



The Spindle

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Efficiency analysis in a pilot of an accelerated education programme

Accelerated education (AE) programmes promote access to education in an accelerated time-frame for disadvantaged groups, including over-age out-of-school children and youth who missed out, or had their education interrupted due to poverty, marginalisation, conflict and crisis. The goal of AE is to provide learners with equivalent certified competencies for basic education and learning approaches that match their level of cognitive maturity. This case explains how to analyse efficiency when piloting an AE programme in a country.

The Partos Efficiency Lab, November 2017

This case is one of a series of ten that was produced in the framework of the Partos Efficiency Lab. See back cover for more information.

Project at-a-glance

- Project type: Accelerated Education programme
- Geographic intervention area: Country in the Middle East
- Project budget: EUR 0.7 million
- Budgeted for end-of-project evaluation: EUR 30,000
- Project Duration: 3 years

In a Middle Eastern Country, in spite of international investment in incorporating refugees, UNICEF estimates that more than 90,000 Syrian refugee children are currently out of school, and up to 30 per cent of them have never attended any form of formal education. This leaves a generation of young people without an education to thrive as citizens and work in a labour market that increasingly requires basic education.

In response to this issue, NGOs have begun to develop short courses that allow young people to gain basic education qualification. This will allow them to find their way back into the formal education system. Young people want to learn, and these programs find great resonance amongst children who have not had the opportunity to enter education or have been forced to leave education due to economic or social strife

Project objective

The project objective is to pilot a basic education programme for refugee children who are currently not able to go to school. Within 3 years, 960 children will have obtained a basic education certificate. This experience will provide a basis for scaling up the Accelerated Education programme.

Project approach

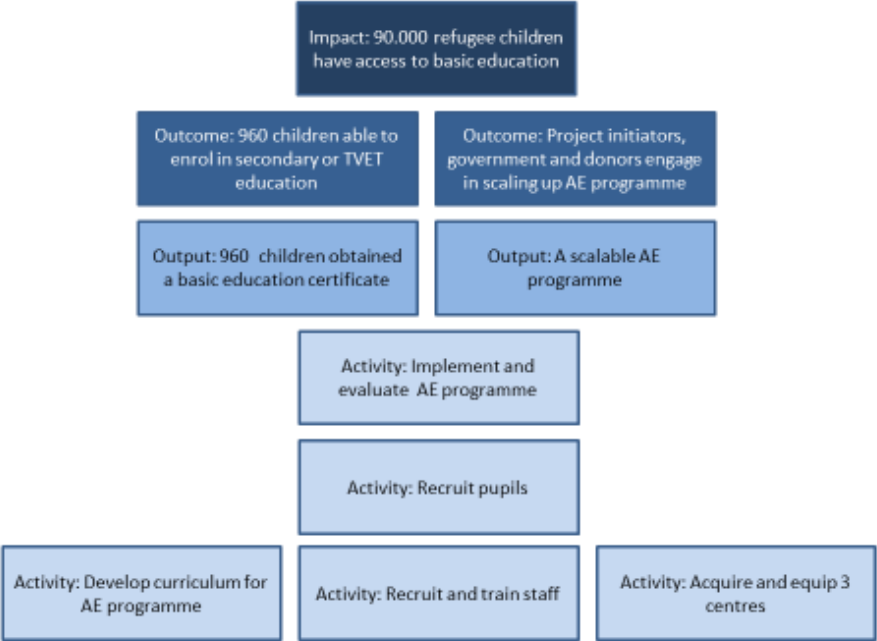
The program under discussion is a new accelerated education program that is being set up in a new country by an International NGO new to this education approach (but not the country). As such, it requires the creation of content for this program as well as the hiring of staff to support this program.

The organization imagines this project as a pilot, forming the basis of a program that they will be able to scale to new centres. Though it is an area of interest, there are only a few bilateral donors who would be able to support such a program at scale.

The program aims to develop an accelerated education curriculum that aligns with the government standard. Due to the novelty of this approach, there is no set accelerated education curriculum for the country. During an initial 6-month period national staff will develop with the government as well as international support pedagogical approaches based on international standards.

The pilot requires the organization to set up 3 centres in three communities requiring the renting plus the outfitting of the centres for students. This investment is for a period of three years and assumes 2 full cycles of students (80 per year) to go through the program. Total program numbers are 960 students for the initial project.

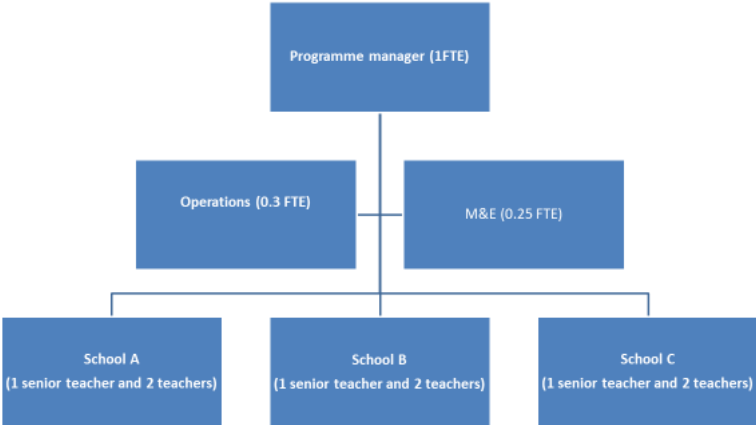
Theory of Change



Project organisation

At the national office, there is a program officer, a quarter of an M&E staff person time, as well as time required for finance and operations of the centres.

At each centre, there are 3 groups at any one time with 2 teachers plus a senior teacher/centre manager who is responsible for broader program implementation. These individuals had to be trained for 3 weeks to ensure that they are able to handle some of the challenges of dealing with children who may have experienced personal issues or crisis.



Recommended approaches for assessing efficiency

Notes on applicable tools and methods, Markus Palenberg

This note summarizes tools and methods that can be applied to assess efficiency in the accelerated education program pilot project (case #2). It reflects my personal assessment and views.

After brief remarks on the case (Section 1), I discuss applicable tools and methods first for level 2 (Section 2), and then for level 1 (Section 3).

1. Remarks on the case

As this is a pilot project prior to a potentially significant scale-up (factor 100), the main interest is likely in forward-looking, formative assessments of efficiency, including of scalability.

I assume that the first year of the program is for setup, and in years 2 and 3 two 1-year cohorts à 480 students attend the school (i.e. the accelerated time at school is 1 year).

2. Level 2 tools and methods

Level 2 tools and methods compare the efficiency of entire aid interventions with alternatives or benchmarks with the purpose of selecting those interventions producing the largest total net benefit with available resources.

Conducted ex-ante, level 2 tools and methods are of interest for:

- Program officers of development organizations who are in charge of project identification and design;
- Funders who need to select projects to which resources will be allocated; and
- Evaluators tasked to evaluate efficiency.

The methods in this group can also be conducted ex-post for accountability and learning purposes, i.e. to verify or correct ex-ante estimates, to improve assumptions for subsequent ex-ante application, and to help project managers improve on operational performance

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Cost-Effectiveness Analysis (CEA)

A Cost-Effectiveness Analysis (CEA) can be conducted that estimates (ex-ante) or measures (ex-post) education-related cost-effectiveness indicators for the pilot project. Those provide benchmarks that can be compared to other accelerated basic education programs, and e.g. with the cost of pre-war Syrian basic education.

As efficiency gains are to be expected after scaling the program up, this CEA should be paired with an ex-ante CEA for the scaled-up program that incorporates realistic assumptions for economy-of-scale effects. For the latter, sensitivity analysis would be important to obtain a sense of dependence of the cost-effectiveness on assumptions made.

An operation-level indicator could be the cost per enrolled student. To include outcomes and approximate impacts, indicators such as the cost per graduating student, the cost per graduating

student above a certain threshold grade, or the cost per percentage point grade increase could be used.

When using cost-effectiveness ratios that involve scales, care must be taken when interpreting results. For example, benefits associated with graduation are unlikely to be proportional to grades (or grade increases), i.e. paying 10% more for 10% higher grades does usually not imply 10% more benefits. This means that only special cases can be strictly ranked¹.

If post-school employment information is available, for example from a tracer study or alumni databases, the cost per student finding employment because of the program (with and, separately, without graduation) can be determined vis-à-vis the control group of children not enrolled in this or other education programs. This would provide more insight than graduation-level indicators alone, and better approximate the ultimate benefits the program aims at (thrive as citizens and find work).

While not mentioned in the case, CEA results should likely also be disaggregated along segments in terms of gender, religion, nationality, parental situation and education level, and other dimensions deemed important to identify and address systematic disadvantages and vulnerabilities in the program.

All CEA discussed above can be applied to the first and the second cohort of students in year 2 and 3 of the program pilot, respectively (see discussion of unit cost in next section).

CEA, as outlined above, is limited in that it doesn't have much explanatory value on how (or why not) outcomes were achieved, something that can be addressed if CEA is complemented by theory-based evaluation approaches and partial efficiency analysis (see next section).

CEA as described above can usually be conducted in a matter of several days to several weeks and only requires basic economic and financial analysis skills.

Cost-Benefit Analysis (CBA)

Cost-Benefit Analysis (CBA) can also be applied. It could estimate the net benefits, for example in terms of additional expected earnings related to the education program, compared to those of children without access to the program. Other important effects, such as to those embodied in to "thrive as citizens" are considerably harder to pinpoint, and may not lend themselves to monetarization. CBA for the present case is however of limited value because it strongly hinges on post-program education, career and life choice assumptions. This said, demonstrated high social return on invest for the scaled-up program could be an important enabling argument for prospective donors to the scaled-up program.

Conducting a CBA usually takes several to many weeks and requires advanced economic analysis skills.

Multiple-Attribute Decision-Making (MADM)

Scoring models, a pragmatic method for Multiple-Attribute Decision-Making (MADM) can usefully be applied to the present case at two points in time: before the pilot program to facilitate pilot design, and after the pilot to facilitate design decisions for the scaled-up program.

¹ For example, for the same cost, increasing grades from 70% to 80% is preferable to increasing from 70% to 75% (criterion of dominance), but for the same cost, increasing grades from 70% to 80% cannot be ranked with respect to increasing from 75% to 90%, at least not without additional information.

MADM methods and tools facilitate decision-making in the face of incomplete data and uncertainty. As such, they complement rather than replace other methods, i.e. they could, for example, build on results of level 1 efficiency analysis (see next section) or any other evaluative information.

A MADM scoring model calculates total scores for different intervention alternatives based on a set of weighted criteria. Scoring models are best used iteratively, i.e. by inviting the adjustment of previously established criteria and weights after initial scoring until the model best reflects available information and data, and the professional opinions, experiences and preferences of those conducting the exercise. The main advantage of this approach is that the decision-making process is transparent to the decision-maker and to stakeholders. It is also systematic in the sense that criteria, weights and scores can be critiqued separately, leading to more informed decisions. However, the transparency of this approach can become caveat if decisions are significantly driven by arguments decision-makers decline to share; something to ascertain before deciding to implement it.

In the present case, criteria could be, for example, expected effectiveness of different curriculum choices, cost, didactic approach, class size, etc. The final set of criteria, weights and the actual scores should be developed in a participatory process, for example by a group of education experts with local experience.

Scoring models usually require several days of analysis time and basic analytical and stakeholder interaction skills.

3. Applicable level 1 tools and methods

Level 1 tools and methods identify efficiency improvement potential in one project. While level 2 methods compare the outcome/impact efficiency of different interventions, level 1 analysis focuses on the operational efficiency of a single intervention.

Level 1 tools and methods are often conducted ex-post. They are of interest to:

- Project managers responsible for project planning and implementation;
- Funders and program officers of development organizations who want to ensure that funded projects operate with maximal efficiency; and
- Evaluators tasked to evaluate efficiency.

Methods in this group can also be applied ex-ante (or during implementation) to inform project design and to adjust project approaches and implementation plans.

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Several level 1 tools and methods are useful for evaluating the project at hand.

Cost-Effectiveness Analysis (CEA)

The CEA approaches discussed in the previous section can also be applied project-internally, for example by benchmarking the three locations against each other, or by comparing first and second-year student cohorts. A flexible alternative to CEA based on graduation and grade data is to survey students vis-à-vis their non-enrolled peers, and base CEA on the cost for achieving improvements in surveyed dimensions. While based on subjective data, this approach would allow to test for softer (but not necessarily less important) effects such as increased self-confidence, perceived learning and improved future economic outlook.

Benchmarking of unit costs and other partial efficiency indicators

Similarly, unit costs benchmarking can be applied in several ways for this project. In project-related procurement of goods and remuneration of teaching and administrative staff can be benchmarked to identify savings potentials. The above-mentioned internal CEA benchmarking is very similar to unit cost benchmarking in terms of methodology, although I would refrain from using that terminology when people are involved.

A principal caveat with unit costs benchmarking is that it does not allow straightforward conclusions about outcome/impact-level effectiveness and efficiency. For example, higher teacher salaries may indicate overspending but can also be entirely justified by better qualification or performance. Therefore, unit cost benchmarking is a useful tool for identifying potential operational (in)efficiencies but needs to be complemented by further analysis before conclusions can be drawn. In contrast, unit cost benchmarking works well if prices for the identical goods are compared, as for example in the case of books, computers, and other teaching materials. Similar caveats hold for all level 1 tools and methods as they all focus on partial efficiency (rather than outcome/impact level efficiency).

Apart from unit cost, other partial efficiency indicators can be useful as well, especially when tracking key assumptions made in the project, especially if there is an underlying didactic theory of change connecting project activities and context factors with intended learning outcomes.

Unit costs and partial efficiency indicators can also be compared across different projects, but care must be taken that they allow for meaningful benchmarking. On a technical level, this requires that they are calculated with the same protocol. On a qualitative level, it means that they are applied to similar projects under similar conditions.

Benchmarking of unit costs and other partial efficiency indicators can usually be done in a matter of days (provided required information is available) and does only require basic analytical and quantitative skills.

"Follow the Money" approach

A simple and straightforward approach with high potential for identifying cost saving potential in the project at hand is the "Follow the Money" approach. When applying it, the evaluator systematically disaggregates total project expenditures and, for each budget or expense category, conducts additional analysis to determine whether there is cost-saving (or yield increase) potential. In the present case this could e.g. include the above-mentioned unit cost benchmarking but also expenditures for administration, management and M&E.

One strength of this approach is that it systematically screens all project expenses. A weakness is, as with all level 1 methods, that it is often difficult to judge outcome/impact-level consequences associated with lower cost options.

Applying the Follow the Money approach requires one to several weeks. Evaluators require basic analytical, financial, and problem-solving skills.

Comparative ratings by stakeholders

A participatory method that can be useful in the present case is to ask or systematically survey stakeholders, for example the students themselves, their parents and their teachers for their opinions on perceived effectiveness and efficiency, for example of different didactic models, curricula, schedules and physical setups. Questions can directly aim at partial efficiency or, if cost considerations are difficult to assess for respondents, at effectiveness (which the evaluator then complements with information on costs during analysis).

Comparative ratings usually require time for conducting survey with a sample or all targeted stakeholders. In addition, only little time (e.g. several days) is required for conducting the analysis. Evaluators need basic analytical and survey skills.

Data Envelopment Analysis and Stochastic Frontier Analysis

Although I'm not familiar with these methods, statistical economic analysis such as Data Envelopment Analysis and Stochastic Frontier Analysis may become useful once the program has been scaled up. As far as I understand, these methods allow to compare large numbers of delivery units (in this case the centres for accelerated education, their teachers or their classes) with each other across multiple efficiency criteria.

