicate effective translation of federally funded R&D into market outcomes. At the same time, the program's additionality is evident: 97% of surveyed firms indicated that their SBIR-supported product would not (or might not) have come to fruition without the SBIR award. This high-level of additionality highlights SBIR's catalytic role in enabling education innovations that might have been too risky or premature for purely private financing. Equally important, these commercial successes were achieved in tandem with mission-focused results. The ED/IES SBIR program's requirement for measuring the promise of products to lead to the intended outcomes helps ensure that each innovation remains mission-aligned – delivering tools to serve and enhance teaching and learning, rather than just producing commercial products. The broad uptake of SBIR-funded learning technologies – over a hundred million users – illustrates that the program has advanced not only economic objectives but also the agency's educational mission by diffusing research-based innovations to schools and classrooms nationwide.

CONCLUSION

Notably, ED/IES SBIR's impact profile is comparable to results from larger federal SBIR programs, underscoring the SBIR model's consistent effectiveness across domains. The approximately 9:1 economic return achieved by ED/IES SBIR is on par with – if not slightly above – the returns reported for Department of Defense SBIR initiatives (around $6–$8 in sales per $1 invested in comparable cohorts). Likewise, ED's ~70% rate of product commercialization and its high incidence of follow-on funding fall in line with the outcome ranges observed in National Academies reviews of SBIR at agencies such as DoD, NIH, NSF, and NASA. The prevalence of acquisitions among ED/IES SBIR firms is also consistent with patterns seen in other sectors' SBIR programs – for example, the Air Force SBIR program saw hundreds of its small business awardees acquired by larger companies as a means of scaling their innovations. In sum, despite the education sector's specific challenges and smaller market size relative to defense or health care, ED/IES SBIR's performance – in generating mission-relevant innovation, attracting private-sector capital, and achieving commercialization – stands at par with its peer SBIR programs.

Overall, this portfolio-level analysis provides a data-grounded synthesis of the ED/IES SBIR program's returns and reach. The findings indicate that a well-designed, mission-targeted SBIR program in education has the potential to deliver meaningful public value alongside private-sector outcomes, reinforcing core concepts such as mission-aligned innovation, SBIR additionality, and public–private leverage in the federal R&D enterprise. These results contribute to the broader SBIR policy evaluation by showing that even in an educational sector context, the SBIR model can generate significant economic payoff and widespread adoption of innovation, thereby fulfilling its dual mandate of stimulating economic growth and addressing agency missions in tandem. Such insights are of wider relevance as policymakers continue to evaluate and refine the SBIR program's role in fostering innovation across different domains.

> **"A well-designed, mission-targeted SBIR program in education has the potential to deliver meaningful public value alongside private-sector outcomes, reinforcing core concepts such as mission-aligned innovation, SBIR additionality, and public–private leverage in the federal R&D enterprise.**

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APPENDIX A

Names of the 104 Companies Funded by ED/IES SBIR from 2012 to 2022

1st Playable
3C Institute
Alchemie
Analytic Measures
AP Ventures
Apprendis
Attainment Company
Attention Control System
Aufero
Beach Day
Brainquake
BrightHive
Caprock Creative
Charmtech Labs
Codespark
Cognitive ToyBox
Common Ground Publishing
Core LX
Curricular Works
Early Learning Labs
Edify Technologies Inc.
EdSurge
Education Modified
Eduvant
Electric Funstuff
Emberex
eSpark
Fablevision
Filament Games
Flip Learning
Fluidity Software
Fokus Labs
Foundations in Learning
Future Engineers
Gigantic Mechanic
Graspable
HandHold Adaptive
Happy People Games
Hats and Ladders
Sound Town (Hoogalit)
Immersed Games
Improve
Innovation Design Labs
INSIGHTS Intervention
Instagrok
IQ Sonics
Iscene
Kiko Labs
Killer Snails
Kings Peak
KooApps
Language Learning Partners
LEARN Platform
Learning Ovations
Life Technologies
Lighthaus
LightSide Labs
LightUp
Lingo Jingo
Literably
LiveSchool
Lyrics to Learn
Makefully Studios
Mathalisous
MidSchoolMath
Mindset Works
Muzology
Nimble Hire
Parametric Studio
Peerceptiv
Planet 3
Playworks Studio
PocketLab (Myriad Sensors)
Querium
Readorium
Rock By Rock
Safe Toddles
Schell Games
Scholarcade
Science4Us
SecondAvenueLearning
Siminsights
Sirius Thinking
Snowbright Studios
Socrative
Sokikom
Soterix Medical
Sown To Grow
Speak Agent
Spry Fox
StoryWorld
Strange Loop Games
Teachley
ThinkAUD
ThinkZone
ThoughtCycle
TutorGen
Vantage Point
VidCode
Woot Math (Simbulus)
xSEL Labs
Zaption
Zuni Learning Tree
Zybooks

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About the Study Group
The Study Group exists to advance the best of artificial intelligence, assessment, and data practice, technology, and policy; uncover future design needs and opportunities for educational systems; and generate recommendations to better meet the needs of students, families, and educators.

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