

Putting SDG4 into practice



Economic Evaluation of Continuous Professional Development in Education

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Glossary of Acronyms

Throughout this technical brief we use the following acronyms:

ADDIE: Analysis, development and design, implementation and evaluation

BOET: Bureau of Education and Training (Vietnam)

CA: Cost analysis

CASME: Centre for the Advancement of Science and Mathematics

CEA: Cost-effectiveness analysis

CPD: Continuous professional development

DOET: District Office of Education and Training (Vietnam)

EGRI: Early Grade Reading Instruction (VVOB project in South Africa)

ICT: Information and communication technology

INCREASE: Implementing National Curriculum Reforms through App-based Learning for School Leaders in Secondary Education (VVOB project in Kenya)

IT: Information technology

KAP: Knowledge, attitude and practices

KEMI: Kenyan Education Management Institute

LEAD: Learning through Assessment and Data (VVOB project in Rwanda)

LMS: Learning management system

MOET: Ministry of Education and Training (Vietnam)

MOE: Ministry of Education

PLC: Professional learning community

SDG4: Sustainable Development Goal 4 of Quality Education

SLP: Social learning platform

TaRL: Teaching at the Right Level



INTRO

The costly and difficult work of getting children into school has mostly been accomplished. Globally, the adjusted net attendance rate reached 87 per cent in 2021, and about four out of five children attending primary education completed it (UNICEF, 2022). Yet, being in school does not equate to learning and we are facing a global learning crisis (World Development Report, 2018).

An estimated 70 per cent of 10-year-old children in low- and middle-income countries are experiencing learning poverty, meaning that they are unable to read and understand a simple age-appropriate text. This learning crisis is distributed unequally and disproportionately affecting the most vulnerable children. However, as this technical brief suggests, focusing on the most cost-effective initiatives can offer significant boosts to learning outcomes which could be achieved at relatively low costs (Angrist et al., 2023).

Why Economic Evaluation Matters

Prioritising the development of effective teachers plays a crucial role in fostering student learning. By investing in Continuous Professional Development (CPD) for teachers, we can equip them with the skills and knowledge necessary to create engaging and effective learning environments for all children. Over the last few years, many resources have been invested in evaluating the impact of CPD (Evans & Popova, 2015; Popova et al., 2022) although calculating the costs of CPD initiative implementation has received less attention (Brown & Tanner, 2019). This may seem surprising since a low unit cost contributes just as much to making a CPD initiative 'cost effective' as high impact costs.

Recently, many financial partners have underwritten the importance of economic evaluation. For example, the United States Agency for International Development (USAID) has made cost calculations mandatory in all its projects. The latest Global Education Advisory Panel report (Akyeampong et al., 2023) recommends three "great buys" — initiatives that are highly cost-effective and are supported by a strong body of evidence.

Understanding the cost of initiatives is also critical for delivering quality education at scale. In a world with limited resources, cost is an important consideration. Policymakers and implementing agencies constantly face budget constraints and only by knowing the effectiveness and costs of an initiative can they make informed cost allocations. Cost metrics can help governments to identify opportunities to save money and estimate the required budgets to pilot or expand initiatives.

In the context of Sustainable Development Goal 4 (SDG4) of Quality Education, economic evaluation helps to ensure that limited resources are used in the most impactful way so that more children get access to quality education.

What Economic Evaluation Is

Cost analysis and cost effectiveness analysis are economic evaluation methods used to compare various courses of action. Their fundamental goal is to improve the allocation of resources. They differ in the way that they measure costs and benefits (Levin & Belfield, 2015).

Cost Analysis (CA) only considers the costs of a project, without taking into account any of its benefits. This type of analysis is often used to make decisions about whether a project fits within the available budget or collate the costs of the different options involved when implementing a project (Levin & McEwan, 2001).

What we can learn from cost analysis:

- What is the full cost of the initiative (and alternatives)?
- What is the cost per recipient of the initiative (and alternatives)?
- What would be the cost of scaling up the initiative (and alternatives)?
- How are costs distributed across cost categories? (personnel vs materials)?
- What is the cost per ingredient to inform cost reduction decisions?
- How are costs distributed across one-time costs versus recurring costs?
- What are cost implications of a change to the initiative?
- How might scaling change costs?

Cost-Effectiveness Analysis (CEA) is used to weigh up the costs and outcomes of alternative initiatives with similar educational goals such as improved literacy outcomes. CEA enables comparison of the relative advantages of different projects by using an equivalent but non-monetary outcome (Glandon et al., 2022) and offers insights into which initiatives provide the greatest value for money.

What we can learn from cost effectiveness analysis:

- What is the lowest cost alternative to achieve a given educational goal?
- Which initiative results in the highest outcome for a given amount of budget?
- Are we enacting the types of initiatives which have been found to be cost effective?



An Example of Cost Effective Analysis

An important component of a CEA is the selection of the outcome measure. In Kenya, for example, an economic evaluation has enabled the Kenyan Ministry of Education to develop an evidence-informed strategy with the aim of institutionalising a cost-effective modality for the CPD of school leaders.

The **INCREASE project**, led by VVOB and the Kenyan Education Management Institute (KEMI) in partnership with the Ministry, aims to enhance the instructional leadership skills of junior secondary school leaders and thereby facilitate the effective roll-out of Kenya's new competence-based curriculum.

The project is implemented at different points in time in three cohorts of school leaders with similar characteristics. Each cohort applies a different type of blended CPD.

This means that each cohort will receive a different combination of in-person and distance (online) instruction. There may also be differences in the delivery method resulting from iterative design improvements or changes in the context. The economic evaluation will focus on the second and third cohort. The challenge is to establish appropriate comparable cost and effectiveness measures of school leaders' pedagogical support for school-based CPD across the cohorts.

The outcome for the CEA is the number of school leaders who provide the necessary pedagogical championing for school-based CPD to aid the effective establishment of the competency-based curriculum. A common methodology applicable to varying sets of data will be developed and adjustments made to account for differences in time and inflation rates.

VVOB's Approach to Economic Evaluation

Information on costings is a key input for designing scalable and sustainable programmes. In several countries, pilot studies have been set up. Between May and August 2023, VVOB staff participated in a learning trajectory on economic evaluation, led by Dr Clive Belfield, a Professor of Economics at Queens College, City University of New York and the author of several publications on the subject. This has helped crystallise our approach to economic evaluations. Below we describe essential elements of that approach which are illustrated with perspectives from various projects.



The Ingredients Approach as a Framework for Economic Evaluation

Economic evaluation should be based on a credible method that provides consistency and transparency in economic calculations. The ingredients approach (Levin et al., 2018) is a technique to determine the total cost of an initiative by identifying and estimating the individual cost elements that make up its total cost. If one thinks of an initiative as a recipe, the inputs are all the 'ingredients' necessary to make the dish. This method breaks the cost down into distinct components such as labour (time), materials, overhead as well as other direct costs and assigns a monetary value to each. It provides a comprehensive view of the cost structure and helps us understand the relative significance of each cost feature.

The starting point for the ingredients approach is the Theory of Change of a project which is used to develop a list of the inputs, activities and outputs needed to achieve the outcome(s).

This can be the development of materials, training master trainers, orienting government staff and delivery activities such as training, monitoring and mentoring as well as Professional Learning Community (PLC) sessions.

In **South Africa**, VVOB is using a simplified overview of ingredients (shown in Figure 1) for a CPD initiative as part of the **BLEND project**. The initial stage is to develop the project. Activities include creating learning materials, training facilitators and recruiting participants. The next stage is to deliver the project to teachers and school leaders. This delivery may include various activities, most of which require time from education professionals. The final stage looks at outcomes. There are two outcomes: improvements in classroom instructional practices by teachers; and changes in school operations by school leaders.

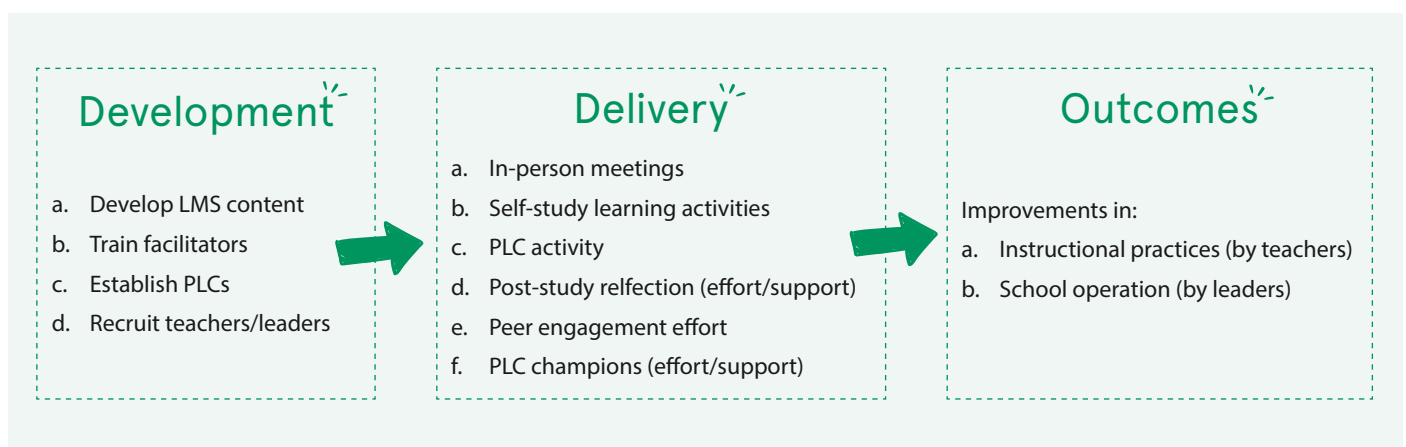


Figure 1: Simplified overview of ingredients for development, delivery and resulting outcomes for a CPD initiative in South Africa

Thereafter, ingredients and their costs are listed in a resource map. This map identifies the same phases of the initiative, which stages are to be costed out for each initiative modality and who funds each resource. Figure 2 shows an example of a resource map that compares two delivery modalities for a CPD initiative (called SA_BLEND and SA_BLEND+ respectively). The map includes the CPD activities (column 1) and who is undertaking them (columns 2–6). Light-shaded cells indicate where resources are required for both modalities and dark-shaded cells denote where resources are needed only for one modality.



	School			Agency	
	Teachers	Leaders	CASME	VVOB	DoE/District
<i>Programme creation:</i>	-	-	x	x	-
Develop LMS content	-	-	-		
Train facilitators	-	-	-		
Establish PLCs	-				
Recruit teachers/leaders	-				
<i>Programme delivery:</i>	-				
In-person meetings	-		-	-	-
Self-study learning activities	-		-	-	-
PLC activity	-		-		-
Post-study reflection: effort/support	-		-		-
Peer engagement effort (via SLP)	-		-	-	-
PLC champions: effort/support	-		-		-
<i>Induced resource change:</i>	-				
Teacher instructional practice	x	x	-	-	-
School practices	x	x	-	-	-

Source: Author calculations

CASME: Centre for the Advancement of Science and Mathematics
 LMS: Learning Management System
 PLC: Professional Learning Community
 SLP: Social Learning Platform

x: Resources required but not included in BLEND evaluation
 -: No resource use expected
 Light shading: Resources required for SA_BLEND and SA_BLEND+
 Dark shading: Resources required for SA_BLEND+ only

Figure 2: Resource map for two blended modalities of a CPD initiative in South Africa

In **Zambia**, a cost analysis was conducted on the Teaching at the Right Level (“Catch Up”) initiative, an accelerated learning programme that enables learners in grades 3–5 to catch up on foundational skills. Table 1 shows the main cost ingredients per implementation phase and distinguishes between the cost to pilot, implement and sustain the initiative.

Phase	Description	Included in Analysis	Timeline of Scaling Scenarios
Design/Pilot	High level design and planning workshops that build Master Trainer and government capacity to support the programme and a train the trainer model. Activities included in this component of the analysis are: <ul style="list-style-type: none"> • Overarching design workshop • Materials and content workshop • Monitoring and mentoring workshop 	Yes	Pre-Year 1
Pilot Trainings	Initial trainings that build education department employees' capacity to support and administer Teaching at the Right Level programme. Activities include: <ul style="list-style-type: none"> • Master trainer training (including school site practice days) • Mentor training (including school site practice days) • Teacher training 	Yes	Year 1
Implement	Core activities of the programme being delivered to students and progress monitored by government groups from local to state levels. Costed activities include: <ul style="list-style-type: none"> • Teachers administer and analyse assessments • Teachers plan/teach student groups based on assessment data • Learning data is collected and verified • School support officers conduct school visits to observe lessons and provide feedback for improvement • Weekly school review meetings • Continuous teacher refresher trainings • Steering committee review and dissemination meetings 	Yes	Year 1
Supplemental Implementation Activities	In some states the programme has adapted to include additional education support activities (for example, radio broadcasts or off-site support for teachers)	No	Year 1 + Year 2
Sustain	After a full year of implementation has been completed this phase captures the activities that are needed to sustain the programme over a longer period of time. <ul style="list-style-type: none"> • Materials and curriculum review • Mentor refresher training • Annual teacher refresher training • Distribution of lesson materials 	Yes	Year 2+

Table 1: Main ingredients of the Catch Up initiative (Zambia) per implementation phase

Assessing Costs of an Initiative

Combining Accounting Data with Budget Estimates

Data for economic evaluation need to be disaggregated and specific to the initiative. Such data can be obtained by interviewing people, observing the initiative in action, monitoring and evaluating data as well as using financial information. Time data (e.g. diaries) can help to estimate inputs such as facilitation time and labour.

However, economic evaluation often goes beyond what is included in budgets. Staff time costs, costs from partners or expenditure borne by beneficiaries might not be available or not be sufficiently detailed. Secondly, the budget applies to the initiative at that time and place whereas an economic evaluation may aim for broader significance.

Therefore, an economic evaluation will often use averages and ranges of cost elements and include a sensitivity analysis to explore various cost estimates and scenarios. The cost of a workshop may depend on the region, the venue, the season and the number of participants. If we want the results of an economic evaluation to have relevance beyond that workshop, we need to know the variation in the costs.

In **Kenya**, VVOB's **INCREASE project** uses market prices to estimate the costs of project ingredients. The Research and Implementation Teams have identified the ingredients required to achieve the outcomes (Table 2).

S/No.	Project ingredients	Cost Elements
1	Training facilitation	Content development and review
		Learning management system (LMS) maintenance
		KEMI - App software licenses
		Training facilitators' daily sustenance allowance
		Training participants' daily sustenance allowance
		Venue
		Computers and audio-visual equipment
		Catering services
		Communication
		Documentation
2	Registration and enrolment	Management of participants registrations
		Administration costs
3	Monitoring and evaluation	Tool development
		Data collection
		Report writing
		Findings dissemination
4	Stakeholder engagement	Daily sustenance allowance during face-to-face meetings
5	IT	Facilitators' internet
		Participants' internet
		Technical support
6	Time costs	Facilitators' time
		Participants'

Table 2: INCREASE project (Kenya) ingredients and cost elements

Sensitivity Testing

Economic evaluation often works with cost ranges that reflect the variation in costs depending on location, time or other circumstances. Sensitivity testing is performed using input amounts and prices to check how much the results change under alternative assumptions.

In **Kenya**, in VVOB's **INCREASE project**, the scenarios for sensitivity analysis will be determined by considering various cost parameters (direct costs, indirect costs, inflation rates and discount rates) and effectiveness measures for school leaders. In **South Africa**, teacher time committed to online learning activities and the amount of support needed to maintain teacher engagement within PLCs were identified as key parameters in the cost estimation. These parameters were used in the sensitivity analysis which showed that when assumptions for teacher engagement in the asynchronous learning modality were changed, the cost difference with the synchronous learning modality increased. This was because reduced learner engagement in the synchronous learning modality resulted in a lower cost of time spent, not only by participants but also by facilitators.



Cost Perspectives

The assumptions in an economic evaluation should reflect the perspective of the user of the results. An analysis can be carried out from the perspective of the Ministry of Education. What would it cost for the Ministry to run the initiative? perspective will exclude costs incurred by beneficiaries (i.e. teachers, parents) such as their electricity or internet costs. An evaluation could adopt the perspective of a donor or implementing agency, focusing on the costs to implement the initiative in another region or country. What would it cost to implement the initiative in another province? An evaluation can also take on a social perspective where all resources required to implement the initiative are included, regardless of who is incurring them. A social perspective is valuable for informing the public about the full costs of an initiative (Levin & Belfield, 2015).

In the **BLEND project**, a blended CPD trajectory was developed for education professionals in **Vietnam and South Africa**. Costs to develop the materials and learning environment would not need to be incurred again when the project is scaled to other regions. This approach reflects the perspective of education professionals (at the school, district or Ministry of Education level) who need to know what it would cost — per teacher per school year — to implement the trajectory.

In **Uganda**, as part of discussions on scaling up **UCatchUp**, the contextualised Teaching at the Right Level (TaRL) model in the country, the government is interested in the cost of delivering the initiative at scale. Specifically, the government seeks to know the cost of institutionalising the approach and offering periodic refresher training sessions and mentoring visits. Therefore, a cost analysis will assume a government perspective. In doing so, the cost analysis will provide information on the cost for the government to deliver UCatchUp, excluding the cost of designing the initiative. Much of the initial set up costs constitute capacity development of master trainers who are responsible for cascading the training to teachers and mentors, introductory training of teachers and mentors, material development and distribution as well as setting up monitoring and evaluation systems. A process analysis will provide insight into the implementation fidelity of UCatchUp and improve the accuracy of cost estimates.

Measuring Implementation Fidelity

Implementation fidelity is the degree to which an initiative is implemented as intended. This is crucial in economic evaluation since there might be a difference between what was planned in the budget and Theory of Change and what actually happened. Furthermore, it also helps to ensure that the results of the economic evaluation are accurate.

Low success of a project can be due to the initiative not being effective or because the initiative was not implemented as foreseen. Also, the cost of the initiative will be affected if it is not implemented as planned. For example, if not all training sessions take place as intended or not all teachers participate, the cost of the initiative will be lower than planned. If many teachers drop out of a CPD programme and, as a result, more teachers need to be enrolled to attain completion targets, then the cost of the initiative will be higher.

It is generally much easier and more accurate to collect cost information during the implementation of an initiative rather than trying to piece together the data after it has ended. For example, how much time do VVOB staff, trainers, beneficiaries etc. spend on the initiative? How often do computers need to be repaired?

Time is Money

In many projects, time is a critical cost component. Staff and partners spend time developing training materials, training and coaching trainers, monitoring implementation and analysing data. Trainers and teachers spend time travelling to workshops. Government staff devote time to coordination meetings and reading reports.

Time expended can be accounted for by using the opportunity cost of time. This is the value of the time that could have been used for other activities. Opportunity costs can be estimated by using salary costs. In some cases, trainers and trainees receive training fees and allowances to compensate them for any opportunity costs. For example, if a teacher spends one day attending a professional development programme, the opportunity cost of their time is the value of that day of teaching that they could have provided instead. Usually, key prices of personnel ingredients are standardised to remove any idiosyncratic prices (e.g. related to labour market location). For example, in the **BLEND project in South Africa and Vietnam**, we did not consider actual salaries of individual teachers but used average national salaries for teachers with equivalent credentials and experience. These standardised prices help education professionals across the country to understand the cost of the project.

In **Rwanda**, VVOB has estimated how much time trainers and trainees spend on facilitating or participating in a CPD programme (Table 3). This is based on diaries and data from online engagements.



Week	Activities	Time estimation per trainer (minute)	Total per unit (minute)	Total per unit (hour)
1	Two forum discussions	60	135	2.25
	Follow up and reminders	60		
	Report	15		
2	One forum discussion	30	105	1.75
	Follow up and reminders	60		
	Report	15		
3	One forum discussion	30	105	1.75
	Follow up and reminders	60		
	Report	15		
4	One forum discussion	30	105	1.75
	Follow up and reminders	60		
	Report	15		
5	Two forum discussions	60	195	3.25
	Graded forum discussion	60		
	Follow up and reminders	60		
	Report	15		
Module Total			645	10.75

Table 3: Estimated time spent per trainer per module on a school leadership CPD programme in Rwanda

Time investment could be calculated per phase, for example using the stages of the ADDIE (Analysis, Development and Design, Implementation and Evaluation) model.

In the **BLEND project in Vietnam**, personnel time was the primary cost ingredient. Time costs were limited to one financial year. The Time Costs Ingredients Framework included (see Table 4):

1. School Personnel (hours): Teachers, School Leaders, PLC leaders
2. Agency Personnel (VVOB, MOET)
3. Contract Personnel (hours): Content Facilitators, Digital Coordinators.

Prices for personnel are based on earnings per full-time equivalent year and wages per hour for workers with a standardised level of experience and education. Figure 3 shows the pricing framework for the BLEND project in Vietnam.

Since time is likely to be one of the primary cost ingredients in this kind of initiative, ignoring the cost of time may lead to a biased perception about its cost.

Stakeholders	Type of Time Spent	Data Collection Methods
School Personnel: Teachers, School Leaders, PLC Champions	Direct: Participating in training and PLC sessions Indirect: Preparation before/after training and PLC sessions	Estimates Interviews
Agency Personnel: VVOB	Regular working time Overtime	Estimates based on staff salary and benefit packages
Agency Personnel: MOET, DOET, BOET	Direct: Participating in training, workshops and other project activities Indirect: Supporting, supervising, and monitoring	Based on an EU/UN cost norm and salary scale system regulated by the government
Contract Personnel: Content Trainers, Facilitators, Digital Coordinators	Consultancy time	<ul style="list-style-type: none"> • Contracted costs • Estimates based on local wage system or market prices

Table 4: Time costs ingredients framework from the BLEND project in Vietnam

Pricing Framework

Personnel Annual Earnings:

- Teachers (T) VND25m: Average of teacher wages, <10 years experience
- Leaders (L) VND45m: Average of senior teacher wages; 5–15 years experience
- PLC champion (T/L) VND35m: Average of teacher wages; 5–15 years experience
- Education Advisors VND40m: Average of education sector worker (median); Teacher with 5–15 years of experience
- Agency persons (VVOB) VND 62m: Average of finance sector worker (median); Senior teacher with 10–20 years of experience
- Content facilitators; digital coordinators VND 38m: Computing sector worker (median) wage

Time parameters:

- Amortisation rate 10%
- Discount rate 5%

Exchange rate values:

- Market exchange rate Dong = 0.000043USD (SD, 0.000003)
- PPP exchange rate Dong = 0.000135USD (SD, 0.000006)

Figure 3: Pricing Framework for the BLEND Project in Vietnam



Costs of Capacity Development

VVOB projects are co-implemented with government partners, with the objective that, after an initial phase of capacity strengthening and co-implementation, the initiative is institutionalised. This means that an economic evaluation should distinguish between the costs to strengthen the capacity of government partners and costs incurred to deliver the initiative.

Which costs to take into account depends on the perspective taken. In a social perspective, all the costs regardless of which stakeholder (donor, government, teachers, parents etc.) bears the costs are included. A government perspective only comprises the costs for the government to deliver the initiative.

In **Rwanda**, costs for the capacity development of partners and delivery of CPD to school leaders are budgeted under separate milestones (within the same result). Another consideration is the reduction in capacity development costs when CPD is provided over successive cohorts (assuming trainers are the same).

Useful questions are:

- What costs are made for the capacity development of government partners and what costs correspond to the CPD of teachers or school leaders?
- What costs are needed to continue running the initiative after donor funding ends?
- What costs are related to the development, implementation and evaluation of an initiative?
- At what time interval do activities need to be repeated to maintain quality such as training newly appointed teachers, organising refresher trainings, printing and distributing learning materials or replacing ICT equipment?

Comparing Initiative Modalities

Many decisions are made when designing an initiative. How many days of training are needed: in-person and online? Do we include in-person or remote mentoring? Determining these choices is based on an – at times implicit – assessment of their effectiveness and cost. At VVOB, economic evaluation helps us and our partners make those decisions.

Economic evaluation can generate useful information about initiatives, including:

Assessing the Scalability of an Initiative

Economic evaluation can help to identify the costs of delivering an initiative at scale. This information can be used to decide whether to invest in expanding the initiative and develop strategies for making the initiative more sustainable. If an economic evaluation shows that the cost of delivering an initiative is prohibitive for large-scale implementation, we may investigate a more cost-effective version or identify alternative funding sources. For example, in-person coaching has been shown to be effective but expensive and therefore hard-to-scale. Some projects have experimented with alternative forms of coaching such as phone coaching, chatbots and peer coaching.

Identifying the Core of an Initiative

Economic evaluation can help to identify the most important components of an initiative and distinguish between core and non-core elements. This information can be utilised to develop a minimum viable product for the project and focus resources on the most effective components. For example, if an economic evaluation shows that a field visit component of a CPD programme is relatively expensive but does not contribute significantly to the general effectiveness of the project, it may be possible to remove this component without sacrificing its overall quality.

Comparing the Cost-Effectiveness of CPD Modalities

Taking CPD as an example, economic evaluation can be employed to compare the cost-effectiveness of blended CPD and in-person CPD. This information can be applied to make decisions about which type of CPD initiative to invest in and identify the contexts where each type of initiative is most likely to be cost-effective. For example, if an economic evaluation shows that blended CPD can be as productive as in-person CPD, but at a lower cost, it may be possible to transition to blended CPD. Another example relates to the duration of CPD initiatives. If we want to minimise the amount of time teachers need to spend out of school, it would be useful to contrast the cost and effectiveness of a longer training programme with a shorter one.

In **Rwanda**, the framework of VVOB's **Learning through Assessment and Data (LEAD) project** supports primary school leaders to use data for effective school leadership. In the project, four cohorts of school leaders engage in a blended CPD programme over four years. A cost analysis of delivering a CPD initiative serves as a foundation for discussions on scalability and sustainability with the government partners. Therefore, a cost analysis is conducted from a government perspective and seeks to determine the costs of delivering CPD.

The analysis begins by itemising all ingredients required for delivering the initiative. These ingredients are listed in the first column of Table 5 and include expenditure related to the development of trainer capacities (joint learning with trainers) as well as all elements associated with CPD implementation (in-person sessions, field visits, online learning and more). Thereafter, actual expenses were used to calculate the cost of each ingredient. This exercise allowed the identification of the most expensive ingredients (second column in Table 5).

This analysis forms the cornerstone to engage in dialogues with partners on potential cost reductions for future cohorts while maintaining quality. These discussions are also about the types of (in-kind) contributions that government and participants can make to enhance the institutionalisation of the project. Based on the discussions, an implementation scenario has been developed to reduce the cost per participant in the next cohort by 28 per cent.

Cost of Pilots and Initiatives at Scale

Economic evaluation can help to gain insight into different costs between a pilot initiative and scaling by identifying and quantifying the costs associated with each stage of the initiative.

One key difference between pilots and initiatives at scale is the type of costs involved. Pilots typically have more one-time costs such as the costs of developing materials and training staff. Scaled initiatives usually incur a bigger share of recurring costs such as the costs of delivering initiatives to a larger number of participants and maintaining the project infrastructure. When conducting an economic evaluation of a pilot, it is important to identify and quantify all relevant costs including both one-time costs and recurring costs. This information can then be used to develop a budget for expanding the initiative. For example, if an economic evaluation shows that the costs of a pilot are relatively high, it may be possible to save money by scaling the initiative using existing materials, motivated teachers and school leaders or peer mentors.

In **Zambia**, the Ministry of Education (MoE) has been driving the implementation of the **Catch Up** initiative since 2016. Cost analysis is being conducted to gain insight into the costs to scale and sustain the initiative nationally compared to the

Ingredient	Cost Distribution
In-Person Sessions (13 days)	32%
Joint Learning with Trainers	19%
Field Visits (2)	13%
Blended Learning Onboarding Course	12%
Exams (4 days)	10%
Printing, Trainee Package	5%
E-Learning Allowances	5%
Registration Fees	3%
Moodle Hosting	1%
Total	100%

Table 5: Cost distribution of the CPD diploma programme in effective school leadership (Cohort 1) in Rwanda

pilot cost. Preliminary results suggest that the difference between pilot stage costs and the cost to sustain the initiative on a national scale are about a factor 6 (Table 6). The cost per child fluctuates between \$2.83 and \$18.64 depending on the stage of implementation.

Implementation of this initiative follows a cascade model which consists of equipping master trainers on Catch Up so that they can subsequently train teachers, mentors and school leaders in their districts. This means that staff in districts are oriented at different times and there is an interval of 6 to 12 months (or more, depending on the number of districts in the province and the school calendar) between the time the initiative reaches the province and Catch Up is implemented in the classroom. In addition, there are 'start up' costs during implementation such as printing costs, costs for orienting school leaders and educational staff at zones, districts and provinces as well as training staff in data entry and data portal use. After these initial outlays, the main costs are related to mentoring, monitoring and assessment which brings down the cost per learner substantially. In some provinces, the MoE has absorbed some of the costs to sustain implementation of the Catch Up initiative such as organising refresher training and review meetings (after each assessment phase).

Province	Type of Initiative	Cost per Child in 2023
Eastern	Sustaining	\$2.83
Southern	Sustaining	\$2.84
Lusaka	Sustaining	\$3.60
Muchinga	Scaling	\$10.98
Northern	Scaling	\$9.60
Luapula	Scaling	\$7.42
Central	Scaling	\$12.17
Western	Scaling	\$18.64

Table 6: Cost of Catch Up Implementation per Province in Zambia in 2023



Selecting Outcomes for Cost Effectiveness

Selecting a comparable outcome in a CEA can be challenging. The outcome should be relevant to the decision and measured in a way that allows for meaningful comparisons between initiatives. The selection of an outcome measure may affect whether an initiative is evaluated as being cost effective.

Outcomes can be selected at a direct level reaching teachers, school leaders and government staff or an indirect level reaching learners and parents. Examples of indirect outcomes are impact on test scores or other assessments of learning, completion rates, attendance rates (or dropout rates) and indicators of learner behaviour measures such as their confidence or motivation. In some cases, it is difficult to assess the significance of an education initiative on learning outcomes directly. In these cases, it may be more feasible to measure the impact of the initiative on teacher-level outcomes such as teacher knowledge, attitudes or practices. This information could then be used to infer the impact of the initiative on student learning outcomes.

In some cases, multiple cost effectiveness analyses can be performed using different outcome measures.

Examples of outcome measures include:

- Changes in competences.
- Changes in observed practice.
- Changes in intrinsic motivation.
- Changes in satisfaction rate for the CPD.
- Changes in dropout/completion rates.

In **Rwanda**, VVOB's **LEAD project** has a robust assessment and evaluation component, offering potential outcome measures for a CEA. These can encompass a range of activities, including quizzes on the learning platform Moodle, scores from assignments, e-portfolios and exams graded by facilitators, evaluation visits, completion and pass rates and Knowledge, Attitude & Practices (KAP) surveys. However, improvement of the CPD programme for the subsequent cohort lies at the heart of our support to our partners which has led to potential changes in CPD delivery. Such changes include adjustments of the assessment structure, improvements in the blended learning environment and additional training of facilitators. The challenge is choosing outcomes that reflect the effectiveness of the initiative and are as independent as possible from other effects.

In **South Africa**, VVOB has started a CEA for the **Early Grade Reading Instruction (EGRI) project**. The selection of an outcome measure was guided by policy and advocacy considerations, as well as impact and practical considerations:

- **Policy and advocacy considerations:** What outcome is important for our government partners in deciding whether to take up an initiative? For example, the government may be more inclined to adopt and fund a project where the outcome is at the level of the learner, so improved reading comprehension is valued more than improved teacher self-efficacy.
- **Practical consideration:** The outcome needs to be achievable during the initiative period and data need to be collected within the timeframe of the study. However, impact on learning outcomes is generally a long-term outcome.

Lessons Learned

CEA is an important tool for maximising the impact of limited resources in education. By identifying and prioritising the most effective initiatives, reducing waste and inefficiencies, informing policy decisions and increasing transparency and accountability, economic evaluation can help to ensure that education resources are being used in the most effective and efficient way possible.

Economic evaluation is a relatively new area of interest within the education sector and many organisations, including VVOB, are exploring and experimenting with various approaches. One area of experimentation is the type of data to use. Budget data provides the exact cost of an activity but might not be fine-grained enough or too specific for the context of the initiative. Time costs of staff, partners and beneficiaries may constitute a large part of the initiative cost and spark discussion about whether to include those costs. Collecting and analysing these various sources and types of data requires collaboration between Programme and Operations Teams within the organisation.

Undertaking economic evaluation with a cost analysis provides useful information about the main cost drivers and possible savings. The next step of a CEA requires selecting a reliable and comparable outcome measure, which, in the complexities of project contexts characterised by time effects, changes in political context, issues with implementation fidelity, trainer effects etc., is not a straightforward task.

With this note, we have outlined the journey VVOB is embarking on. In a world of scarce resources and huge challenges to achieve SDG4, economic evaluation of projects is an indispensable instrument for assigning resources to the most cost-effective initiatives.



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About VVOB

VVOB – *education for development* is an international organisation with over 40 years' experience in strengthening the quality of education systems in Africa, Asia and South America in close partnership with ministries of education and their institutions. Research shows that, of all school-based factors, the quality of teaching and school leadership has the biggest impact on learning outcomes of learners. As such, the professional development of teachers and school leaders is VVOB's primary priority in ensuring quality education for all. By working closely with governments, research institutions, committed donors and national, regional and international networks and expertise partners, VVOB strives to maximise the sustainability and potential for upscaling of its initiatives.

VVOB Focus

Children and Youth

In pursuit of quality education, VVOB focuses on strengthening the professional development of teachers and the professional development of school leaders in the following subsectors:

- **Early childhood education** to improve the quality of formal pre-primary education and assist the transition to primary school.
- **Primary education** to improve literacy, numeracy and life skills.
- **Secondary education** leading to relevant and effective learning outcomes.
- **Secondary technical and vocational education and training** to improve quality, align knowledge and skills imparted with the labour market, and integrate entrepreneurship.

Flagships

Flagships are evidence-informed and scalable initiatives with a distinct regional and international ambition. VVOB's flagships structurally address persistent educational challenges through key efforts for equitable learning outcomes. These key efforts are:

- **Gender-transformative pedagogy**, to create learning environments where harmful gender stereotypes are challenged and addressed.
- **Effective school leadership**, to create the conditions for effective teaching and learning.
- **Skilling for sustainable futures**, to ensure young people leave school with high chances at securing decent work.

VVOB Expertise

VVOB teams of experts specialise in meeting the most important education needs identified by international research and in the education strategies and priorities of VVOB's partner countries. Formalised, longstanding partnerships with governments are the steadiest pathway towards scale and sustainability. For VVOB, working in partnership with ministries of education means:

- Offering structural and sustainable solutions to support and reinforce governments and national education authorities responsible for the initial education, induction and continuous professional development of teachers and school leaders.
- Offering practical and technical education expertise and support for processes through a wide range of in-person, remote or blended methodologies, from classical training and workshops to mentoring, coaching and peer learning.
- Ensuring that partners increasingly take the lead throughout projects to guarantee sustainability.

To facilitate learning and scaling of successful projects, VVOB invests in research and knowledge generation. Based on the evidence generated, VVOB engages governmental partners and stakeholders to influence policy and practice, and to mobilise governments towards ownership and sustainability for systems change.

'Putting SDG4 into practice' Technical Briefs

VVOB – education for development


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