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## EDUCATION FINANCE NETWORK

# Evidence Gap Map Supplement: Methodology & Map Quadrant Analysis

September 2022



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## **Introduction**

The Evidence Gap Map (EGM) illustrates the existing research on the role and impact of non-state actors in education in low- and middle-income countries. The aim of the EGM is to synthesize findings and identify gaps in existing research in order to inform the research priorities of the Education Finance Network (EFN). The online interactive EGM provides a visual heatmap of the number of studies that currently exist for each thematic area. The studies are presented in an interactive visual map so that users can easily identify which interventions and outcomes have been subject to the most research, and which areas lack significant evidence. The interactive map also allows users to filter the available evidence by country, region, or the study's level of rigor, ensuring that the map is easily tailored to specific research interests.

This accompanying narrative provides a high-level analysis of the map, including on whether the existing evidence is sufficiently rigorous and what gaps are still present. The EGM is a living online resource and will continue to grow, with regular updates added as new publications become available. It can be used by policymakers and practitioners to coordinate on programs, better leverage resources, and encourage further research in areas where meaningful gaps have been identified.

## How to read the EGM

The EGM presents key intervention areas and tracks the existing evidence on whether these interventions lead to specific priority outcomes. Interventions are provided along the y-axis (vertical), and outcomes are provided along the x-axis (horizontal). Each research report included in the review is then categorized under at least one outcome and intervention. The total number of reports that study each intervention and outcome is then provided in each individual cell.

In total, 23 interventions and 20 outcomes were identified as priority research areas to be included on the EGM, based on the EFN needs assessments and consultations with key stakeholders. These intervention and outcome areas were selected to reflect the interests of the EFN members and align with their thematic priorities. To synthesize and organize the findings, the interventions are organized into three overarching categories: 1) Financing; 2) Core Delivery; and 3) Ancillary Services, and outcomes are organized into 1) Access and Equity; 2) Education Quality; and 3) Business Model and Cost. The full framework of interventions and outcomes can be found in the online interactive EGM.

Figure 1 – High level framework for the EGM findings



## Methodology

Following the identification of the Intervention and Outcome areas, a desktop literature review was conducted to gather key source material published between 2015 and 2021, including academic studies, systematic reviews, evaluations and reports. The desktop review relied primarily on backward and forward snowballing methods (reference tracking and citation tracking) in which initial source materials were used to identify further sources based on reference lists or citation tracking in Google Scholar. This method was supplemented with the use of key search terms in Google Scholar that searched for exact matches of each intervention and outcome area (e.g., “Public-Private Partnership” AND “learning outcomes”). Each source was then tagged with author, date, intervention and outcome areas, source type, country or regional focus, school level, and key findings.

In total, 196 studies have been included in the first round of research (as of June 2022). Subsequent rounds of desktop research will be conducted periodically to ensure new published research is captured and to expand the database.

## Source Type

The studies included in this EGM are categorized into four **Source Types**, correlated to the level of rigor of their data methods and whether the study has been peer-reviewed for bias and/or methodological limitations:

Figure 2: Source Types Included

<p><b>A. Academic Study</b> Peer-reviewed – Primary</p>	<p>Any source material published in a peer-reviewed academic journal, thus meeting the methodological requirements for publication in a journal and adhering to a minimum level of academic rigor.</p>
<p><b>B. Systematic / Lit Review</b> Secondary</p>	<p>Systematic review or rigorous literature/evidence review (including both peer-reviewed or non-academic) that adheres to a rigorous and systematic methodology, including pre-defined keyword search terms and strict inclusion/exclusion criteria.</p>
<p><b>C. Evaluation / Unpublished Study</b> Other – Primary</p>	<p>Impact evaluations (including experimental) or other third-party evaluations published on third party websites and not published in academic journals. May include mixed method or non-experimental evaluations but must be from a third-party evaluator.</p>
<p><b>D. Report</b></p>	<p>Other research reports and grey literature that do not adhere to the methods listed above (or that are lacking a clear methodological approach).</p> <p><i>Note:</i> This category does not indicate any level of rigor, and data methods may vary significantly depending on the source.</p>

Please note that preliminary research on ancillary services revealed that a substantial body of research already exists on ancillary services and their impact on education access and quality. Given the extensive body of literature on the topic, this intervention area of the EGM includes only systematic/literature reviews (Source Type B) in an effort to more effectively synthesize key findings in this area.

## Limitations

This desktop review relied primarily on snowball sampling methods of publicly available sources, with key search terms on **Google Scholar** used as a supplemental method to check against initial gaps. As such, it is not possible to ensure that all relevant published research was captured, particularly for those sources that are not frequently cited by other authors or published in online databases. While **196 sources** were included in the first round, it is possible that subsequent rounds of desktop research will reveal additional sources not captured initially. As the EFN membership grows, this will also facilitate increased access to additional source material that is not publicly available and will expand the EGM source material accordingly.

In addition, the EGM is limited by publication date (2015-2021) and only research studies published in the English language are included. As such, there may be omissions of relevant publications in other languages or in earlier years. This review was also limited to studies focused on low- and middle-income countries, and excluded studies related to higher education or high-end private schools, as it assumes these studies to be less relevant to the research aims. However, it is possible some studies related to these areas may produce relevant findings that are not captured in this EGM.

## EGM by quadrant

The Interactive EGM is organized into three overarching interventions on the Y-axis, with three overarching outcomes on the X-axis. This results in nine total quadrants onto which studies are mapped. The below section provides a high-level analysis of the EGM across each of the nine (9) quadrants, as outlined above. This includes total count of the number of studies within the quadrant, interventions and outcomes which had the highest number of studies, an overview of the level of rigor of sources mapped to each quadrant, and an analysis of evidence gaps.

*Each of the following sections covers one of the nine quadrants, and discusses:*

- **The total number of sources mapped within each quadrant**
- **The interventions and outcomes that had the highest number of studies**
- **The interventions and outcomes that had the fewest number of studies**
- **A high-level summary of the available evidence on each intervention and outcome**
- **An analysis of the level of rigor of the studies included in each quadrant**
- **A discussion of the evidence gaps, and which interventions and outcomes lack sufficient quality evidence**

*The following table provides a list of all of the interventions and outcomes that the interactive EGM and the following analysis covers:*

Figure 3 – List of all of interventions and outcomes covered

### I. Financing

### I. Capacity, Access and Equity

**INTERVENTIONS:**

1. School improvement loans
2. Grants to schools
3. Social / Development Impact Bonds
4. Results-based finance
5. Impact Investing (general)
6. Technical assistance for financial institutions
7. Cash Transfers
8. Vouchers schemes
9. Elimination of schools fees
10. School fee loans

**OUTCOMES:**

1. Enrollment capacity
2. Student enrollment
3. Student drop-out rate
4. Female enrollment
5. Female drop-out rate
6. Accessibility to low-income families
7. Distance and safety

### II. Core Delivery

### II. School Quality and Learning Outcomes

**INTERVENTIONS:**

11. Low-Cost Private School – General / All
12. Sole Proprietor (single school)
13. Faith-based
14. Independent non-profit / civil society
15. Public-Private Partnership
16. Social Enterprise Franchise
17. Commercial chains
18. ECD Interventions

**OUTCOMES:**

8. Pupil-Teacher Ratio
9. Infrastructure
10. Extracurriculars offered
11. Resources and materials
12. Learning outcomes
13. Parent satisfaction
14. Diversity and inclusion in language & curriculum

### III. Ancillary Services

### III. Business Model and Cost

**INTERVENTIONS:**

19. Teacher training and development
20. Support to school leadership, admin and management
21. EdTech
22. Nutrition and School-Feeding, Healthcare Cross Sectoral
23. Curriculum Development, design and pedagogy

**OUTCOMES:**

15. Profitability & Revenue
16. Cost effectiveness
17. Value-for-money (incl. Cost-per-Pupil)
18. Scalability
19. Sustainability
20. General market assessment

# 1. Finance

## 1.1 Finance – capacity, access & equity

Figure 4 – Interventions included under financing and capacity, access & equity.

**Total count in quadrant: 62**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

### Interventions Most Studied:

- Social development / Impact Bonds
- Public-private partnerships
- Vouchers for private schools

### Interventions Least Studied:

- Technical assistance to FIs
- Unconditional grants to schools

### Outcomes Most Studied:

- Student attendance (ie. enrollment rate)
- Female attendance
- Accessibility to low income families

### Outcomes Least Studied:

- Drop-out rate
- Female drop-out rate
- Distance and safety

## Summary of existing evidence

### Voucher Schemes

- Most studies and systematic reviews agree that voucher schemes do succeed in increasing school access and enrollment, particularly for girls and secondary-aged children who would otherwise be out-of-school (Day-Ashley et al., 2020; Baum & Cilliers, 2018). Whether voucher programs can have a positive impact on the most disadvantaged children is mixed – one systematic review in India found that voucher programs reduced financial barriers for low-income children to attend private schools, but they did not achieve higher learning outcomes once enrolled in these schools (Day-Ashley et al., 2020). However, a similar case study in India found that voucher programs did significantly increase school enrolment for girls, and that this increased access was accompanied by increased learning outcomes (Dixon et al., 2019).
- Alongside this, many authors conclude that while voucher programs may increase school access and enrolment overall – including directly contributing to increased access for low-income and marginalized children (Aslam et al., 2017) – voucher programs may also lead to

increased stratification and inequality (for example, in Chile – Balsera et al., 2016). Nevertheless, if the education policy goal is purely to increase enrollment for out-of-school children, voucher programs remain an effective tool that can be accompanied with additional targeted policies to improve learning outcomes.

### Social/development impact bonds and outcome-based finance

- The majority of studies on outcome-based finance examine learning outcomes, and there is limited evidence on innovative finance and blended finance in education as it relates specifically to access, inclusion and retention (Education Development Trust, 2019). However, evidence from the Educate Girls DIB found that the program was successful in expanding access for girls' education (Roddis 2020; Ecorys, 2021; Gustafsson-Wright & Boggild-Jones 2019). The rigorous evaluation of the Educate Girls DIB found that Educate Girls surpassed its targets for expanding access to education for out-of-school girls: “By the end of Year 3, Educate Girls enrolled 92% of all 837 eligible out-of-school girls in treatment villages, representing 116% of the final target for enrollments” (IDinsight, 2018). This presents an opportunity for further expansion of the program, follow-ons and replication in other contexts.

### Overall analysis of rigor:

- **Evidence on school-level financing** (i.e., social/development impact bonds, impact investing and school improvement loans) is primarily drawn from third-party evaluations and reports (Source Type C and D).
- On the contrary, evidence related to **household-level financing** (i.e., conditional cash transfers, elimination of school fees, and vouchers) includes a large number of rigorous academic studies and randomized control trials.
- In particular, evidence related to **social/development impact bonds** is primarily based on research reports (Source Type D) examining the Educate Girls DIB. There have been very few DIBs in the education sector in low and middle-income countries, but additional research is recommended in this area once other education DIB pilot programs in other contexts are implemented and evaluated.

### Analysis of evidence gaps:

- No studies were found that examine the impact of **technical assistance to financial institutions** (i.e., banks and lenders) on access and equity. Further research is needed in this area to understand how improving the capacity of education lenders may trickle down to improved education access for students.
- While the impact of education financing on student attendance is adequately covered in the literature, there are **limited studies tracking drop-out rate, and even fewer on female drop-out rate**. As such, more research is needed to examine the longer-term impacts of financing interventions on enrollment, and whether students who enroll in school particularly as a result of household-level education financing (i.e., vouchers and conditional cash transfers) tend to stay enrolled in the long-term. This gap in the literature is particularly evident for female students, as this review found very few studies specifically focused on female drop-out rate.
- Few studies exist that examine whether education financing interventions may **increase student safety while traveling to/from school or the distance they must travel**. This is a significant gap, as distance and safety are important indicators of access and equity, particularly in rural areas.

## 1.2 Financing – school quality and learning outcomes

Figure 5 – Interventions included under financing and school quality & learning outcomes.

**Total count in quadrant: 64**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

### Interventions Most Studied:

- Vouchers for Private Schools
- Social Development / Impact Bonds
- Public-Private Partnerships
- Social Impact Investing

### Interventions Least Studied:

- Technical Assistance to FIs
- School fee oans

### Outcomes Most Studied:

- Learning Outcomes (Numeracy and Literacy)

### Outcomes Least Studied:

- Extracurriculars offered
- Resources and materials
- Diversity and inclusion
- Parent satisfaction

## Summary of existing evidence

### Voucher schemes

- Evidence of the impact of voucher schemes on learning outcomes is mixed and inconclusive. A systematic review of 150 impact evaluations across 46 countries found voucher programs have only a moderate impact on learning outcomes (Angrist et al. 2020). While there are some case studies of increased test scores as a result of voucher programs (for example, in India – Dixon et al. 2019), this impact is usually negligible for disadvantaged learners (Crawford et al., 2019; Day-Ashley et al., 2020).
- However, as noted above, studies have shown voucher programs to be an effective policy model for increasing access to school, particularly for secondary school attendance and girls’ attendance (see Quadrant 1 Analysis – pg 5). For example, in Tanzania, a study found that voucher programs may result in more students attending school, particularly secondary school, while reducing the burden on governments to construct new schools (Baum & Cilliers, 2018). Other systematic reviews have found that in some contexts, voucher programs can increase competition and lead public schools to improve (Epple et al., 2017) or that they can increase productivity in the education system overall (Day-Ashley et al. 2020). As such, while the effect of voucher programs

on achieving better learning outcomes for disadvantaged students may be minimal, they result in other benefits and may support a gradual shift towards increased equity in education systems in certain contexts.

### Social/development impact bonds and outcome-based finance

- As highlighted above, there is limited evidence related to innovative financing, results-based finance and impact bonds for education (Roddis, 2020; Steer et al., 2015) but the Educate Girls DIB in India presents a key case study with which to examine its model and evaluate its success and scalability in achieving learning outcomes. An evaluation of the program found that the Educate Girls DIB surpassed its targets: “By the end of Year 3, students in treatment villages gained an additional 8,940 ASER learning levels relative to students in control villages, representing 160% of the final target.” (IDinsight, 2018). Other studies of the Educate Girls DIB and its follow-on program, Quality Education India, conclude that while the initial set-up and establishment of the program faced several challenges, the results indicate a promising model for future innovative financing (Erskine, 2018; Ecorys, 2021).

### Overall analysis of rigor:

- As noted earlier, evidence on school-level financing is primarily drawn from third-party evaluations and reports (Source Type C and D). On the contrary, evidence related to **household-level financing** (i.e., conditional cash transfers and vouchers) includes a large number of rigorous academic studies. Likewise, evidence related to social/development impact bonds is primarily based on the Educate Girls DIB, and indicates that additional research is needed in this area that expands to other case studies and contexts.
- Research of **public-private partnerships** includes several academic studies and systematic reviews and thus represents a large body of rigorous evidence in this area.

### Analysis of evidence gaps:

- Evidence on school quality is concentrated on **learning outcomes**, which rely primarily on test scores to assess student performance in literacy/numeracy. However, very little evidence exists outside of learning outcomes, particularly related to **diversity, inclusion in language and curriculum** and ensuring curriculum is relevant to students’ background and contexts. This indicates an important gap.
- Likewise, additional research that assesses **school quality outside of test scores** is needed, as test scores represent only one indicator of school quality and may not capture the complete picture.

### 1.3 Financing – business model and costs

Figure 6 – interventions included under financing and business model & cost.

**Total count in quadrant: 42**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

#### Interventions Most Studied:

- Social Development / Impact Bonds
- Payment-for-Results / Outcome-Based Finance
- Public-Private Partnerships
- Social Impact Investing

#### Interventions Least Studied:

- Technical assistance to FIs
- Elimination of school fees
- Household financial management for education

#### Outcomes Most Studied:

- Cost-Effectiveness
- Scalability

#### Outcomes Least Studied:

- Profitability and revenue

### Summary of existing evidence

#### Social/development impact bonds and outcome-based finance:

- While evidence remains limited, the studies that assess this quadrant area conclude that outcome-based financing and SIBs/DIBs are both cost effective and sustainable models of financing. A recent publication assessed 18 mechanisms of innovative finance for education and found outcomes-based financing and impact bonds to be among the top mechanisms with regard to replicability and scalability; cost-effectiveness at scale; sustainability and predictability (Bellinger et al., 2016).
- However, given the limited number of concrete success cases, other studies do not find any concrete evidence that impact bonds or other forms of outcomes-based financing offer better value-for-money when compared with other financing mechanisms (Joynes, 2019; Education Development Trust, 2019). Many studies also highlight that evidence around impact bonds in education is still too limited to determine whether programs can be replicated at scale (Steer et al., 2015).

#### Overall analysis of rigor:

- The vast majority of evidence related to business **and cost outcomes** are drawn from grey literature/third-party reports (Source Type D) and very few academic studies (Source Type A)

exist for this outcome area. However, practitioner research reports in this area represent an important body of literature on the topic as they are better tailored towards donor and investor audiences.

- Within this grey literature category, existing research on **cost-effectiveness** varies in quality: some studies rely on rigorous quantitative methodologies to define what makes an intervention “cost-effective” (such as mapping learning outcomes to dollar cost-per-pupil) while others conclude that any low-resource intervention (loosely defined) that achieved learning outcomes is deemed cost-effective.
- There is higher quality evidence on profitability and value-for-money was higher quality as it tends to use quantitative data on expenditures and revenue to define.

### **Analysis of evidence gaps:**

- Additional research is needed on the **profitability and/or revenue of schools** receiving different financial inputs. While research exists examining the value-for-money of financial inputs (i.e., school expenditures per pupil) this should be complemented with additional research around whether schools are profitable.
  - Additional research on the profitability/revenue of schools will also add to the research base in other outcomes. Profitability and revenue may increase the sustainability of the model, allow a school to invest in other outcomes such as infrastructure or hire more teachers, or they may dedicate resources to initiatives that increase access and equity.
-

## 2. Core Delivery

### 2.1 Core delivery – capacity, access & equity

Figure 7 – Interventions included under core delivery and capacity, access & equity.

**Total count in quadrant: 104**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

#### Interventions Most Studied:

- Low-Cost Private Schools (general / all models)
- Sole Proprietor (single school)
- Public-Private Partnerships (ie. outsourced)
- Independent non-profit / civil society

#### Interventions Least Studied:

- Social enterprise franchise
- Faith-based schools

#### Outcomes Most Studied:

- Accessibility to Low-Income Families
- Student Attendance
- Female Attendance

#### Outcomes Least Studied:

- Enrollment capacity
- Female drop-out rate
- Distance and safety

### Summary of existing evidence:

#### Low-cost private schools

- Many studies included in this review evaluate the aggregate impact of a variety of low-cost, non-state school models, including for-profit school chains, single-school sole proprietors (including both for-profit and non-profit), and faith-based and philanthropic schools. Evidence on the affordability of these schools for low-income households is ambiguous, inconclusive and often highly dependent on context, with most studies concluding that low-cost private schools are out of reach of low-income families (Akmal et al., 2019; Aslam, 2017; Languille, 2016; Results 4 Development, 2016; Zuilkowski et al. 2018). One study in India shows that low-cost private schools use a fee structure that is within reach of low-income parents with stable earnings, but that is increasingly unaffordable to the lowest income-brackets of children (Chattopadhyay & Roy, 2017).
- In contrast, other studies in India have shown that 16.5% of children in the poorest quintile attend private schools (Gruijters et al., 2020), raising additional considerations on the accessibility of low-cost private schools and whether they facilitate access to low-income and disadvantaged

students in other ways, such as being more conveniently located in rural areas and low-income urban areas. Alongside this are also select cases of low-cost private schools that do successfully reach low-income and disadvantaged students as has been shown in Uganda (Economic Policy Research Centre, 2016; Hills, 2017).

### Public-private partnerships

- Studies on PPPs (including both subsidized and outsourced schools) offer promising evidence that PPPs may increase enrolment and access by expanding provision of primary and secondary education in a way that is more affordable to governments, thus reducing household-level costs (Barrera-Osorio et al., 2017; Barrera-Osorio et al., 2016; Barungi & Mwesigye, 2019; Crawford, 2017; Crawford & Hares, 2021). For example, in Punjab, Pakistan, PPP schools are located in areas with high rates of out-of-school children, and are therefore effective in reaching low-income children by removing fees at nearby private schools and expanding options to low-income families (Barrera-Osorio and Raju, 2015; Ansari, 2020).
- However, despite some strong case studies of successful PPP examples, the aggregate impact of PPP education provision is inconclusive and highly dependent on contextual factors (Aslam et al. 2017). Further, it is often the case that while PPPs may expand access to education, they also increase educational inequalities and stratification (Aslam et al. 2017). When analyzing the effect of PPPs across educational systems and regions, most systematic reviews conclude that the PPP model as a whole may disproportionately serve upper-income students, and their impact is dependent on the regulatory environments in their respective contexts (Baum, 2018; Aslam et al., 2017; Roddis, 2020). As such, additional analysis should be conducted on the conditions under which PPPs do increase equity and access, and why PPPs succeed in expanding access in certain contexts and not in others.

### Faith-based and philanthropic schools

- Many studies have concluded that philanthropic and faith-based schools may be more accessible to disadvantaged students, if not more affordable to low-income students. For example, some studies have found consistent evidence that philanthropic schools expand enrollment for girls, with more moderate evidence of this for faith-based schools (Day-Ashley & Wales, 2015; Day-Ashley et al., 2015). Evidence around non-state schools reducing the gender gap is highly dependent on context, however.
- Additional studies have also concluded that faith-based and philanthropic schools are better located geographically to reach marginalized populations (Wales et al., 2015). Particularly in conflict zones, many philanthropic non-state schools and faith-based schools offered a safer alternative to children. For example, in El Salvador, these schools were in some cases the only schools children could access without crossing gang lines (R4D, 2018), and in Nigeria, non-state schools were found to be somewhat insulated from conflict as they are deeply rooted in community networks (R4D, 2018).

### Overall analysis of rigor:

- A substantial body of rigorous evidence exists drawn from academic journals (Source Types A and B) that examines **varying types of low-cost private schools and their accessibility to low-income families**. These studies are geographically concentrated around India and East Africa, but also include some studies in Pakistan, Ghana, Nigeria and Latin America in addition to numerous global studies.
- Alongside this an extensive body of academic literature, there exists a substantial body of grey literature (Source Type D), many of which adopt a specific perspective around low-cost private

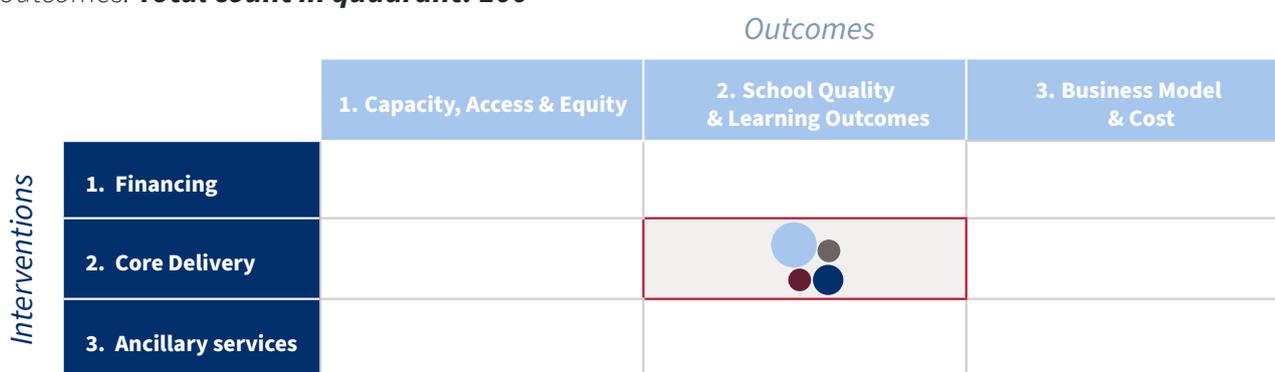
schools and conclude they are not actually affordable to low-income families. The quality of the data in these studies ranges from single observational or anecdotal evidence, detailed country and programmatic case studies, and comprehensive regional analyses. While this perspective may be biased towards a specific viewpoint it represents a necessary consideration in the evidence base.

### Analysis of evidence gaps:

- While impacts on student attendance (including female attendance) is covered in depth, there are **few studies tracking student drop-out rate**. As such, more research is needed to examine the longer-term impacts of core delivery services and whether students that enroll in private schools stay in school.
- Evidence on **social enterprise franchises** is primarily based on the PEAS program in Uganda and the Kidogo early childhood program in Kenya.<sup>1</sup> While there is a substantial evidence base around these programs, they represent only two examples of social enterprise franchises and only in the East African context. Additional research is needed on case studies in other regions in order to more fully glean the impact of social enterprise franchises.
- There are relatively fewer studies examining **faith-based schools** than on other types of core delivery, but the quality of the data on faith-based schools is strong.

## 2.2 Core delivery – school quality and learning outcomes

Figure 8 – Interventions included under core delivery that contribute to school quality & learning outcomes. **Total count in quadrant: 100**



#### Interventions Most Studied:

- Low-Cost Private Schools (general / all models)
- Public-Private Partnerships (ie. outsourced)
- Commercial Chains

#### Interventions Least Studied:

- Social enterprise franchise
- Faith-based schools

#### Outcomes Most Studied:

- Learning Outcomes (Numeracy and Literacy)

#### Outcomes Least Studied:

- Extracurriculars
- Resources and materials
- Diversity and inclusion
- Parent satisfaction

<sup>1</sup>Promoting Equality in African Schools (PEAS) is a social enterprise that builds, develops and runs low fee secondary schools in Uganda and Zambia. Kidogo is a social enterprise that supports to women in building

## Summary of existing evidence:

### Low-cost private schools:

- As highlighted above, many studies included in this review evaluate the aggregate impact of a variety of low-cost non-state school models on learning outcomes. There is moderate evidence that low-cost private schools succeed in improved learning outcomes (measured by their students' average test scores). Select case studies in India, Pakistan, Uganda and Kenya have found that low-fee private schools succeed in achieving learning outcomes for students at multiple school levels (Hafeez et al., 2016; Barrera-Osorio et al., 2016; Baum & Riley, 2019; Gruijters et al. 2020).
- However, evidence remains unclear on whether this increase in learning outcomes holds true for the most disadvantaged and lowest-income students in these schools (Alcott & Rose, 2016; Akmal et al., 2019; Day-Ashley et al., 2015). Other studies in Columbia, Peru, Uganda, India and Kenya found no impact of private schooling having an effect on learning outcomes, especially when controlling for socio-economic status (Eigbiremolen et al., 2019; Masuda & Yamauchi, 2018; Muralidharan & Sundararaman, 2015; Simmons et al. 2020; Balsera et al., 2016).
- The relative impact of low-cost private schools on advancing equity in education achievement is therefore mixed: when paired with initiatives to ensure access and affordability to the lowest-income brackets, low-cost private schools may offer a solution to communities with high shares of out-of-school children. However, this must be paired with initiatives to also ensure learning and instruction within these schools is of high caliber and is accessible to disadvantaged students.

### Public-private partnerships:

- There is moderate evidence that PPPs succeed in achieving learning outcomes (measured by their students' average test scores), as demonstrated by rigorous studies of PPP programs in Pakistan (Hafeez et al., 2016), Liberia (Romero et al., 2020), Uganda and Colombia (Barrera-Osorio et al. 2016). However, the evidence is mixed on whether PPPs can increase learning outcomes for the most disadvantaged students, and some studies conclude PPPs may result in increased stratification (Aslam et al., 2017).
- Many studies on PPPs have also found that their success greatly depends on the provider (Romero et al., 2020) or the regulatory environments and national policies specific to each context (Saguin, 2019; Roddis, 2020; Zancajo et al., 2021). Given the significant variation between different PPP providers and varying success depending on context, many studies do not draw conclusions on the success of the PPP model itself, but rather on the individual characteristics and factors of each school. As a whole, PPPs in education provision remain a promising and cost-effective model to achieve greater education access but may be less effective as a mechanism of increasing school quality when measured by learning outcomes (Crawford & Hares, 2021).

### Overall analysis of rigor:

- A substantial body of rigorous evidence exists drawn from academic journals (Source Types A and B) that examines **varying types of low-cost private schools** and their effect on **learning outcomes (test scores)**. Most studies examining low-cost private schools covered both **commercial chains and individual single-school proprietors**.
- Evidence on **non-profit/philanthropic schools and faith-based is more limited**. The overall level of rigor in this category of evidence is strong across the full range of source types (academic studies, systematic reviews and practitioner reports).

### Analysis of evidence gaps:

- As noted above, additional research that assesses school quality **outside of test scores** is needed, as test scores represent only one indicator of school quality and may not capture the entire picture. **Evidence is limited around whether various models of core delivery** have a lower pupil-teacher ratio, offer a greater range of extra-curricular activities, or have access to better materials or resources.
- Likewise, this review found very little evidence on **diversity, equity and inclusion in language and curriculum** and ensuring curriculum is relevant to students’ background and contexts. A few studies found that faith-based schools were better able to tailor curriculum to student backgrounds, as they tend to target students of similar religious backgrounds and incorporate religious teaching in curriculum. However, this evidence is limited to only 2-3 studies in total.
- Most studies on faith-based and non-profit/philanthropic schools focused on access and equity rather than on school quality and learning outcomes. However, some preliminary conclusions can be drawn from select systematic reviews in this area (see below).

### 2.3 Core delivery – business model & costs

Figure 9 – Interventions included under core delivery and business model & cost.

**Total count in quadrant: 64**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

#### Interventions Most Studied:

- Low-Cost Private Schools (general / all models)
- Public-Private Partnerships (ie. outsourced)
- Sole Proprietor (single school)

#### Interventions Least Studied:

- Social enterprise franchise
- Faith-based schools

#### Outcomes Most Studied:

- Cost-effectiveness
- General Market Assessments
- Profitability

#### Outcomes Least Studied:

- Scalability
- Sustainability

## Summary of existing evidence:

### Cost-effectiveness:

- The majority of studies in the EGM, that examined cost-effectiveness, found that low-cost private schools, including many PPP-subsidized schools, typically had lower costs and costs-per-student as a result of lower teacher salaries (Barrera-Osorio et al., 2017; Crawford & Hares, 2021; Wales et al., 2015). However, as Crawford & Hares (2021) also highlights, the ability to reduce costs solely by lowering teacher salaries may not be a viable or sustainable strategy in many contexts, as it may have the consequence of reduced teacher quality (Kingdon, 2020).
- The PPP model was also found to be highly cost-effective, not only because PPP-subsidized private schools typically had lower operating costs than government schools (due to lower staff costs), but also because subsidizing existing private schools, as a strategy to reach more students, was far less costly than the alternative of constructing new public schools (Crawford & Hares, 2021; Aslam et al. 2017).

### Overall analysis of rigor:

- As with other intervention categories, the vast majority of evidence related to business and cost outcomes is drawn from grey literature/third-party reports (Source Type D) and very few academic studies (Source Type A) exist for this outcome area.
- Within this grey literature category, existing research on **cost-effectiveness** varies in quality: some studies rely on rigorous quantitative methodologies to define what makes an intervention “cost-effective” (such as mapping learning outcomes to dollar cost-per-pupil) while others conclude that any low-resource intervention (loosely defined) that achieved learning outcomes was deemed cost-effective.
- There is higher quality evidence on profitability and value-for-money was higher quality as it tends to use quantitative data on expenditures and revenue to define.
- A large number of rigorous systematic reviews examining **public-private partnerships as related to business outcomes** exist and represent a strong base for this category.

### Analysis of evidence gaps:

- Coverage of research in this area is relatively evenly distributed. However, there are **fewer studies examining faith-based private schools** than other private school types and represents a gap in the literature.
- As noted above, evidence on **social enterprise franchises** is primarily based on the PEAS program in Uganda and the Kidogo early childhood program in Kenya, but additional research is needed in this area in other contexts.

### 3. Ancillary Services

As noted in the “Source Type” section of this document, preliminary research revealed that a substantial body of research already exists on ancillary services. Given the extensive body of literature on the topic, this intervention area of the EGM includes only systematic/literature reviews (Source Type B). As such, this section of the map appears to show fewer total sources, but considers that each source represents a systematic review or meta-analysis and therefore presents a stronger evidence base than other sources.

#### 3.1 Ancillary services – capacity, access, & equity

Figure 10 – Interventions included under ancillary services and capacity, access & equity.

**Total count in quadrant: 25**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services	●		

#### Interventions Most Studied:

- EdTech

#### Interventions Least Studied:

- Admin and Management
- School leaders training

#### Outcomes Most Studied:

- Student Attendance (ie. Enrollment Rate)
- Student Drop-out rate

#### Outcomes Least Studied:

- Female drop-out rate
- Distance and safety
- Enrollment capacity

#### Summary of existing evidence:

- EdTech: While evidence is limited in this area, some studies conclude that EdTech interventions are effective at increasing access as they typically have low marginal costs and are easier to scale for more students (Rodriguez-Segura, 2020). However, studies also agree that EdTech must be accompanied by targeted teacher-training in order to achieve learning outcomes, and that distribution of technological inputs (e.g., tablets) is not enough on its own (Angrist et al. 2020; ; Global Education Advisory Panel, 2020).

#### Overall analysis of rigor:

- This section of the map appears to show **fewer total sources** but considers that each source represents a systematic review or meta-analysis and therefore presents a **stronger evidence base than other sources**. As such, the level of rigor of this section is strong.

### Analysis of evidence gaps:

- Research is limited on the **impact of ancillary services on affordability to low-income families and drop-out rate, and is particularly limited on female drop-out rates.**
- In general, the outcomes of ancillary services tend to place higher emphasis on **school quality**, rather than access and equity. While this indicates a gap in the research, it is also indicative of the type of outcomes ancillary services are aiming to achieve.
- However, further research interests could look to examine the linkages between ancillary services and access and equity, such as examining how teacher quality may impact whether girls choose to stay in school, or how EdTech interventions are designed to keep costs lower for low-income families.

### 3.2 Ancillary services – school quality & learning outcomes

Figure 11 – Interventions included under ancillary services and school quality & learning outcomes. **Total count in quadrant: 35**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			

#### Interventions Most Studied:

- EdTech
- Teacher Training & Development

#### Interventions Least Studied:

- Admin and Management
- Nutrition and school feeding

#### Outcomes Most Studied:

- Learning Outcomes (Numeracy and Literacy)

#### Outcomes Least Studied:

- Extracurriculars
- Resources and materials
- Diversity and inclusion
- Parent satisfaction

### Summary of existing evidence:

- EdTech: All systematic reviews included in this EGM agree that EdTech programs are only effective in achieving learning outcomes when they are accompanied by teacher-training, pedagogical interventions, and curriculum tailored to student levels (Tauson & Stannard 2018; Rodriguez-Segura, 2020).
- Teacher-training: Studies also agreed that teacher-training programs are effective in achieving learning outcomes. In particular, teacher training programs that improved pedagogy or classroom instructional techniques and lesson planning had a large impact on learning outcomes (Global Education Advisory Panel, 2020).

- Pedagogical interventions that tailor teaching to student learning levels—either teacher-led or facilitated by adaptive learning software—were also found to be effective models (Angrist et al., 2020).

### Overall analysis of rigor:

- As noted above, this section of the map appears to show **fewer total sources** but considers that each source represents a systematic review or meta-analysis and therefore presents a **stronger evidence base than other sources**. As such, the level of rigor of this section is strong.

### Analysis of evidence gaps:

- Research is **heavily concentrated around learning outcomes** (numeracy and literacy) which rely primarily on test scores to assess student performance in literacy/numeracy.
- Additional research is needed on how interventions such as **teacher training and curriculum development** affect diversity and inclusion in language and curriculum. This indicates an important gap and opportunity, as teacher training programs and curriculum design have the potential to achieve outcomes related to diversity and inclusion.

## 3.3 Ancillary services – business model and cost

Figure 12 – Interventions included under ancillary services and business model & cost.

**Total count in quadrant: 14**

		Outcomes		
		1. Capacity, Access & Equity	2. School Quality & Learning Outcomes	3. Business Model & Cost
Interventions	1. Financing			
	2. Core Delivery			
	3. Ancillary services			● ●

#### Interventions Most Studied:

- EdTech
- School leaders training

#### Interventions Least Studied:

- Admin and Management
- Nutrition and school feeding
- Curriculum Development

#### Outcomes Most Studied:

- Cost effectiveness

#### Outcomes Least Studied:

- Profitability and revenue
- Scalability

### Summary of existing evidence:

- EdTech: While evidence is limited in this area, some studies conclude that EdTech interventions are cost-effective and scalable, as they typically have low marginal costs and are therefore easier to scale for more students (Rodriguez-Segura, 2020). However, studies also agree that EdTech must

be accompanied by targeted teacher-training in order to achieve learning outcomes, and that distribution of technological inputs alone is not enough. (Global Education Advisory Panel, 2020).

### Overall analysis of rigor:

- As noted above, this section of the map appears to show fewer total sources, but considers that each source represents a systematic review or meta-analysis and therefore presents a **stronger evidence base than other sources**. As such, the level of rigor of this section is strong.

### Analysis of evidence gaps:

- There are significant gaps across all outcomes and interventions in this area. The majority of systematic reviews on ancillary services focus on education quality, and to a lesser extent education access. **This EGM found very few systematic reviews that focus on the impact of ancillary services on school business models**, or that focus on the business models and profitability of the ancillary service providers themselves.
- There is slightly more evidence around **EdTech interventions**, on which studies and systematic reviews tend to also consider its cost effectiveness and scalability in addition to impact on learning outcomes.
- This review found no studies that examined the impact of **ancillary services on school profitability and revenue**.

## Cross-cutting analysis

### The following cross-cutting themes saw similar patterns across all EGM quadrants:

- **Equity:** The EGM found significant gaps in evidence around equity outcomes, particularly on gender outcomes and equity for disadvantaged students. There is a limited focus on gender outcomes across all studies. While most studies disaggregate findings on learning outcomes and attendance by gender, they do not add additional gender analysis. Very few studies disaggregated findings by or focused analysis on disadvantaged or marginalized groups.
- **Geographic Coverage**
  - Most studies included in this EGM were geographically concentrated around East Africa (particularly Uganda and Kenya) and South Asia (India), or they were global studies. Other countries of focus include Ghana, Liberia, Nigeria, Pakistan and Tanzania. Few studies focused on Latin America, revealing a significant regional gap.
  - Many studies examining financing models (i.e., outcome-based finance or impact investing) were global studies that examined the impact of financing models on the education as a whole. On the contrary, studies examining core delivery models (low-cost private schools, commercial chains, faith-based, etc.) tended to focus on case studies within one country.

**School Levels:** Most studies in this EGM covered both primary and secondary levels. Global studies or systematic reviews were likely to incorporate all school levels and all regions into this analysis. There was a very limited focus on pre-primary/Early Childhood Development (ECD) interventions, indicating an important gap.

## Conclusion and next steps

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This analysis and the accompanying EGM has highlighted the existing research on the role and impact of non-state actors in education in low- and middle-income countries. It has reviewed the thematic areas where existing research is most heavily concentrated around, whether it is sufficiently rigorous, and the areas where limited research exists.

Practitioners and funders looking to engage on a new project or partnership can use the evidence presented in the EGM to gain insight into whether interventions in particular countries or regions have been successful in achieving outcomes. Ensuring that evidence on past programs is widely available and shared will help direct resources into the most successful interventions and expand their impact.

For research entities and evaluators, the EGM can be used to understand what research already exists, to avoid duplicating recent studies, and ensure that new research prioritizes current gaps in the literature. As new research projects require an initial literature review, the EGM can facilitate this process by identifying existing research in one place for ease of access.

Overall, the EGM aims to bring greater transparency to the sector, allowing other stakeholders such as policymakers and investors to coordinate and align programs to better leverage resources and avoid duplication of services. Sharing and synthesizing evidence, including from outside their usual stakeholder group, that is up-to-date with the most relevant literature, will help illustrate the impact and business case to attract more capital for education lending and to encourage further research in areas where meaningful gaps have been identified. Ultimately, it will also help to ensure a better return on investment, increase learning, and improve efficacy and efficiency of services.

Finally, the database of sources behind this EGM will continue to grow as new studies are published, and can therefore serve as a key research database that is continuously maintained over the lifetime of the EFN. The online interactive EGM will be updated on a quarterly basis, and the latest version can always be accessed at the following link: <https://www.edu-links.org/InteractiveEGMMap>

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### **About the Education Finance Network**

The Education Finance Network convenes diverse education stakeholders with a focus on directing non-state resources toward creating inclusive, high-quality education in low- and middle-income countries globally.

The Network is open to a broad range of organizations, including foundations and family offices, donors, impact investors, practitioner networks and research and advisory orgs. It provides members with opportunities to network, engage the public sector through policy forums, work on technical issues and trends affecting the sector through focused working groups, access members' only research, and participate in professional development.

For more information, including how to apply to become a member, go to: <https://www.edu-links.org/about/global-engagement/education-finance-network>

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