

Lessons learned: C4C in Zambia and Ghana

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1. Introduction

1.1. Purpose of the document

This document captures the lessons that have been learned throughout the process of the C4C education evaluation studies in Zambia and Ghana. The document should be read in conjunction with the other deliverables:

- Case study of the programme in Zambia
- Case study of the programme in Ghana
- Road map for impact

This document engages with the sensitive findings regarding the way in which the programme has operated. It is shared with a commitment to transparency and the promotion of improved practice. The intention is that engaging with the challenges encountered will provide a constructive contribution to C4C Consortium members' ongoing learning activities. The commitment to reflective practice enables the next incarnation of C4C's members and partners to maximize the effectiveness of their future activities. Within the report, the three following questions provide an overall focus:

- What have the C4C evaluation case studies demonstrated in terms of methodological learning that can be improved for the future / captured as good practice for wider dissemination?
- What have the C4C evaluation case studies demonstrated in terms of programme learning that can be improved for the future / captured as good practice for wider dissemination?
- What have C4C evaluation case studies demonstrated in terms of organisational learning that can be improved for the future / captured as good practice for wider dissemination?

1.2. Structure of the document

The report begins with a summary of the two evaluation case studies that form the foundation for the lessons learned. It then provides a brief comparison between the programmes, identifying common themes and common challenges, and providing three summary analysis tables linked to the overall programme objectives. Following this, the report focuses on three aspects of learning provided through the study: methodological, programme, and organizational. The report concludes with summary recommendations.

2. Context

2.1. Overview

The foundation for the lessons learned report is the research conducted in completion of two evaluative case studies in Ghana and Zambia. Throughout the evaluations the research team was

recording programme specific issues but also reflecting on the broader implications and lessons that contribute to this 'lessons learned' report.

2.2. Ghana case study

The partnership uses the expertise and experience of Savana Signatures, supported by IICD and Edukans, to build the capacity of participating schools in the effective use of ICT, as part of the wider Connect4Change (C4C) programme. The five core schools supported by Savana Signatures as part of the programme are Darul Hardis, Yilonayili, Yong Dakpemyili, Yoo Roman Catholic, and Pong Tamale Experimental. In 2012 the program started with five schools and in 2014 the program was extended to five additional schools. Savana Signatures has scaled the programme to a further 13 schools across Tamale, Savelugu and Ho (through funding from C4C and other partners). Each participating school has been provided with the following: a computer lab with 10 computers, a printer, a camera, two projectors, a laptop, a computer for the head teacher, training and support from the programme coordinators, various additional support including training, workshops, hardware and educational software. The primary research for the case study was undertaken during two field visits to Tamale, the first in September 2013 and the second in May 2015. Research activities completed include: 13 school visits, 65 interviews with teachers, 13 interviews with school leaders, 8 additional interviews, 3 lesson observations, and assessments of school records.

2.3. Zambia case study

The 'Mpelembe basic schools partnership' is an initiative supported by IICD and Edukans that uses the expertise and resources of Mpelembe school in Zambia to build the capacity of the partner schools in the effective use of ICT as part of the wider Connect4Change (C4C) programme. The Mpelembe basic schools partnership includes the following schools: Mpelembe, Rokana, Riverain, Matete, Kamfinsa and Parklands. All of the schools are in or near to Kitwe, in the copper-belt of Zambia. The partnership is led by Mpelembe, a well-respected, well-resourced secondary school in Kitwe. IICD has played a central role in establishing and building the partnership and has provided each participating school with the following: a computer lab with 10 computers, a computer for the head teacher, training and support from the programme coordinators, various additional support including training, workshops, hardware and educational software. The primary research for the case study was conducted during two field visits, the first in November 2013 and the second in March 2015. Research activities completed include: 10 school visits, 56 interviews with teachers, 10 interviews with school leaders, 21 additional interviews, 4 lesson observations, and assessments of school records.

3. Comparison of programmes

3.1. Common themes

In both Ghana and Zambia the programme has demonstrated:

- The benefits of long term engagement from IICD through sustained partnership
- A positive impact on student enthusiasm, attendance and participation in school

- The importance of local ownership, appropriate incentives, and high quality, on-going training
- The ability of teachers within the participating schools to begin to build their capacity to make use of ICT in effective teaching
- The benefits for principals of beginning to use ICT for school management
- The pivotal role of effective leadership in programme adoption
- The significant investment of time and effort required to integrate ICT into the fabric of a learning environment
- The challenge of demonstrating a causal impact on learning outcomes in the midst of complex systems

3.2. Common challenges

In both Ghana and Zambia, the programme has encountered challenges:

- Stakeholders reporting a lack of hardware and requests for more to be provided
- Internet connectivity either unreliable or too expensive to maintain a connection
- Varied motivation and capacity among teachers for engaging with ICT
- Difficulty of sustaining high quality, on-going training programmes in-situ
- High turnover of principals and teachers – with the most talented often leaving
- Slow pace of change within wider conservative education systems

3.3. Analysis of programme objectives

The following three summary tables provide cross-cutting analysis according to the programme objectives and indicators. These three objectives are:

- Teacher capacity to make effective use of ICT in effective teaching
- School management and administration capacity to make effective use of ICT
- Student learning outcomes (attainment and participation)

For each objective the table lists the programme indicators and assesses the extent to which it has been realised, alongside additional relevant detail.

Teacher capacity to make effective use of ICT in effective teaching		
Indicator	Extent realised	Additional detail
Ability to identify and use offline digital content (use of computers, excel etc).	HIGH: Significant increase in the confidence of teachers to use ICT. This was near universal among interviewed teachers.	Effective initial training combined with on-going access to computers for practising. Improvement assisted by low starting

Ability to design lesson plans and deliver lessons using ICT.		level of teacher capacity.
	HIGH / MEDIUM: Significant increase in the extent to which teachers use ICT to help them in their work. Although use levels decreased for some teachers through the evaluation period.	Effective initial training helped teachers to see the value of ICT and many are utilising – but challenges of maintenance, access and support have prevented full uptake.
Attitude towards and application of children ‘centred’ approaches	LOW: Limited increase demonstrated so far – apart from a few notable positive exceptions.	Not yet a significant focus of the training sessions that have been conducted, significantly hampered by wider curriculum context.

School management and administration capacity to make effective use of ICT:

Indicator	Extent realised	Additional detail
Administrative effectiveness (accuracy of data, tracing of student results, transparency, report writing)	MEDIUM: Significant increase in awareness regarding benefits of ICT for management and administration – but limited practical uptake among most school leaders beyond basic functions.	Widespread high awareness of the potential benefits and desire to engage more – current usage of excel but waiting for full SMIS to be implemented.
Administrative efficiency (time and money required)	MEDIUM: Significant increase in awareness regarding benefits of ICT for management and administration – but relatively limited practical uptake among school leaders beyond basic functions.	As above, with school leadership expressing the challenge of on-going costs of SMIS, combined with reluctance of MoE to use digitised data.

Change in mind-set regarding school management	HIGH: Significant change in mind-set – with widespread frustration from school managers regarding the current constraints experienced.	Many positive examples but dependent on the mind-set of individual school leaders. In future could be supplemented by on-going in-depth training.
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Student learning outcomes (attainment and participation):

Indicator	Extent realised	Additional detail
Achievements in test scores (national curriculum exam scores)	LOW / MEDIUM: No quantifiable impact demonstrated yet – but very likely to have future quantifiable impact in new ICT examinations.	Multiple variables affect the system and so it is not possible to determine quantitative causality in regard to learning outcomes, although anecdotes suggest positive change.
Student participation (drop-outs will decrease)	MEDIUM / HIGH: Strong anecdotal evidence although difficult to demonstrate causality and unknown sustainability of impact.	As above, difficult to demonstrate causality – but universally agreed positive impact in interviews with school leaders.
Student worldview and aspirations (including critical thinking, assumed future)	LOW: did not form a core part of the programme implementation but may be valuable for future exploration.	A minor part of the programme - although there were a few anecdotal accounts of computers helping expand student worldview.

4. Methodological lessons

What have the C4C evaluation case studies demonstrated in terms of methodological learning that can be improved for the future / captured as good practice for wider dissemination?

4.1. Motivational impact

Throughout the evaluations many teachers and other educational stakeholders made it clear that they welcomed the opportunity to participate in the exercise. It was clear, particularly in the Zambia partnership schools, that for some programme stakeholders the visit to a school from the evaluation team was in itself a motivational exercise that had a positive effect on the implementation. The visits were perceived as strengthening the partnership, through the school visits and speeches given to teachers. However, this was not a universal experience, and the evaluation visits were a significant logistical burden for those hosting the team.

4.2. Participant bias

Participation in the programme is based on teacher choice in all respects. Therefore no teacher was required to engage with the evaluation team. This meant that many of those teachers that chose to be interviewed were the ones more engaged with the programme and positive regarding the introduction of ICT into the schools. The evaluation team was repeatedly told, by interviewees, about the number of their colleagues that were trained at the outset but no longer used the ICT in their teaching. As a result, the qualitative data was likely to not be fully representative of the entire teacher population in participating schools. This is an inevitable outcome of an evaluation where participation is not compulsory. While not fundamentally problematic, it should be accounted for when reviewing evaluation findings as they are likely to be more positive than if all teachers had been required to participate.

4.3. Limitation of school data

It was not possible to fully engage with the quantitative aspect of the third objective regarding student learning outcomes. This is because it was more challenging than anticipated to demonstrate the statistically significant impact the programme has had on student learning outcomes. The most significant reason for this is the inconsistent approach to recording student assessment scores at both a school and district level in both Ghana and Zambia. In future, it may be possible to overcome the dependence on data from the Ministry by conducting a comprehensive Randomised Control Trial to provide quantitative assessment of the impact on learning outcomes. This is a complex and costly exercise, but is the only means by which to provide a reliable statistically significant assessment of programme impact on student learning outcomes.

4.4. Qualitative methods

In any research or evaluation exercise, there is an inevitable element of participant bias: respondents expressing what they think the interviewer wants to hear, rather than necessarily providing an accurate depiction of their practice. Within the evaluation exercises it became apparent that the verbal positive responses from teachers did not necessarily mean their practice had changed. This is a widely recognized issue often referred to as 'isomorphic mimicry'. It highlights the importance of investigating beyond initial responses from programme participants. This is particularly significant in a context of considerable innovation such as education technology. The presence of lesson observations as a method within the evaluations provided a

vital means by which to ascertain the extent to which the verbally reported change in practice was actually reflected in classroom activities.

4.5. Participatory methodologies

A recurring theme within the evaluations was the request for more technology in the form of larger computer labs with more computers. There is still a widely held assumption that the technology will lead to change. This poses a challenge for participatory approaches to evaluation. The participants express that the need is for more technology, but the evidence suggests that the lack of training and integration, rather than the lack of hardware, is the primary limiting factor. In many cases, the technology available was not being fully utilized, and there was limited evidence that the requested donation of more technology would lead to an increased change in teaching practice.

5. Programmatic lessons

What have the C4C evaluation case studies demonstrated in terms of programme learning that can be improved for the future / captured as good practice for wider dissemination?

5.1. Theory of change

The evaluations demonstrated that more time and input of resources was required than initially anticipated in order to realise the Theory of Change for the programme. At the close of the programme, it is not yet possible to demonstrate a quantitative change in student learning outcomes that can be attributed directly to the programme inputs. From the experience of the programme it is clear that significant time and on-going efforts are required in order to facilitate a sustained shift in pedagogy. Future programmes should accommodate this in their Theory of Change and amend their strategy accordingly.

5.2. On-going training process

Training teachers in the use of ICT is an on-going process that requires sustained inputs. The programme has demonstrated that this is the case – especially in a low-resource context with little prior exposure to technology, challenging infrastructural constraints, and a wider conservative education system sometimes resistant to change. The feedback from the teachers demonstrated that they require on-going input from external facilitators in order to sustain their motivation to use technology in their teaching. The cascade approach to teacher training is difficult to sustain in practice and unlikely to be effective without significant scaffolding, quality control, and incentives for on-going engagement. If repeated, the programme should invest more time and energy into providing more detailed, on-going training with school-based mentoring and support for each participating teacher: this is more likely to lead to the desired sustained shift in teaching practice.

5.3. Centrality of school leadership

The evaluations demonstrated the vital place of committed and talented school leadership within the programme. This was a strength of the programmes in both Ghana and Zambia. Without

strong commitment from the school leader such programmes will struggle to be effective, regardless of the commitment from teachers. When a school leader prioritizes the programme in an on-going manner then it is likely to be effective across the school.

5.4. Teacher motivation

It is often assumed that all educational stakeholders will be positive about the introduction of an ICT-related change programme. The experience of the programmes has demonstrated that this is not always the case and that there may be significant resistance encountered. The resistance is often due to a fear of what is unknown and a reluctance to invest time in learning new skills that are deemed to be irrelevant or too difficult to master. It is important that programmes are aware of this at the outset, recognize the validity of the resistance, and design the programme approach accordingly. In Zambia it was noted that teachers recognize the potential of the technology but are faced with the reality of being over-burdened and under-resourced and so default back to their previous approach to lesson planning and delivery – without on-going and high-quality support this is a somewhat inevitable trajectory.

5.5. Effective partnership

The programmes both benefited from having identified strong institutional partners at the outset in Mpelembe School and Savana Signatures. Both are very different but each had the ability to grow and develop the programme activities with the support of IICD. A clear lesson from the programme is that the probability of positive long-term impact is increased through working with a strong in-country partner. However, even with a strong in-country partner in place, it is important to proactively invest in building their capacity. This investment should ideally be into a team rather than just an individual – so that the partnership is not overly dependent upon one person. This is particularly relevant in a context where personnel change rapidly and unexpectedly. The partnerships both benefited from not attempting to grow too quickly. This is illustrated by the constructive approach adopted by Mpelembe where they put stringent conditions of schools wanting to join the partnership in order to test their commitment and long term motivation from the outset.

5.6. In-country coordination

A recurring theme throughout the evaluation in Zambia was the need for more investment in in-country based coordination of the programme. IICD repeatedly encouraged and advised Mpelembe to allocate a full-time staff member to coordinate the programme. This did not materialize and therefore the partnership suffered from the lack of dedicated in-country support. All those involved in supporting the partnership within Mpelembe had multiple additional responsibilities and so were never able to fully focus on driving the partnership forwards and providing the support requested by the other partner schools.

5.7. Integration of SMIS / EMIS

As documented in the case studies, both programmes explored the feasibility for introducing SMIS / EMIS into the participating schools. This was widely welcomed by the school leaders. There are many challenges in introducing and integrating such a system effectively. These include locating or

designing an appropriate system, deciding on an appropriate financing mechanism, providing sufficient training and incentives to users, providing the required equipment and electricity and connectivity within the school so that the system can be fully utilised, and ensuring that the data produced by the system is not only effective at school level but can be integrated with the reporting requirements of the local, regional and national bodies within the ministry of education.

5.8. High staff turnover rates

Throughout the programme evaluations interviewees noted how the high rate of staff turnover in the participating schools added complexity to teacher training and use of the technology in classrooms. Trainers expressed the challenge of conducting the initial training, and then returning to find new teachers in the school who had not participated in the initial sessions. The rapid turnover of teachers suggests that the programme would have benefited from a more flexible and detailed programme of teacher training. The training programme used was sufficient to provide basic ICT competency for the teachers, but not sufficient to help them navigate towards integrating technology for the enhancement of their daily teaching practices.

5.9. Impact beyond programme

The high rates of staff turnover mean that many of the positive impacts of the programme may not be captured within the programme Theory of Change. Talented teachers in the programme schools are trained and then use their new skills to move on to senior positions in other schools or at the MoE, taking with them their new ability in ICT. This is likely to have a positive impact on the wider education environment but it is difficult to demonstrate this impact within the parameters of the programme. It is not realistic to design a programme where this does not happen and so it is advisable to embrace the benefits from the outset – and broaden the Theory of Change to include this wider, long term impact on the education sector.

5.10. Sustainability considerations

Throughout the evaluations, the school leaders expressed that the effectiveness of the programme was limited because their school could not always afford the monthly costs of connectivity and electricity required to make maximum use of the technology that had been provided to the school. This demonstrates the importance of considering on-going financial costs from the outset. It is either necessary for the donor to be proactive in factoring this into the programme budget, or form a plan at the outset for how the school will afford the monthly costs. If the on-going costs cannot be paid for it is possible that schools miss out on the most transformative benefits of the programme.

6. Organizational lessons

What have C4C evaluation case studies demonstrated in terms of organisational learning that can be improved for the future / captured as good practice for wider dissemination?

6.1. Centralised Theory of Change

At the organizational level, there was limited evidence for how the specific activities of the programme in Ghana and Zambia contribute to the overall strategy of IICD. This does not mean that the activities were misplaced, rather that they would have benefited from being articulated more explicitly. The Theory of Change is most able to positively affect the programme when it is in place from the outset, rather than being formed after the initial implementation.

6.2. Limited sustainability strategy

IICD has a strong and constructive ethos of capacity building. However, the programme demonstrated the practical difficulties encountered in applying this on an on-going basis. During the evaluation period the in-country stakeholders were not able to articulate any sustainability plan to enable the activities to continue once the funding from IICD came to an end. For future programming, it would be worth considering working with the in-country programme team from the outset to ensure that they are actively thinking about how the activities can be sustained and flourish after the IICD funding ends.

6.3. Catalytic impact of IICD and Edukans

The programme coordination staff were very positive regarding the catalytic impact that IICD had on the development of the partnerships in each country. In Zambia it was noted that IICD played a much more active support role than Edukans. The staff expressed that the most significant contribution of IICD was their repeated visits, conversations, listening, and follow-up. In Zambia, it was noted that this approach led to a significant positive change in mentality within the Mpelembe management team. These are distinctive but hard-to-define impacts that have occurred because of IICD. It would therefore be valuable to consider how IICD can best articulate the positive contribution it makes in relation to such catalytic impacts. In addition, there were encouraging examples of where the IICD in-country partners were able to engage in effective lobbying activities to bring about positive change within the wider conservative education system. One instance of this was when Savana Signatures worked closely with the GES, over a long period of time, to improve their capacity to accept digitally produced lesson plans.

6.4. Realistic assessment of change

Certain programme objectives may have been somewhat ambitious considering the complexities of the operating context. With hindsight, it was unlikely from the outset that the programmes would be able to achieve a demonstrable change in student learning outcomes as a result of the inputs. This is because of two things: the concentration of the inputs and the surrounding complicating factors. The inputs into the programme would need to be significantly more concentrated and sustained – in terms of training, technology, on-going support, pedagogical change, funding for electricity and connectivity – in order to lead to a demonstrable change in outcomes. The surrounding complicating factors – such as the inconsistent recording systems within schools and the varied progression to secondary – also mean that it would be very difficult to isolate the inputs of the programme as being the causal factor in any change that was demonstrated. It would therefore be advisable to refine the objectives of future programmes,

focusing on those things that are both achievable and demonstrable within the context. The challenge of attributing causality within volatile systems is a common issue faced within education technology programmes.

6.5. Organisational learning

IICD is one significant actor within a complex environment. The Theory of Change for future programmes should be designed with this in mind, recognizing that there are elements within the education system within can be altered quickly and others that take a long time and are not fully within the control of the organization. In hindsight it is clear that the inputs provided in the programmes were not sufficient to lead to a sustained improvement in student learning outcomes across the participating schools. This is not a failure, but does demonstrate the need to be realistic regarding the level of change that is likely to be achieved within a conservative education system.

7. Summary recommendations

The full programme-specific recommendations are in the case study reports, the following six points provide a summary of the suggestions for the programme and future expressions:

- Continue the emphasis on finding appropriate approaches to integrating SMIS / EMIS
- Consider the appropriateness of small grants for designated schools for ongoing connectivity costs
- Consider advocacy work to influence the wider education system in relation to ICT / digitisation of records
- Continue the emphasis on teacher training and consider how this might be integrated in an on-going way through the programmes
- Consider developing a more detailed staged approach to training of teachers, recognising the length of time required (the use of the ICDL in Zambia was a positive demonstration of this)
- Consider finding ways to continue to spread the programme dependence beyond key individuals to a more sustainable, team-based approach
- Consider capturing the knowledge of what defines a good partner for IICD and Edukans – identifying the expectations and conditions – as this could be a valuable resource for the broader sector.

Questions for further exploration:

- What are the potential vulnerabilities in the relationship between IICD and the implementation partner (alongside the many strengths) and how might these be mitigated against moving forwards?
- What happens to programmes when the individual ‘champion’ within the implementation partner moves on?

- What will happen to the upgrading and on-going educational use of the computer labs once C4C is completed – how will it be financed?
- Is there a way to embed on-going training within the schools in a way that the teachers are incentivized to participate for the long term?
- What are the key opportunities and threats to fully establishing SMIS / EMIS in the schools?
- Once trained in ICT, how should teachers be incentivized to remain in and invest in the profession?
- Is it possible for the programme to scale and for the lessons learned to be used in implementing ICT effectively in other contexts?