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Facilitating real-time cost collection and evaluating cost-effectiveness in a multi-armed study with government partners in Ghana

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ABSTRACT

Cost-effectiveness analysis (CEA) provides partners with information for allocating limited budget resources. Challenges in conducting CEAs include collecting data across multiple sources, introducing cost ssumptions, and delivering the results to partners. This paper introduces strategies to address these challenges using the example of the Strengthening Accountability to Reach All Students (STARS) project, a government-implemented differentiated instruction project in Ghana. To implement the programme for one school year, including opportunity costs related to training, the differentiated instruction plus basic management arm cost $48 per child, while the differentiated instruction plus basic and enhanced management training arm cost $84 per child.

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Cost-effectiveness analysis; education; cost collection; cost analysis; targeted instruction

1. Introduction

Cost-effectiveness analysis (CEA) provides organisations and policymakers with useful information for scaling or replicating projects. Comparing the relative costs of related interventions, when done carefully, can also be a useful tool when providing advice to policymakers on how they might best allocate limited budget resources. When organisations collect information on programme costs, the goal is to use this information to illustrate how much a programme would cost if it were replicated or scaled, and to facilitate more general comparisons among related projects (McEwan 2012).

Collecting detailed cost data is crucial to conducting accurate CEAs. However, it is often difficult to collect cost information as programme budgets are insufficient to estimate these costs (Levin and McEwan 2001; Evans and Popova 2016). Complete costing requires collecting information from multiple sources: academic papers or programme reports for a description of the programme structure and impact measures, implementers for expenditure data, public sources for components such as local wages and transportation costs, and data collection for accurate information on time spent. Correct costing also requires consistent and careful decision-making about which costs to include in the costing templates and analyses, and the application of the same analysis methodology across multiple contexts and projects. While the theory behind these decisions is well-developed, e.g. Levin and McEwan (2001), applying them in the field while maintaining rigour can be challenging.

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This paper discusses (1) challenges typically faced in collecting cost data, which include collecting data from multiple sources and making cost and programme assumptions where data are not available; (2) tools and processes we have created to address these challenges while running randomised control trials in the field; (3) strategies to effectively liaise with partners to collect and analyse cost data; and (4) approaches for sharing CEAs with partners that make the information accessible, actionable, and transparent. We will illustrate these concepts using the Strengthening Teacher Accountability to Reach All Students (STARS) project (Beg, Fitzpatrick, and Lucas 2021), a government-implemented differentiated instruction and management project in Ghana, as a case study. In this project, researchers Adrienne Lucas, Sabrin Beg, and Anne Fitzpatrick partnered with several agencies within the Ghana Ministry of Education including Ghana Education Service (GES), the National Teaching Council (NTC), National Council for Curriculum and Assessment (NaCCA), and National Inspectorate Board (NIB); UNICEF; and Innovations for Poverty Action (IPA) to evaluate whether stronger management support could increase the fidelity of implementation by teachers of teacher-led differentiated instruction, and ultimately improve learning outcomes for students. The study's focus on evaluating an intervention that could potentially improve education quality was in line with the Sustainable Development Goals (SDGs), which look beyond access to education quality. The fourth SDG is to ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes by 2030, measured both by rates of attendance, as well as by achievement levels in maths and reading (United Nations 2021).

We use a slightly adapted version of the 'ingredients method of costing' outlined by Levin and McEwan (2001) and Dhaliwal et al. (2013) to collect programme costs, in which we gather detailed information on the cost and quantity of all the ingredients required to implement the programme. Detailed costs allow us to identify cost drivers and how these costs may change when the programme is replicated or scaled up. The 'cost ingredients' we collect are programme administration and staff costs, targeting/visibility costs, training costs, transportation and per diem costs, implementation and programme material costs, office costs, and user costs (i.e. the opportunity costs of a participant's time). While training costs could technically fit under implementation and programme material costs, separating them out for interventions with a large training component such as STARS enables us to get an even more granular sense of the costs, information that may be useful in replicating or scaling the programme. We also collect costs during the implementation of the programme as much as possible, instead of trying to retrospectively gather or estimate programme costs, which can be more challenging as project staff may have changed or costs may not be available after the programme has ended. We have included a description of each ingredient below:

- **Programme administration and staff costs**: Includes the cost of all full-time staff who worked on the implementation of the project. Does not include staff costs associated with evaluating the programme.
- **Targeting/visibility costs**: Includes costs incurred to target/identify potential programme participants and raise awareness about the programme among potential participants as part of the intervention. These may include costs of a pre-programme census or targeting survey given to identify those within a specific region who are eligible and meet certain criteria. This category also includes marketing costs, such as the costs incurred to print and distribute flyers or host information sessions. However, if the information or marketing campaign forms the core of the intervention, these costs should go in Implementation.
- **Training costs**: Includes costs incurred to train staff involved in implementing the intervention and costs incurred by the programme implementer to train participants or beneficiaries. This does not include training for enumerators who conduct surveys to collect data for programme evaluation.

- **Transportation and per diem costs**: These include costs of transportation and per diems. This can include staff transportation to provide services/implement the programme, or staff per diems. This also does not include transportation or per diem costs for enumerators who conduct surveys to collect data for programme evaluation.
- **Implementation and programme material costs**: These include costs of implementing the intervention. This can include the cost of programme materials distributed to participants, the cost of distributing the materials, or the cost of creating and maintaining resources developed for the intervention. These also include any costs incurred to oversee and monitor programme activities, or track programme recipients or staff and their progress during the intervention. These are costs that would be incurred as part of a programme's ongoing monitoring and evaluation strategy, not part of the impact evaluation.
- **Office costs**: These include any overhead or facility costs incurred to implement the programme.
- **User costs**: These include the opportunity costs of participant or staff time (explained more below).

When conducting CEAs, we include the opportunity cost of participants' time as well as the time of any project implementation staff who are not dedicated full-time to the project and whose time is not compensated through the project (Dhaliwal et al. 2013; IRC, World Bank, and SIEF, 2019). The opportunity cost refers to the cost of participating in or conducting project activities if they occur when participants or staff would otherwise be working and conducting their regular job-related activities.

Learning outcomes of education interventions are often reported in terms of standard deviations. This metric is difficult to communicate to policymakers who are not education specialists or those who do not have a research background (Evans and Yuan, 2019). To ensure that our results can be effectively communicated to policymakers who may not have a research background, we report the results of education CEAs in terms of additional years of learning or schooling per $100 spent and also make sure to share the assumptions behind our CEA calculations.

To determine the additional years of learning, we take the estimated 'effect size' of the programme (i.e. the difference between treatment and control groups over the same time period, typically measured in standard deviations) and use this to scale the effect sizes into what a typical student absent the intervention learns during the programme period (often a year of school). To calculate the additional years of schooling, we often use the method outlined by Evans and Yuan (2019). This metric reports learning gains per $100 spent relative to how much a student would normally learn over the course of a school year. Evans and Yuan found that over the course of a normal school year, students gain between 0.15 and 0.21 standard deviations of literacy ability. We use that estimate to translate a particular intervention's effect sizes into a year of school. This measure conveys the relative impacts and costs of education programmes in an easily understandable and intuitive way.

2. Methods

The STARS project aimed to improve student achievement by enhancing head teachers' and circuit supervisors' roles in monitoring, providing feedback, motivating, and supporting teachers. The programme took place in 20 districts in eight of ten regions in Ghana.[1] On average, each district contains 20 circuits, which is a grouping of schools covered by a circuit supervisor, and each circuit contains approximately nine schools. For the STARS project, researchers sampled 140 study circuits and randomly assigned 210 government schools within those circuits to one of three groups: schools in which teachers and head teachers received training on differentiated instruction and an accompanying classroom observation form, schools in which head teachers received additional management training along with everything in the first intervention, and schools in the control group that did not receive either programme during the study period.

This randomised evaluation aimed to measure whether teacher-led differentiated instruction plus a basic management intervention increased student achievement in upper primary grades and if additional managerial support from head teachers and circuit supervisors could increase the likelihood that teachers implemented differentiated instruction in their classrooms. Researchers measured the impact of each treatment on maths and English test scores relative to the control group. To conduct the CEA, we collected cost data as outlined below and used the learning outcome data measured by Beg, Fitzpatrick, and Lucas (2021). We then divided the total cost of the intervention by the standard deviation increase in maths and English achievement multiplied by the total number of students reached by the intervention for each treatment group.

2.1. Collecting programme costs

Even when gathering costs for an ongoing project, real-time cost collection can be challenging: it requires collaborating effectively with partners to get cost data, which can be sensitive information. For example, partners may be hesitant to share inputs such as staff time (salaries), benefits, and other programme costs. To enable effective partner collaboration on CEAs, strategies include discussing and getting a commitment from partners to conduct a CEA from the beginning of the project; including standard language in contracts to get a commitment from partners to share cost data; and specifying the type and granularity of cost data that will need to be collected at the outset of the project. All of these relate to setting and aligning on expectations as early as possible.

Cost collection also requires gathering cost data from different partner expenditure reports, distributing costs between treatment arms, and making cost and programme assumptions where data are not available. For example, different partners may be involved in delivering different components of a project, or expenditure reports from one partner disbursing funds to another, in which case we would need to ensure we are accounting for all of the different components and also ensuring items are only counted once. An intervention might also have several different treatment arms, where we would need to allocate the programme administration and staff costs across the different treatment arms and ensure that the implementation and programme material costs are correctly allocated to the corresponding treatment arm. Finally, in cases where expenditure data are not available, we may need to make and document assumptions such as the amount spent on meals during training or the cost of printing programme materials.

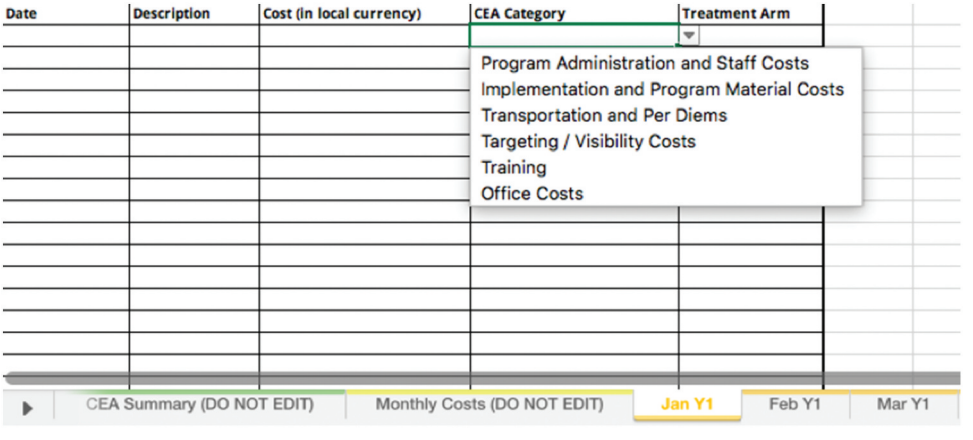

Figure 1. Screenshot of IPA's cost collection template.

To easily calculate CEAs in real-time, we have developed an automated cost collection template (see Figure 1 in the Appendix) to input costs for the duration of the project on a monthly basis. Each month, the user can input line-item costs, the corresponding date and description for these costs, and choose the cost category and assigned treatment arm from drop-down menus.

2.2. Calculating opportunity costs of participant time

We calculate opportunity cost of time by multiplying the amount of time that participants and/or project staff spent on the programme by their average wage. To find participants'/staff members' local wage, we either survey them about their wages and time spent on the project or find administrative data on average local wages if we were not able to get salary data directly from partners.

2.3. Making the CEA results information accessible, actionable, and transparent for partners

To calculate the additional years of learning per $100, ideally, as part of the programme evaluation, the research team calculates how much control group students learned during the given intervention period, often one school year. We then take the estimated 'effect size' of the programme (i.e. the difference between treatment and control groups over the same time period, typically measured in standard deviations) and convert the effect sizes into what a typical student absent the intervention learns during the programme period (often year of school). For example, if the typical student absent the intervention improves learning by 0.3 standard deviations over the course of the year, but the intervention has an effect size of 0.1 standard deviations (i.e. learning improves by an additional 0.1 standard deviations), then the intervention improves learning by 33 percent of a learning-year.

An alternative approach that may also be easily interpretable is to calculate the additional years of schooling per $100. We use the method outlined by Evans and Yuan (2019) to calculate the lower and upper ranges of additional years of schooling per $100 spent from the standard deviations metric based upon other studies of completed schooling. We first calculate the cost per additional standard deviation increase in test scores by dividing the intervention cost by the total impact of the intervention on the study population. Then, we calculate the lower and upper ranges of the cost per additional years of schooling using the results from Evans and Yuan (2019), which found that on average, one standard deviation in learning is the equivalent of between 4.7 and 6.8 years of schooling (Evans and Yuan, 2019). Finally, we divide $100 by the cost per additional years of schooling to get the lower and upper ranges of the additional years of schooling per $100 spent.

3. Results

To calculate the CEA for the STARS project, we worked with implementing partners to collect project costs in real-time, conducted a survey to determine the time spent by government staff on the project to calculate the opportunity costs, and calculated the additional years of learning generated by the programme per $100 spent per pupil.

3.1. Collecting programme costs

For the STARS project, we collaborated with UNICEF and the Ghana Ministry of Education to collect project costs. We all had a common goal for the project–to scale evidence-based differentiated instruction across Ghana within government structures, if proven effective through the STARS study–and all of the partners understood that it was important to collect

programme costs to determine the cost to scale up the programme. We met with both the Ministry of Education and UNICEF at the beginning of the project to ensure that we all similarly valued the importance and frequency of cost collection during the project. During the implementation of the project, which took place over the course of the 2018–2019 school year, we collected paper copies of expenditure reports submitted by the Ministry of Education during each school term of the project (three terms in total). We then manually entered each line item the relevant data into our automated cost collection template by month, and categorised each line item into its associated cost ingredient. This paper data collection and manual digital entry process was time-consuming and we had to double- and triple-check to ensure that no errors were made in data entry. For projects going forward, we have learned to work with the implementing partner from the beginning of the project to ensure we can collect data digitally to avoid time spent manually entering the cost data and potential data entry inaccuracies as a result.

As a result of the comprehensive expenditure data that were provided by the Ministry of Education, we did not have to make any assumptions for this CEA as all of the data we needed were made available to us.

STARS had two treatment arms: 1) differentiated instruction plus basic management training and 2) differentiated instruction plus basic and enhanced management training. Both the basic and enhanced management training components engaged head teachers and circuit supervisors. We assigned each line item cost to fit under the relevant treatment arm or both arms, as appropriate. For example, we assigned costs associated with developing and distributing materials for the enhanced management training solely to the arm that included that training, while we assigned costs associated with teacher training to both. Once the costs assigned to both treatment arms were categorised at the ingredient level, we divided them equally between the two treatment arms when calculating the CEA. These treatment arm assignments were reviewed and validated by the project implementation team.

Overall, the differentiated instruction plus basic management training arm of the STARS programme cost US $345,824 to implement and was spread across 70 schools with an average school size of 120 children, reaching 8,400 total students. Therefore, the per student cost was $42 per child. The differentiated instruction plus basic and enhanced management training arm cost $568,087 to implement, or $75 per child. See Tables 2 and 3 in the Appendix for the costs broken down by ingredient in each treatment arm. Note that the costs are split into years 1 and 2 to account for exchange and inflation rates as the intervention took place over two calendar years, although it took place in one academic year.

3.2. Calculating opportunity costs of participant time

In the STARS project, we wanted to collect opportunity cost data for the time spent by teachers, head teachers, and circuit supervisors on the project, similar to the method J-PAL employed for the studies in its workbook of calculations for improving student learning (J-PAL 2014). To collect these data, we conducted a phone survey with questions related to monthly salary and percentage of time spent on the project per term, which was administered to a sample of 137 teachers, 41 head teachers, and 39 circuit supervisors that participated in the project (see Table 1 in the Appendix for the phone survey questions). From the responses of the surveyed individuals, we then calculated their average salaries and time spent on the STARS project. We found that on average over the course of the year, surveyed teachers spent 40 percent of their time on the STARS project and were paid 1,515 GHS per month while circuit supervisors and head teachers spent roughly 50 percent of their time on STARS and were paid 2,207 and 2,397 GHS per month respectively. We then multiplied these averages by the total number of teachers, head teachers, and circuit supervisors involved in the project (406 teachers, 70 head teachers, and 70 circuit supervisors) to calculate the total opportunity cost for each.

To determine which opportunity cost data to include, we looked at time spent by teachers/head teachers/circuit supervisors 1) in training for the STARS programme and 2) conducting STARS-related activities (teaching, supervising, monitoring, etc). To determine whether we should include the opportunity costs of time that teachers/head/teachers/circuit supervisors spent in training, we looked at when the training took place during the school year and whether teachers, head teachers, and circuit supervisors were paid their typical daily salaries during the training. Both the main and refresher training took place during school holidays, and teachers, head teachers, and circuit supervisors were paid their regular salaries during these holiday periods. Although they were being paid their regular salaries during this time, which they would have received whether they were at the training or not, we still included the opportunity cost of the time they spent in training as they could have been spending their time on other activities (either for work or leisure) if they had not been participating in the training. We included 10 days each of training time for teachers, head teachers, and circuit supervisors in the differentiated instruction plus basic management training arm, which included a five-day main training, a three-day refresher training after term 1, and a two-day refresher training after term 2. For the differentiated instruction plus basic and enhanced management training arm, we included 10 days for teachers and 16 days each for head teachers and circuit supervisors. This included the same 10 days of training received by everyone in the first treatment arm as well as a three-day main training, a two-day refresher training after term 1, and a one-day refresher training after term 2 for head teachers and circuit supervisors. We also determined that we would not include the opportunity cost of teacher/head teacher/circuit supervisor time spent facilitating the differentiated instruction programme, as they would have already been conducting school-related activities during this time.

The total opportunity cost of teacher/head/teacher/circuit supervisor time spent in training was $55,141 for the differentiated instruction plus basic management training arm and $66,430 for the differentiated instruction plus basic and enhanced management training arm. With these opportunity costs, the differentiated instruction plus basic management training arm of the STARS programme cost $400,965, or $48 per child, and the differentiated instruction plus basic and enhanced management training arm cost $634,518, or $84 per child.

3.3. Making the CEA results information accessible, actionable, and transparent for partners

In the STARS project, to calculate the additional years of learning per $100 spent, Beg, Fitzpatrick, and Lucas (2021) calculated the increase in test scores for the control group in the one year gap between the baseline and follow-up. To calculate the additional years of learning per $100 spent, we divided the cost per additional standard deviation increase in test scores by the standard deviation increase in test scores for the control group, which is equivalent to one year of learning in this context. We used this more precise measure instead of the approximation from Evans and Yuan (2019).

When we calculated the cost-effectiveness of both treatment arms (including the opportunity costs of teacher/head teacher/circuit supervisor time spent in training), we found that the differentiated instruction plus basic management training arm resulted in 0.7 additional years of learning per $100 spent. The differentiated instruction plus basic and enhanced management training arm resulted in 0.4 additional years of learning per $100 spent (Beg, Fitzpatrick, and Lucas 2021). The cost-effectiveness of the differentiated instruction plus basic management training arm was thus more favourable compared to that of the differentiated instruction plus basic and enhanced management training arm as the effects were the same but the costs were larger in the latter.

4. Discussion

Using the STARS example as a case study, we have demonstrated how we address challenges typically encountered when collecting cost data, which include collaborating with partners to collect and analyse cost data, assigning costs to various treatment arms, collecting opportunity cost information to account for the cost of participant and staff time, and sharing CEA results with policymakers in an accessible way. Key success factors in collecting cost data included having partner buy-in on the importance of cost collection, being able to collect detailed costs in real-time during the project, working closely with the project implementation team and project participants to collect opportunity cost data, making decisions about which costs to include or exclude and documenting these decisions, and effectively communicating the results to policymakers.

We have shared these cost-effectiveness calculations with the Ministry of Education, Ghana Education Service, and UNICEF. Information on the detailed costs (e.g. cost of developing and distributing training and learning materials, cost of training) has informed the Ministry's planning as they scale up the programme to 10,000 schools through the Ghana Accountability for Learning Outcomes Project (GALOP), a US $219 million fund from the World Bank, Global Partnership for Education, and Foreign, Commonwealth & Development Office (FCDO) aimed at improving the quality of education for almost two million children in low-performing primary schools in Ghana over five years.

According to Ghana's 2018–2019 Education Management Information System (EMIS), 2,680,969 students are enrolled in primary school (from P2-P6) (EMIS 2019). The Ghana Education Management Information System (EMIS) lists 15,291 primary schools (EMIS 2019). Since differentiated instruction through GALOP will be reaching 10,000 of these schools, we can estimate the number of differentiated instruction beneficiaries among current primary school students as 1,753,299 (65 percent of students in P2-P6). Students will enter primary school every year for the next four years. From EMIS, Ghana currently has 153,755 students in KG1-P1 (EMIS 2019). We should thus expect about 33,312 students joining P2 every year from the 10,000 schools (using the 65 percent estimate). This means we can estimate around 1,886,553 students receiving differentiated instruction through GALOP. Further, we can assume that the costs of the programme, including opportunity costs of training, scale linearly, meaning that fixed costs (e.g, the cost of material development) are not included in the scale-up cost and the cost per student is the same as the programme is widely adopted. This seems reasonable as a first approximation, although we caution that to the extent that some costs would or would not be incurred again as the programme is scaled may introduce some additional estimation error. For example, if the number of students varied, or if material development costs changed, then the final CEA calculation would result in different values. Scaling up the costs of the programme linearly (including opportunity costs of training and excluding the cost of material development), we estimate that the cost per child for the differentiated instruction plus basic management training programme at this scale would be $28 and the cost per child for the differentiated instruction plus basic and enhanced management training programme would be $44.

Notes

1. There are now 16 regions in Ghana, but the selection of regions and districts was done prior to the new regional demarcations.
2. We used the 2020 International Monetary Fund local currency unit (LCU) exchange rate of 5.6 'calculated as an annual average based on monthly averages (local currency units relative to the US dollar)' (World Bank 2021)

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Appendix

Table A1. Phone survey questions to calculate opportunity costs of teacher, head teacher, and circuit supervisor time spent on the STARS project.

Question	Responses
Which level of the Ministry of Education do you work in?	• National • District • School
What is your role in the STARS project?	• Project management • Monitoring • Circuit supervisor • Head teacher • Teacher
What percentage of your time did you spend on the STARS project in Term 1?	• 0–10% • 10–20% • 20–30% • 30–40% • 40–50% • 50–60% • 60–70% • 70–80% • 80–90% • 90–100%
What percentage of your time did you spend on the STARS project in Term 2?	• 0–10% • 10–20% • 20–30% • 30–40% • 40–50% • 50–60% • 60–70% • 70–80% • 80–90% • 90–100%
What percentage of your time did you spend on the STARS project in Term 3?	• 0–10% • 10–20% • 20–30% • 30–40% • 40–50% • 50–60% • 60–70% • 70–80% • 80–90% • 90–100%
What is your current monthly salary?	• 0–1,000 GHS • 1,000–2,000 GHS • 2,000–3,000 GHS • 3,000–4,000 GHS • 4,000–5,000 GHS • 5,000–6,000 GHS • 6,000–7,000 GHS • 7,000–8,000 GHS • 8,000–9,000 GHS • 9,000–10,000 GHS

Table B 2. Cost ingredient breakdown of the differentiated instruction plus basic management training treatment arm.

Cost Ingredients	Total Cost/Yr Local Currency	Total Cost/ Yr, USD[2]	Total Cost/Yr, Base Year USD	PV of Cost Stream, Base Yr USD	Total Cost, Yr of Analysis USD
Programme administration and staff costs – Year 1	GHS 24,142.03	$5,265.06	$5,265.06	$5,265.06	$5,463.08
Implementation and programme material costs – Year 1	GHS 105,651.00	$23,041.11	$23,041.11	$23,041.11	$23,907.66
Transportation and per diems – Year 1	GHS 618,827.94	$134,958.36	$134,958.36	$134,958.36	$140,033.96
Targeting/visibility costs – Year 1	GHS –	$0.00	$0.00	$0.00	$0.00
Training – Year 1	GHS 368,297.35	$80,320.88	$80,320.88	$80,320.88	$83,341.64
Office Costs – Year 1	GHS –	$0.00	$0.00	$0.00	$0.00
Programme administration and staff costs – Year 2	GHS 12,998.00	$2,491.30	$2,432.05	$2,210.95	$2,294.11
Implementation and programme material costs – Year 2	GHS 4,450.00	$852.92	$832.64	$756.94	$785.41
Transportation and per diems – Year 2	GHS 110,501.81	$21,179.61	$20,675.95	$18,796.32	$19,503.22
Targeting/visibility costs – Year 2	GHS –	$0.00	$0.00	$0.00	$0.00
Training – Year 2	GHS 399,411.42	$76,554.22	$74,733.70	$67,939.73	$70,494.85
Office Costs – Year 2	GHS –	$0.00	$0.00	$0.00	$0.00
Time Costs – Teachers	GHS 204,975.67	$39,287.19	$38,352.91	$34,866.28	$36,177.56
Time Costs – Head Teachers	GHS 51,504.07	$9,871.66	$9,636.90	$8,760.82	$9,090.30
Time Costs – Circuit Supervisors	GHS 55,940.17	$10,721.92	$10,466.94	$9,515.40	$9,873.26
Total Cost (without opportunity costs)					$345,823.94
Total Cost per Child (without opportunity costs)					$41.49
Total Cost (with opportunity costs)					$400,965.06
Total Cost per Child (with opportunity costs)					$48.10

Table C 3. Cost ingredient breakdown of the differentiated instruction plus basic and enhanced management training treatment arm.

Cost Ingredients	Total Cost/Yr Local Currency	Total Cost/ Yr, USD	Total Cost/Yr, Base Year USD	PV of Cost Stream, Base Yr USD	Total Cost, Yr of Analysis USD
Programme administration and staff costs – Year 1	GHS 24,142.03	$5,265.06	$5,265.06	$5,265.06	$5,463.08
Implementation and programme material costs – Year 1	GHS 245,803.72	$53,606.61	$53,606.61	$53,606.61	$55,622.68
Transportation and per diems – Year 1	GHS 693,081.40	$151,152.08	$151,152.08	$151,152.08	$156,836.71
Targeting/visibility costs – Year 1	GHS –	$0.00	$0.00	$0.00	$0.00
Training – Year 1	GHS 869,259.59	$189,574.26	$189,574.26	$189,574.26	$196,703.90
Office Costs – Year 1	GHS 1,460.00	$318.41	$318.41	$318.41	$330.38
Programme administration and staff costs – Year 2	GHS 12,998.00	$2,491.30	$2,432.05	$2,210.95	$2,294.11
Implementation and programme material costs – Year 2	GHS 4,450.00	$852.92	$832.64	$756.94	$785.41
Transportation and per diems – Year 2	GHS 110,501.81	$21,179.61	$20,675.95	$18,796.32	$19,503.22
Targeting/visibility costs – Year 2	GHS –	$0.00	$0.00	$0.00	$0.00
Training – Year 2	GHS 739,661.64	$141,769.15	$138,397.78	$125,816.16	$130,547.94
Office Costs – Year 2	GHS –	$0.00	$0.00	$0.00	$0.00
Time Costs – Teachers	GHS 204,470.80	$39,190.42	$38,258.45	$34,780.41	$36,088.45
Time Costs – Head Teachers	GHS 82,406.50	$15,794.65	$15,419.05	$14,017.31	$14,544.49
Time Costs – Circuit Supervisors	GHS 89,504.27	$17,155.07	$16,747.11	$15,224.64	$15,797.22
Total Cost (without opportunity costs)					$568,087.42
Total Cost per Child (without opportunity costs)					$74.75
Total Cost (with opportunity costs)					$634,517.58
Total Cost per Child (with opportunity costs)					$83.49