

# Zambian Education School-based Training (ZEST) Project

## COHORT 2 EVALUATION, April 2020

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## Acknowledgements

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## Executive Summary

The Cohort 2 evaluation draws on data gathered between May 2019 and March 2020 in order to evaluate the impact of ZEST in Kabwe. Data includes evidence from workshops and filming visits, and also from a formal evaluation exercise in which 8 independent enumerators, who had been trained by World Vision Staff, visited all six schools to conduct interviews and lesson observations over two days in March 2020.

This evaluation sets out the data against the project logframe and ‘programme theories’ – the intended outputs and the reasons we think the project will work. The Cohort 1 evaluation found evidence to support all the programme theories but also highlighted the importance of the role of the District Officials in the successful implementation and sustainability of ZEST. This evaluation reports on the logframe indicators and finds evidence to support all of the programme theories. It also provides more insights into the work and impact of the District Education Office which will inform Cohort 3 and the production of a detailed ‘Implementation Guide’ for Cohort 4 and 5.

ZEST aims to improve the classroom practice and teaching skills of teachers. This is measured in terms of the amount of time in a lesson that learners spend working or talking in pairs. This is based on international evidence that classroom talk is linked to thinking and is likely to signify ‘active’ engagement in the lesson. Other indicators of good classroom practice include the quality of questioning; using local resources to explain ideas and engage learners; the use of inclusive practices such as noticing and giving feedback; and teachers using a variety of different approaches in a lesson. If classroom teaching improves then it is likely that learners will achieve more, so the evaluation also reports on evidence that ZEST is impacting on learners.

In this study, the median value for the proportion of the lesson in which learners were working or talking in groups or pairs is 10%, which represents an increase from the baseline value of 5%. There is also qualitative evidence that suggests teachers are becoming more confident in using pair work and group work. The number of lessons in which neither group work nor pair work took place was only 26% of the total observed (9 out of 35).

ZEST also aims to increase the amount and quality of the collaboration between teachers. The Cohort 2 evaluation suggests 67% of schools had 3 or more TGMs per term compared with 47% in the baseline study. Qualitative data demonstrates enthusiasm for TGMs and attendance is reported to be good. As in Cohort 1, Head teachers and SICS report that relationships in school are more harmonious and teachers are more willing to ask for help. The evidence is very encouraging in this respect.

Another project aim is to increase the number of teachers recording use of collaborative classroom practices; this is facilitated by the provision of Teacher Notebooks to all participants for them to record their responses to TGM activities, plans for classroom activities, and reflections on teaching. The evidence shows that in two schools this is not being done, and further exploration is required as to why.

The data have highlighted priorities for on-going monitoring and have provided insights which will inform the development of the current implementation guide for District Officials. The evidence suggests that District Officials see themselves as monitors and inspectors rather than on providers of support for teachers, yet all the evidence shows that developing new teaching practices takes time and requires support. The aspiration of the project team is that this professional group come to see themselves as ‘differently expert’ than teachers rather than ‘more expert’ and use the opportunity

that they have to visit multiple schools to identify potential role-models and champions as well as providing support themselves.

Key recommendations from the Evaluation include:

- Identify teachers who have embraced the teaching approaches and encourage them to support others becoming role-models or champions.
- Review Year 2 course material to include a focus on learner-centred and inclusive practices, including those that can be observed.
- Prepare a detailed Implementation Guide for District Officials, highlighting ways of providing pedagogical support and supporting reflective practice.
- Explore issues associated with Teacher Notebooks; and identify a more culturally appropriate way of ensuring teachers record reflections about their teaching.

## 1. Rationale and aims of the Cohort 2 evaluation report

The aim of ZEST is to support the Zambian Government in the implementation of the Revised School Curriculum. The curriculum calls for more learner-centred approaches and a focus on the teaching of skills and values alongside knowledge. ZEST supports teachers through a focus on active teaching approaches and collaborative working, working within the existing system of regular teacher group meetings and collaborative planning. The main difference between ZEST and the current SBCPD model is that demonstration lessons have been replaced by an expectation that all teachers will try out the planned activities and reflect on how they went. Where possible, teachers are encouraged to observe each other informally for short periods of time. Thus, SBCPD involves all teachers as active participants.

Cohort 2 was launched in December 2018, with the programme starting in January 2019. It involved approximately 200 teachers, from 6 schools in 3 zones of Kabwe district (Broadway, Nkwashi and Katondo). Five of the schools are considered to be 'urban' with one being 'peri-urban'. This Cohort 2 evaluation report complements the year 3 annual report and logframe data submitted to the Scottish Government in April 2020, and forms part of the ongoing monitoring and evaluation of the ZEST project. We are firmly committed to the belief that it is 'possible to research and learn from social policies, programs and initiatives in order to improve their effectiveness' (Pawson & Tilley, 1997, pxii). Accordingly, this evaluation seeks to build on the Cohort 1 evaluation, to demonstrate what we have learnt from Cohort 2 of ZEST and to explain how this is shaping our approach to the project.

Evidence for this evaluation includes an independent evaluation exercise undertaken in all 6 Cohort 2 schools in March 2020. For this we adopted the same methodology as the baseline study and the Cohort 1 evaluation, and the aim was to gather data to enable us to report the measures identified in the logframe (see below).

This sort of experimental evaluation is essential for accountability. We have also included evidence which brings in the voices of Teachers, School In-Service Coordinators (SICs), Zone In-Service Coordinators (ZICs), Headteachers, and Zone and District Officials who form Cohort 2 in the ZEST programme, to enable us to better understand and illustrate what aspects of the programme are working well and why; and to identify learning to carry forward into the next phase of the programme.

## 2. Realistic Evaluation

Pawson and Tilley (1997) advocate for 'realistic evaluation' which attempts to answer the question of 'why a program works, for whom and in what circumstances' (pxvi). A realistic evaluation starts with the articulation of theories – or propositions – about how the program is expected to work. These are sometimes referred to as 'programme theories'. Evidence is gathered in order to judge the extent to which the hypothesis describes what is happening. Through a process of inference, the success (or otherwise) of the programme can be explained, leading to new hypotheses which in turn can be tested. Through this process of reflexive monitoring (May & Finch, 2009) evaluation becomes part of the programme and drives the design as the programme proceeds.

In the case of ZEST, the 'programme theories' are related to the logframe indicators.

### **Logframe Indicators**

The logframe indicators focus on active teaching and learning, and teachers' collaborative working.

Outcome 1: % of time participating teachers spend demonstrating improved classroom practice (above the baseline, measured by the median proportion of time learners are working / talking in groups or pairs, in a sample of observed lessons) Baseline: 5%

Outcome 2: % of participating schools implementing the school based professional development programme, recording an increase in collaborative work amongst teachers (above the baseline, measured as participating schools which hold  $\geq 3$  TGMs per term) Baseline: 43%

### **Programme Theories**

1. Teachers' classroom practice and professional skills
  - 1.1 By giving teachers help and resources in the form of classroom examples, classroom practice and teachers' professional skills will improve.
  - 1.2 Through an organised progressive programme of School Based Continuing Professional Development (SBCPD), teachers will become more confident practitioners.
2. Impact on learners' behaviour and outcomes
  - 2.1 If teachers improve their professional skills, learners' outcomes will improve.
3. Teachers' participation and collaboration in SBCPD
  - 3.1 Through the provision of contextualised resources, Teacher Group Meetings (TGMs) will become more purposeful and more engaging for teachers.
  - 3.2 By providing a progressive programme of activities and teaching approaches to use and develop in Teacher Group Meetings (TGMs), a community of practice will develop which will encourage teachers to collaborate with each other.

These theories have driven the design of the programme, informing the design of the training resources and the workshops that have been designed and carried out in Zambia.

The Cohort 1 evaluation collected and analysed evidence which enabled us to explore these theories and gain insights that we took forward to Cohort 2.

Drawing on a small sample (15 lesson observations) the Cohort 1 evaluation did not show quantitative improvements in the logframe indicators, but there was qualitative evidence to support the programme theories. In particular, by giving children more opportunities to participate in lessons, teachers noticed that children whom they thought of as 'slow' were more capable than they

previously thought. Headteachers commented on ‘more harmonious relationships’ as teachers worked more collaboratively and were actively engaged in the SBCPD process.

The Cohort 1 evaluation highlighted the importance of developing learner-centred attitudes and values throughout the system and that District officials needed support in this respect. An Implementation Guide was therefore developed for Cohort 2, drawing on the experiences of the Cohort 1 District Officers. Workshops for Cohort 2 also included Officers from Cohort 1, who were able to share their experiences.

### 3. The Study

The study was designed to look for evidence for

- improved classroom practice and teaching skills;
- the impact of ZEST on learners; and
- changes in the amount and nature of collaboration between teachers and participation in SBCPD

This evaluation report draws on evidence gathered during workshops and monitoring visits undertaken by the Open University/World Vision Zambia project team between May 2019 and December 2019, and a small-scale evaluation exercise undertaken in the Cohort 2 schools in March 2020, using the same methodology as the baseline study (March, 2018). The sources of data are summarised in Table 1.

**Table 1: Sources of data**

Data source	Province	District	HTs	SICs	Teachers	TGMs	School Activities	Challenges
May 2019 Workshops	X	X	X	X			X	X
Filming visits May/September 2019		X			X			
September 2019 workshops (WVZ)	X				X	X		
December 2019 Workshops	X	X	X	X			X	X
Cohort 2 evaluation (March 2020)			X	X	X	X		

Each source of data was analysed and evidence against each of the three purposes of ZEST gathered together.

#### a) Cohort 2 Evaluation Exercise

The Cohort 2 evaluation exercise was conducted as a mixed method study combining quantitative and qualitative data. Wherever possible, a similar approach to the baseline study and Cohort 1 evaluation undertaken in March 2018 and 2019 respectively was followed. The evaluation was

limited to a sample of 35 of the approximately 200 Cohort 2 teachers. It was designed to establish current classroom practices with respect to active teaching and learning approaches, teachers' engagement with SBCPD, and the extent of collaboration amongst teachers.

The same three tools were used in the Cohort 2 evaluation as were used in the Cohort 1 evaluation. The details of the teachers and lessons observed are listed in Appendix 1.

- a. **Continuing Professional Development (CPD) interview:** The purpose of this interview was to gather a picture of frequency and nature of SBCPD taking place and the extent of participation by teachers. This involved interview questions for the School In-service Coordinator (SIC) about the TGMs and taking photographs of pages of the School In-service Record (SIR), in order to establish the number of TGMs taking place and the topics that were discussed. There was one interview at each school. In five schools these were with the SIC and in one, a Senior Teacher.
- b. **Teacher interview:** Between 5 and 6 teachers were interviewed in each school. The purpose of the interview was to gather information about their practice, their confidence in active teaching approaches and their involvement in CPD.
- c. **Teacher lesson observation:** 5-6 teachers (different from the SIC) in each school were observed teaching a lesson. This was arranged on the day and with each teacher's consent. There were a few questions to be completed before the lesson; a tick sheet to complete every two minutes during the lesson; and some questions for enumerators to answer after the observed lesson. The lesson observation schedule in the evaluation exercise was replicated from the Cohort 1 evaluation in order to compare like-with-like. It was virtually the same as the baseline, with a few additions made to the observation categories in order to reduce the number of 'other' activities that were recorded. As set up in the logical framework (logframe), observations were devised based on the observable behaviours, taking into account 'pedagogic universals' that underpin quality education and national policy aspirations. A total of 35 lessons were observed across 6 schools.

A School Data Survey also provided contextual information which is presented below in Table 3.

All participants were volunteers (in accordance with OU ethical research guidelines) and had the right to withdraw until the end of the data collection period. Each participant was provided with information about the study and how the data would be used.

The teacher/lesson observations were undertaken using a 'time sampling' method, with a tool that was quantitative in nature. Throughout the entire duration of the lesson, the enumerator employed an 'instantaneous time sampling' technique to record what the teacher and the learners were doing every 2 minutes (i.e. at minutes 1, 3, 5, 7, and so forth). Table 2 shows the pre-coded activities which enumerators could select from, plus an 'other' option where they could add notes for activities that did not fit within the given categories. The observers could note any further details that would complete the account of the lesson, and additional information was recorded about the classroom environment.

**Table 1: Categories of activities for lesson observations**

The teacher is	The learners are
1. Presenting or explaining	1. One is giving answers
2. Organising learning tasks or activities	2. Chorus replies
3. Asking learners open questions	3. Working or talking in pairs
4. Giving feedback	4. Working or talking in groups

5. Walking around the classroom	5. Singing Songs
6. Observing or listening to learners	6. Playing Games
7. Writing on the blackboard	7. Reading
8. Recapping a previous lesson	8. Writing (not copying)
9. Other	9. Listening
	10. Copying
	11. Working individually
	12. Presenting
	13. Organising a task
	14. Other

Data collection was completed using face-to-face interviews, review of school documents e.g. the School In-service Record (SIR), and lesson observations using tablet-based questionnaires. Data collection was undertaken by a group of 8 independent enumerators in Zambia, who were trained by World Vision. They went through and discussed the tool; and practised using it together in a lesson demonstration and using video footage of a lesson filmed in one of the Cohort 1 schools. Data was collected over two days in March 2020.

The evaluation team was led, supervised and supported by a WVZ M&E staff member and accompanied by District Officials from the Ministry of General Education District Office. World Vision team members and District Officials were not present during interviews or lesson observations and did not participate in the data collection, though they remained with the team in the school. Two enumerators were assigned to a school and stayed for the whole day. Three teams covered three schools every day.

The school was not aware of the details of the visit in advance in order to avoid stage-managing. The interview and observation schedule was drawn up with the school on arrival; teachers were then given the opportunity to consent or withdraw from the process.

At each school the SIC was interviewed (CPD interview) except in one school where this interview was held with a Senior Teacher. Five/six other teachers in each school were interviewed and observed. The teachers interviewed were randomly selected from the primary school teachers present, with a focus on obtaining a balance across the grades and subjects where possible.

The data collected were anonymised by using a code for each respondent, so that the reported responses could not be identified with individuals by the data analyst.

Data collection was completed using the KOBO Toolbox system used in the Baseline study and C1 evaluation and input on tablets.

### **Population and Sample**

All six Cohort 2 schools were visited.

Within each school, teachers for the sample were randomly selected, based on availability.

The evaluation involved interviews with 35 staff in the 6 schools, including 35 teacher interviews, 6 CPD interviews and 35 lesson observations.

Table 3 provides contextual data on the six schools. (It should be noted that this data represents a point in time and might be slightly different from numbers in the logframe as there is frequent movement of teachers within the system. The main point is that these were all large schools, and

this has impacted on the way that ZEST runs, with TGMs for teachers of a subject or age-group rather than whole school meetings).

*Table 3: Teachers and Learners in Cohort 2 evaluation schools by gender*

School code	Number & percentage of FEMALE primary school TEACHERS		Number & percentage of MALE primary school TEACHERS		Number & percentage of FEMALE primary school LEARNERS		Number & percentage of MALE primary school LEARNERS	
	Number	percentage	Number	percentage	Number	percentage	Number	percentage
1	14	74%	5	26%	546	54%	473	46%
2	46	90%	5	10%	476	52%	442	48%
3	51	94%	3	6%	963	50%	971	50%
4	22	92%	2	8%	377	42%	522	58%
5	49	83%	10	17%	691	47%	788	53%
6	25	93%	2	7%	654	52%	598	48%
Overall	207	88%	27	12%	3707	49%	3794	51%

Teacher interviews and lesson observations were only undertaken for those working in grades 1 to 7.

#### b) May 2019 Workshop

Six workshops were held – one in each school. OU and WVZ staff were accompanied by Province and District Officers. The aim of the workshops was to prepare teachers for term 2 and to gather experiences of term 1. Those experiences were written up and relevant observations are reported here as part of the Cohort 2 evaluation.

#### c) District Narratives

One of the findings from Cohort 1 was that the District Officers are crucial partners in ZEST and supporting them in developing a more ‘learner-centred’ relationship with schools, in which teachers are seen as equal partners and their role as one of support as much as monitoring, is important. In May 2019, District Officers provided accounts of the monitoring they had done. This provided insights into how ZEST was being implemented in schools, but also about how they perceive and carry out their role.

#### d) September 2019 Workshop

WVZ staff ran workshops in each school in order to prepare teachers for term 3. Relevant details from the workshop report are included here as part of the developing picture of the impact of ZEST on Cohort 2.

#### e) Filming May/September 2019

A team from the OU and a Zambian film crew, along with WVZ and District Officials, visited a number of schools from Cohorts 1 and 2 in May 2019 in order to identify suitable sites for filming in September 2019, so that AV resources can be included in the SBCPD materials. Field notes kept at the time from both visits highlighted emerging issues for Cohort 2 and are included in this evaluation.

#### f) December 2019 Workshop

The OU and WVZ visited Kabwe for a ‘closing’ workshop. Feedback was obtained from Headteachers, ZICs and SICs about the impact of ZEST and their evidence is included here.

## Findings

Overall the picture that emerges from the data is mixed. Perhaps not surprisingly some teachers are more confident in using the approaches than others. However, after three terms of activity, there are encouraging signs and lessons learned. We present the findings with reference to each of the ‘programme theories’ set out in section 2. Each set of data has implications for the project. These are summarised alongside the ‘findings’ and brought together in the discussion.

### a) Teachers’ classroom practice and professional skills

The programme theory is that:

**By giving teachers help and resources in the form of classroom examples, classroom practice and teachers professional skills will improve**

‘Improved classroom practice’ is difficult to measure since ZEST is not targeting a particular skill, age-group or subject. For the baseline, it was decided to use lesson observation to record what teachers and learners were doing every 2 minutes, and to measure how much time in a lesson, learners spend talking in groups or pairs. The rationale for this is that talking in groups or pairs is an observable manifestation of ‘active learning’. Experience and evidence (Baseline report) show that in many lessons, children are passive participants, listening or copying for much of the lesson.

Other internationally recognised indicators of ‘effective classroom practice’ include (Alexander, 2015; Hattie, 2012):

- the use of open questioning to promote thinking;
- the use of local resources to engage learners and help understanding;
- teachers using a variety of teaching approaches in a lesson;
- involving all learners in the lesson;
- providing feedback to students.

### i) Time spent talking in groups or pairs

The data summarising the observation of 35 is given in Appendix 2 (what learners were doing) and Appendix 3 (what teachers were doing).

Focusing on the data for the time learners spent working in groups or pairs, Table 4 summarises the proportion of time spent on group work or pair work across the sample of 35 lessons.

*Table 4: Distribution of time spent on either pair or group work in lessons*

Number and percentage of lessons in each time band	Proportion of lesson time spent on activity										
	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Group work	17	5	4	4	4	1	0	0	0	0	0
	49%	14%	11%	11%	11%	3%	0%	0%	0%	0%	0%
Pair work	25	2	5	2	1	0	0	0	0	0	0
	71%	6%	14%	6%	3%	0%	0%	0%	0%	0%	0%
Pair or group work	9	6	8	7	4	0	0	0	0	1	0
	26%	17%	23%	20%	11%	0%	0%	0%	0%	3%	0%

This table considers the individual lessons and assigns each one to a category based on the proportion of the lesson which learners spent on pair or group work. All 35 classes are represented in each row of the table. The data can be interpreted as follows:

- The largest individual category is the lessons where no time is spent on pair or group work. In 17 lessons (49% of the total) there is no group work, while in 25 lessons (71% of the total) there is no pair work. However, there were only 9 lessons observed (26% of the total) where *neither* pair nor group work took place.
- In most lessons either pair work *or* group work was observed, with group work being observed more often.
- This table also helps to highlight the median value for pair or group work (Outcome Indicator 1 in the logframe), which is 10%. We can see that  $9 + 6 = 15$  lessons fall into the categories to the left (0 and 5%) and  $7 + 4 + 1 = 12$  lessons into the categories to the right (15, 20 and 45%). 8 lessons fall into the 10% category including the 'median lesson', which is the middle data point (i.e. the 18<sup>th</sup> data point out of 35) when they are arranged in increasing order.
- Most lessons contained *either* group work *or* pair work. This means that if the lesson contained 5% group work, say, then it contained 5% 'group or pair work', i.e. it is assigned to the same category for the joint activity as for the individual activity which was observed, and to the 0% category for the other individual activity. However, there were two lessons which contained both types of activity.
  - The lesson taught by teacher 18 contained 20% pair work and 25% group work, making 45% of the lesson in total.
  - The lesson taught by teacher 33 contained 5% pair work and 10% group work, making 15% of the lesson in total.

These two lessons fall into different categories for each of the three measures tabulated below.

Compared to the baseline (5%) the median time learners spent talking in groups or pairs has increased to 10%. This reflects the fact that in 11 lessons, the proportion of time students are engaged in group work or pair work is 20% or above. This is in keeping with experience elsewhere that the uptake of new practices is variable with some teachers making rapid advances.

During the teacher interviews, teachers were asked how often they use pair work, group work and locally made teaching resources. The data is given in Table 5.

Table 5: Teachers' reported use of collaborative classroom practices

In the past month how frequently did you	Ask learners to work or discuss in pairs?		Ask learners to work or discuss in a group?		Use a resource you made from local materials or that you found locally?	
	#	%	#	%	#	%
Every lesson	6	17%	11	31%	3	9%
Most lessons	18	51%	14	40%	12	34%
Once or twice a day	1	3%	1	3%	2	6%
2 or 3 times in a week	3	9%	4	11%	4	11%
Once a week	3	9%	4	11%	9	26%
Less than once a week	3	9%	1	3%	3	9%
Never	1	3%	0	0%	2	6%

This data suggests that:

- The majority of teachers reported using pair or group work in 'most' or every lesson: 68% report asking learners to work in pairs in most or every lesson; 71% report asking learners to work in groups in most or every lesson.
- All the teachers reported using either pair or group work on at least one occasion in the past month.

Table 4 above, indicates that pair work was observed in 29% of lessons, while group work was observed in 51% of lessons, which suggests that teachers are reporting higher levels of use than the sample suggests actually take place. However, in the teachers' workshops in May 2019, some encouraging reports were gathered:

- Group work as one of the approaches has really helped me in delivering good lessons. I have managed to put the pupils in permanent groups and also elected a group leader to spearhead all the activities given to the group. For my class I feel groupwork has really worked because learners participated fully in the lesson.....I could say that group work is really helpful because pupils learn from each other with the teacher's supervision. It also provokes thinking in the learners (teacher Na, Nkwashi).
- I used a lot of pair work so that each pupil would participate and that helped me to know what pupils know about the lesson or what knowledge (teacher Mc, Mtshede).
- Learners are given pair work which helps learners to grasp the concept through their friends without difficulties. For example, shy learners are able to participate in activities when in pairs (teacher Me, Mtshede).
- Because of doing a lot of pair work learners (a lot) are getting involved at every step making it possible for lessons to be successful (teacher Mf, Mtshede)
- Learners were able to interact with their fellow learners freely. This came about as a result of pair work of different pairs would work together (visiting teacher, Kasanda Malombe).

An example from the September workshop also demonstrated the potential of group work: 'A Grade teacher at Benny gave learners a task to do in groups while she went round checking and listening to conversations in groups. She was amazed that the learners summarised the whole lesson as they were reporting their findings as groups. She confessed that learner participation was high during group discussion compared to when she did the talking herself' (Project Co-ordinator, WVZ).

#### ii) Asking open questions to promote thinking

The observation data show that teachers spent nearly 19% of the time 'asking open questions'. However, by combining the data for what the teacher was doing and what the learner was doing (Appendix 4), it becomes apparent that when the teacher was asking open questions, the learners were chorusing replies. This implies that the questions were unlikely to be genuinely 'open' questions, but instead be closed questions requiring one possible short answer. However, the data from the teachers collected in the May workshops, suggests that questioning is something that they are thinking more deeply about:

- The first lesson was in integrated science for grade 3 on the types of plants, and I used different question techniques which involved the lower order and higher order questions I used when planning the lesson.....This approach encouraged learners to participate well and I was able to get variety of answers from the learners. This approach has also helped me when I am giving a test to pupils. I start with the lower order questions and end with higher order questions (teacher Nc, Nkwashi).

- .....during questioning I now give learners enough time to respond (teacher Mb, Mtshede)
- ..... most of them [learners] have become more confident as a result of being subjected to some higher order questions which make them explain their ideas to the class (teacher Na, Nkwashi).
- I have learnt to use both low and high order questioning. This approach has helped my learners to be able to think critically. Most of my learners re able to explain and describe those difficult tasks, unlike previously when you concentrated more on lower order questions (teacher Nb, Nkwashi).
- I reflect more on the questions that I ask the learners and I try by all means to ask them questions that require thinking (teacher Lb, Lukanga).
- This also improved the teacher-pupil relationship: pupils were able to consult from the teacher and from learners as well. Learners were able to think critically whenever a task is given. This is because of questioning approach especially higher order questions (visiting teacher, Kasanda Malombe).

### iii) The use of local resources to engage learners and support understanding

After the lesson observation, each enumerator was asked a number of short questions designed to form a picture of the learning environment. It was reported that in almost half (48%) of lessons there was some evidence of learning and teaching materials, but in 30% there is none (lesson observation data). Table 5 above shows that 43% of teachers report using a resource they had made or found locally in most or every lesson. In the CPD interview, senior teachers in three of the six schools, reported that there was more use of locally made teaching resources in lessons and that teachers are more willing to take children outside to support their learning. The evidence from the teacher workshops in May highlighted some specific examples of using local materials and engaging the community to support learning:

- In this lesson, I and the pupils went outside the classroom to pick flowers. We took the flowers back to class.....The flowers we picked had different colours, parts and were in different sizes. I then displayed the chart on the parts of the flower that I had prepared. I asked the pupils to identify the parts of their flowers to the parts on the chart I had displayed. I asked the learners to show me in their flower the parts that I pointed at on the chart.....This lesson was very exciting and it rose pupils' interest (Teacher Na, Nkwashi).
- We decided at our TGM to invite some health personnel from the local health centre to come into school and give a talk with the learners. Our TGM is among the Grade 1 and 2 teachers. A resolution was arrived at because learners at grades 1 and 2 had received mosquito nets with no further instructions on how to use them (teacher N2, Nkwashi).
- The use of local resources has improved pupils are now using stones, sticks, bottle tops when counting in mathematics (teacher Mc, Mtshede).

It was reported in the September workshop that: 'A grade 4 teacher at Mtshede Primary school use the school Office Assistant to help teach a lesson on Computers. The wanted to use someone who has a better technical knowledge and skills in ICT than the teacher. The Office Assistant helped to explain the lesson on parts of a Computer in CTS, which learners understood with much easy. The teacher applied the 'Use of Local Resources' as an approach to teaching' (Project co-ordinator, WVZ).

### iv) Using a variety of approaches

The lesson observation data (Appendix 2) shows that learners spend 28% of the lesson time listening to the teacher, but also had opportunity to take part in tasks in pairs and groups, play games, sing

songs and make presentations. In the CPD interviews senior teachers in half of the schools, commented that teachers were using more than one of the teaching approaches that are being emphasised in ZEST in their lessons, and that teachers' confidence in planning active lessons was improving. This is encouraging and reflects input during the May 2019 workshops (planned as a result of the Cohort 1 evaluation) which sought to emphasise for teachers the importance of linking the teaching approaches together in a lesson rather than treating them separately.

#### v) Inclusive teaching

Involving all learners is demanding in large classes, but ZEST highlights strategies that all teachers can use. Inclusivity is difficult to measure, but there is some evidence that teachers are noticing more, and that this is having a positive impact on learners' self-esteem and participation in lessons.

Lesson observation data shows that teachers are spending just 5% of the time walking around the room (appendix 3). When they are doing this, learners are mainly writing (not copying), talking in groups or pairs, or working individually (Appendix 4). Teachers are spending 10% of the time marking books, while learners copy work or work individually. Learners names are used frequently in 67% (2/3) of lessons (post-observation questions) and learner work is displayed in 26% (1/4) of classrooms.

Comments from individual senior teachers and teachers are more encouraging. In the CPD interview, the School In-service Co-ordinator (SIC) in School 6, commented that *'There is more interaction of teachers with learners and thus learners are able to express themselves and enjoy lessons.'* The SIC in School 1 suggested there is more *'participation of learners and learners are able to express themselves'*. During the May workshop for teachers the following comments were made:

- I concentrate much on slow learners by preparing less different work that suits them but within the topic. Those who were failing completely are now trying to write and have become free wanting their books marked. Previously they never used to have their work marked because most of the times they never completed their work (teacher Ma, Mtshede)
- I am now able to pay attention to all the learners in my class (Mb, Mtshede).
- There has been a lot of change in the sense that even slow learners and those who are very quiet are able to participate. It also makes the lesson to be very interesting and live. Learners are also able to participate, freedom of expression has been introduced (teacher Mc, Mtshede).
- I have also known the abilities of pupils in my class (slow learners and fast learners) and give them work according to their level (Na, Nkwashi).
- I think they enjoy the way I praise and encourage them. They also have learned how to praise and appreciate each other (teacher Md, Mtshede).

During the filming, a teacher at Nkwashi school commented: 'I saw my learners were dozing but the minute we started singing they were motivated ....singing is another way of motivating the learners'

'I want all my learners to take part. ...If I bring a song, a game, an activity I will see all my learners involved'

She is developing strategies to engage all learners in the lesson.

#### vi) Feedback to students

Classroom observation data shows that teachers spend 4% of time giving feedback in class and 10% of their time marking books. In the comments above, one teacher (Md, Mtshede) suggests that they are using praise more often and that this has motivated learners. Another (Ma, Mtshede) suggested

that there is more marking to do as by targeting work more individually, 'slow' learners are completing tasks and wanting their work to be marked. One of the senior teachers interviewed in the CPD interview suggested that teachers are providing more feedback.

During the filming in September, a project team member recorded in her field notes the fact that 'the teachers were tactile, noticing when students were tired or unwell, used their names, and frequently gave encouraging verbal feedback'. This highlights the limitations of formal observations by people who are not necessarily teachers themselves.

Given the impact on learning that giving feedback can have (as demonstrated in Hattie's (2012) meta-level study of the impact of different intervention), this is an area which could be developed further, through monitoring and highlighted in the enumerator training for the midline study.

#### vii) Summary

In the teacher workshop in May, teachers were specifically asked for examples of lessons in which they had used the ZEST teaching approaches. Many drew on the TESSA library, and the discussion at the District workshop in May indicated that much thought was being given by the schools to the issue of how to make the TESSA libraries available to teachers.

Looking across the data as a whole, there is evidence in Cohort 2 that:

By giving teachers help and resources in the form of classroom examples, classroom practice and teachers' professional skills will improve.

However, the focus on specific aspects of internationally recognised effective teaching has highlighted areas for development and provided insights which could support on-going monitoring of Cohort 2 and Cohort 3.

#### b) Teachers' confidence in using participatory approaches

The programme theory is:

**Through an organised progressive programme of School Based Continuing Professional Development (SBCPD), teachers will become more confident practitioners**

In the teacher interviews teachers were asked about their level of confidence in using a number of active teaching approaches included in the ZEST training resources i.e. asking open questions, using pair and group work, and roleplay. Questions and pair work are approaches that are included in the first term of ZEST, while group work and roleplay are introduced in the second term. Table 6 below indicates that the level of confidence seems to be increasing with the length of time the teachers have been using the approach, with no teachers indicating they had not used or did not feel confident to use the approaches explored in term 1.

Table 6: Teachers' reported confidence in use of active teaching approaches

How confident are you in using collaborative active teaching approaches in your lessons?	Asking open questions		Pair work or discussions		Group work or discussions		Role play	
	#	%	#	%	#	%	#	%
Very confident	24	69%	17	49%	19	54%	4	11%
Confident	10	29%	13	37%	12	34%	8	23%
I try this	0	0%	4	11%	3	9%	7	20%
I will try this with help	0	0%	0	0%	0	0%	6	17%
Not confident	0	0%	0	0%	0	0%	5	14%
I have not done this	1	3%	1	3%	1	3%	5	14%

- Almost all teachers (97%) reported that they felt confident or very confident about asking open questions
- The majority of teachers reported that they felt confident in using pair work (86%) or group work (88%)

Teachers reported lowest confidence in using role play. 34% said that they felt confident or very confident. 37% expressed willingness to try.

In the Cohort 1 evaluation, teachers reported feeling confident or very confident about using group work than in the baseline (73% vs 87%). However, the value for Cohort 2 is more in line with the baseline, with 88% of the sample saying that they are confident or very confident in using group work. This data is encouraging as the baseline report suggested that, based on experience in other international projects, 'confidence levels are likely to drop as teachers come to understand what is meant by active learning in practice.' (Gallastegi & Stutchbury, 2018, p.30). It should perhaps be noted, however, that particularly in the case of 'asking open questions', the data does not confirm the effectiveness of the approaches and the way they are being carried out. This is why individual reflection, discussion, and monitoring and support from District Officials are so important.

In CPD interviews, SICs/senior teachers were asked about any improvements they had perceived among teachers since the implementation of ZEST. These are the responses from the six schools which related to levels of confidence:

#### Improvements for teachers

- Teachers are more confident with the approaches
- Teachers are more confident in teaching subjects that they were not confident teaching before
- Improvement in class management
- Teachers are using the group work approach more confidently
- Use of the approaches in class
- Teachers are more confident in using more than one teaching technique
- Teachers are using the approaches with more confidence
- Teachers are able to use more than one approach in the lesson
- Teachers are opening up about subjects and approaches that they are not confident in and are being advised
- Teachers are using the approaches that they discuss in Teacher Group Meetings

At a workshop in May, teachers also talked about the impact of ZEST on their confidence in the teaching approaches:

- Having used the previous approaches, questioning, pair work and using the local environment resources I have become a more confident teacher (teacher Na, Nkwashi)
- I have taken group work to the next level, where groups will be given topics to teach to their friends (teacher Nc, Nkwashi).
- I have gained a lot of confidence in delivering the lesson in particular topics. It has also helped me to talk to the learners with clear explanations. For example, the learners interact with me very well (teacher Nd, Nkwashi).
- .... the benefit is that I have been reminded of them and I am now using them in class with more confidence (teacher Ne, Nkwashi).
- I was not clear about some approaches, but due to the TGMs I now know how to use different approaches in different lessons and activities. I have learnt a lot, most of the things was a challenge to me but working in groups has made the work easy (teacher Ld, Lukanga).

During the filming, interviews took place about the impact of ZEST. The Headteacher at Nkwashi school commented:

‘teachers work together in planning at meetings. After planning there is peer monitoring in the classrooms. They can see how they can help the learners and improve the classroom environment,’

‘there is collaborative teaching and planning and more ‘togetherness’ in the way they are doing their work’

At the September workshops, the WVZ Project Co-ordinator reported that ‘TGMs are seen to be very helpful by teachers and has increased their participation such that more time is spent only discussing the teaching approaches and classroom experiences’.

Also ‘at Twafwane and Lukanga, special TGM time is used to develop teaching learning materials for the lessons’. This suggests that good use is being made of the TGMs.

The data and teachers’, SICs’ and ZICs’ testimonies indicate that teachers are becoming more confident and support the hypothesis that:

Through an organised progressive programme of School Based Continuing Professional Development (SBCPD), teachers will become more confident practitioners.

However, this is not yet evident in the classroom observations with a discrepancy between what teachers say they are doing and the lesson observations. This is perhaps not surprising as in the context of a formal interview like this, teachers often present an optimistic view of practice. We know from experience however, that sustained change takes a long time. The reported levels of increased confidence are an important first step. As long as on-going monitoring and support reinforce the benefits of these approaches, these more confident teachers are more likely to use these practices more often.

### c) [Impact on learners’ behaviours and outcomes](#)

The programme theory is:

**If teachers improve their professional skills, learners’ outcomes will improve**

It is difficult to identify improvement in learners' outcomes in one school year, however data from the independent enumerators and from comments shared by teachers, SICs and/or Headteachers in the different workshops held between May and December 2019 suggest a number of changes in learners' behaviours and outcomes are emerging.

The five SICs and one Senior Teacher who took part in the CPD interviews, identified the following aspects as improvements they had observed in their school since their participation in ZEST. These comments are also consistent with statements shared by teachers and Headteachers in the May and December 2019 workshops.

**Improvements in learners (CPD interview)**

- Participation of learners and Learners are able to express themselves (school 3).
- Learners results have improved (school 4)
- The performance of the learners has improved (school 5)
- There is more interaction of teachers with learners and thus learners are able to express themselves and enjoy lessons (school 6).
- Learners results have improved (school 6)

During the May workshops, teachers were asked if they had noticed any changes in their learners as a result of changes they had made in their teaching. The following comments were made:

- My learners have really changed, slow learners are now participating during and after the lesson. Most of my learners are now motivated and they have stopped missing classes (teacher Mb, Mtshede).
- There has been a lot of change in the sense that even slow learners and those who are very quiet are able to participate. It also makes the lesson to be very interesting and live. Learners are also able to participate, freedom of expression has been introduced (teachers Mc, Mtshede).
- Since I started teaching the teaching approaches which I learned using the TESSA library there has been a difference in learners I have taught. They are able to work together freely. They are able to ask questions to each other and answer freely. The questioning technique from one-word answers to high questioning. They are able to construct some sentences in other subjects (teacher Md, Mtshede).
- For example, shy learners are able to participate in activities when in pairs. Pupils have changed in that at first they used to refuse those they know do not well in class, but now they can pair with one (teacher Me, Mtshede).
- A lot of learners are encouraged to investigate the resources that they have around their environment. In this even critical thinking has also improved in my learners (teacher Mf, Mtshede).
- On the part of my learners, most of them have become more confident as a result of being subjected to some higher order questions which make them explain their ideas to the class. The learners have also improved in the way they respond, rather than giving one-word answer, they have learnt to explain their answers. Pupils who were unable to talk to their friends (shy) are now able to discuss with their friends freely or ask questions where they need clarification (teacher, Na, Nkwashi).
- I can gladly say that I have seen a lot of change due to the fact that these approaches are really bringing out the inner abilities of the learners (teacher Nc, Nkwashi).

- There is competition between the faster learners and other upcoming learners. The learners find it motivating and interesting using the local resources for example grade 6 pupils are able to interact or gained confidence to ask questions on the risks of teenage pregnancy (teacher Nd, Nkwashi).
- My learners have changed in that since I am now using a variety of the approaches and I am confident when using them, my learners are also confident and are able to express themselves, their participation rate has improved teacher Ne, Nkwashi).
- Learners have changed in terms of thinking and socialisation aspects. Thinking has been enhanced through questioning approach, there is improvement in handling of tasks, socialisation has come about because of pair work and slow learners have improved (visiting teacher, Kasanda Malombe).
- In pair work it has been easy for the pupils to interact and learn from each other, some have even found friends. To newcomers it has made their school life easy and mingle freely (teacher La, Lukanga)

These comments taken together paint a picture of children who are more actively involved in lessons, more likely to ask questions and developing their social skills.

We currently do not have data linked to learners' outcomes for this district, however it is expected that with improvements in relationships in schools, pupil attendance, participation, motivation and performance, along with those in teachers' professional skills discussed in the previous sections, learning outcomes will improve, which supports the third hypothesis set up at the beginning of the report:

If teachers improve their professional skills, learners' outcomes will improve.

#### d) Teachers' participation and collaboration in SBCPD

International evidence shows that pedagogic change is demanding, takes time, and is more likely to be sustained if teachers work collaboratively to form 'communities of practice'. In hierarchical organisations, the notion of a 'community of practice' is challenging. In a school a 'community of practice' requires mutual respect and a recognition that everyone has relevant experience to contribute. Headteachers, ZICs and District Officials have the benefit of working across schools and seeing a range of practice in different contexts. Teachers in a school have expertise within their context; they understand their children, their community and how to teach their subject. A key aim of ZEST is to support all professionals to collaborate effectively and to be willing to learn and develop through their interactions with others. The main vehicle for this is Teacher Group Meetings, held as part of the regular school routine in all schools in Zambia, and routine monitoring and support visits from ZICs and District Officials. The programme theory that underpins ZEST is that:

**If we provide contextualised resources their Teacher Group Meetings (TGM) will become more purposeful and engaging for teachers**

The ZEST programme makes use of the established model of TGMs and provides activities and resources that teachers can use to develop their professional skills and teaching practice, as well as to encourage collaboration and peer-support among teachers.

In Cohort 2 the number of TGMs varied between schools much less than in Cohort 1. The schools are all large (see Table 3) and TGMs tend to take place between groups of teachers in lower primary or upper primary, rather than as a whole school meeting. Subject specialisation is now in place, so

TGMs are linked to subject as well as to level. Table 7 shows the number of TGMs per term in the Cohort 2 evaluation schools.

*Table 7: TGMs per term in Cohort 2 evaluation schools*

School	Number of TGMs				Average number of TGMs	
	Term 1 - 2019	Term 2 – 2019	Term 3 – 2019	Term 1 - 2020	1/19–3/19	1/19–1/20
1	3	2	4	3	3.00	3.00
2	4	4	3	5	3.67	4.00
3	6	4	6	5	5.33	5.25
4	2	4	3	3	3.00	3.00
5	3	4	3	3	3.33	3.25
6	4	4	5	2	4.33	3.75
Average	3.67	3.67	4.00	3.50	3.78	3.71

Rows 1 to 6 show the number of meetings held by each individual school in each term, followed by their average number of meetings per term across the first three terms (terms 1 – 3 in 2019) and across all four terms of the study (from term 1 2019 to term 1 2020). The final row shows the average number of meetings held by these six schools as a group.

Tables 8 and 9 show the same information, but in Table 8 the information is expressed in terms of counts (the number of schools from 0 to 6) and in Table 9 it is expressed as percentages.

*Table 8: School by average number of TGMs held*

Threshold value of average number of TGMs held in a term	In Term 1 2019	In Term 2 2019	In Term 3 2019	In Term 1 2020	1/19–3/19 Averages		1/19–1/20 Averages	
					1*	2**	1*	2**
0 TGMs held on average	0	0	0	0	0	0	0	0
≥ 1 TGMs held on average	6	6	6	6	6	6	6	6
≥ 2 TGMs held on average	6	6	6	6	6	6	6	6
≥ 3 TGMs held on average	5	5	6	5	4	6	3	6
≥ 4 TGMs held on average	3	5	3	2	2	2	1	2
≥ 5 TGMs held on average	1	0	2	2	0	1	0	1

*Table 9: School by average number of TGMs held expressed as a percentage*

Threshold value of average number of TGMs held in a term	In Term 1 2019	In Term 2 2019	In Term 3 2019	In Term 1 2020	1/19–3/19 Averages		1/19–1/20 Averages	
					1*	2**	1*	2**
0 TGMs held on average	0%	0%	0%	0%	0%	0%	0%	0%
≥ 1 TGMs held on average	100%	100%	100%	100%	100%	100%	100%	100%
≥ 2 TGMs held on average	100%	100%	100%	100%	100%	100%	100%	100%
≥ 3 TGMs held on average	83%	83%	100%	83%	67%	100%	50%	100%
≥ 4 TGMs held on average	50%	83%	50%	33%	33%	33%	17%	33%
≥ 5 TGMs held on average	17%	0%	33%	33%	0%	17%	0%	17%

\*Average 1 indicates the schools that had on average 3 or more TGMs in each of the relevant terms

\*\* Average 2 indicates the schools that had on average 3 or more TGMs across the relevant terms, i.e. 9 or more total for the three terms, 12 or more for the four terms. This allows for schools to catch up on TGMs they have not been able to have during a term due to other initiatives or reason (weather, teacher absence..).

In table 8 the number in each cell is the number of schools who met a certain threshold number of TGMs (specified in the leftmost column) during a specified time period. In the highlighted row, the threshold number is 3 TGMs. We can see that:

- In term 3 of 2019, all six schools achieved this number of TGMs (100% in table 9)
- In the other three terms, 5 out of the 6 schools achieved this number (83% in table 9)
- Taking together all three terms of 2019, 4 out of the 6 schools (67% in table 9) achieved at least 3 TGMs in every term (This is Outcome Indicator 2)
- All 6 schools (100% in table 9) achieved an *average* of at least 3 TGMs per term in this period, though they may have had four meetings in one term and two in another.
- The number of TGMs was maintained into Term 1 of the next year, suggesting either that the momentum has been maintained, or that ZEST did indeed fit into existing structures and extra meetings were not required.

The finding is that for this relatively small sample (6 schools), TGMs are being held at least every 3-4 weeks, and that this has been sustained across the 4 terms for which data has been collected. Table 10 shows the level of attendance at TGMs, as reported in the CPD interview.

Table 10: Attendance at TGMS by term

Number of terms where attendance level achieved	1/19–3/19				1/19–1/20			
	Good *		Very good **		Good *		Very good **	
0 terms	0	0%	0	0%	0	0%	0	0%
≥ 1 terms	6	100%	4	67%	6	100%	6	100%
≥ 2 terms	6	100%	3	50%	6	100%	4	67%
≥ 3 terms	6	100%	1	17%	6	100%	3	50%
≥ 4 terms					6	100%	1	17%

\* 'Good' attendance: 60 – 79%

\*\* 'Very good' attendance: 80 – 100%

This table shows the level of attendance at TGMs.

- 'Good' attendance (60 – 79%) was achieved at every meeting in the sample.
- 'Very good' attendance (80 – 100%) was achieved by 67% of schools in at least 1 term in the three-term period, and by all schools in the four-term period which includes term 1 of 2020.

One school achieved 'very good' attendance in all three terms of the study period.

At the December 2019 workshop to mark the end of the programme, Headteachers and SICs commented that teachers are more willing to attend TGMs and that they are actively involved and engaged with the SBCPD programme.

Thus, the perception of the people in charge of CPD is that TGMs have been well-attended during the project. The data goes some way to reinforce the hypotheses that:

By providing contextualised resources for teachers to use in their TGMs, the TGMs are more purposeful or engaging.

In order to understand teachers' engagement with SBCPD and to support their own learning and reflect on their practice, teachers were asked to record their responses to TGM activities, their plans for classroom activities and their reflections on teaching in a notebook provided by the project. The evidence is, however, that more work is to be done with Headteachers and School In-service Co-ordinators to understand how TGMs take place, whether the suggested activities are carried out, and, if not, how the meetings are conducted. Meetings are taking place regularly, but teachers are not recording the TGM discussions and their teaching practice reflections in their teacher notebooks, which raises questions about what is being discussed and how reflection is taking place. Table 11 shows the number and proportion of teachers who recorded their use of collaborative classroom practice in their Teacher Notebook.

*Table 11: Teachers' written records of collaborative classroom practice*

Teachers who recorded use of collaborative classroom practices in their Teacher Notebook using...	Number of teachers	Percentage of teachers
written notes only	3	9%
the grid in the inside cover only	0	0%
both written notes and the grid	7	20%
either written notes, the grid or both	10	29%
no written records	25	71%

- 29% of teachers (10 teachers) had kept some kind of written record of their use of collaborative classroom practice in their Teacher Notebook (Output Indicator 1.4)
- Of those 10 teachers, 7 had used both the grid and their own written notes; 3 had used only their own written notes; none had used only the grid inside the cover of the Teacher Notebook.

If we break this information down by school (Table 12), we can see that there are marked differences between the six schools in the sample.

- Two schools (01 and 05) had no teachers who recorded use of collaborative classroom practice
- Three schools (02, 04, 06) had 40% or more of teachers who recorded use of collaborative classroom practice

*Table 12: use of teacher Notebook broken down by school*

Teachers who recorded use of collaborative classroom practices in their Teacher Notebook using...	School					
	01	02	03	04	05	06
written notes only	0 (0%)	2 (33%)	0 (0%)	1 (17%)	0 (0%)	0 (0%)
the grid in the inside cover only	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
both written notes and the grid	0 (0%)	2 (33%)	1 (17%)	2 (33%)	0 (0%)	2 (40%)
either written notes, the grid, or both	0 (0%)	4 (67%)	1 (17%)	3 (50%)	0 (0%)	2 (40%)
no written records	6 (100%)	2 (33%)	5 (83%)	3 (50%)	6 (100%)	3 (60%)

The activities set out in the Training Handbook for the TGMs require teachers to make notes on their discussions, to plan classroom activities using the teaching approaches and to write down their reflections about how the activities went in the classroom. This reflection is a vital part of embedding new pedagogic practices. They might be writing their plans elsewhere, but without the evidence it is difficult to know how the TGMs are being conducted. More work is required to find out about and strengthen what actually happens during TGMs and why teachers are not using the notebook provided.

The ZEST model is that the TGMs are facilitated in such a way that discussion takes place; the facilitator should not be providing a lecture. The programme theory is that:

**By providing a progressive programme of activities and teaching approaches to use and develop in Tutor Group Meeting (TGMs), a community of practice will develop which will encourage teachers to collaborate with each other.**

ZEST encourages collaboration among teachers in TGMs to plan activities using the different teaching approaches, to observe each other putting the activity in practice in the lesson, and to provide an opportunity for constructive peer-feedback after the lesson. In the Cohort 2 evaluation, the CPD interview (SICs/Senior Teacher) asked about changes senior teachers had perceived in teachers since the introduction of ZEST. Below are some of the comments that emerged in two schools during the interviews:

**Improvements in teachers**

- Teachers are no longer shy to ask for help or advice.
- Teachers are opening up and asking for advice where they need help.

In the teacher interview, teachers were asked how often they talk to other teachers about their practice. Table 13 summarises the information they provided.

The average for each school of how often they reported collaborating with other teachers was calculated as follows: 0, 1-2 per week (recorded as 1.5); 3-5 per week (recorded as 4); 6-10 times per week (recorded as 8); and 10+ (recorded as 10). This is given in Table 13.

*Table 13: The average number of times teachers report collaborating with others, each week.*

School	Talk to colleague re-plans	Give advice	Receive advice	Talk about how teaching went	Totals
1	1.8	3.7	2.5	1.5	<b>9.5</b>
2	6.7	7.2	8.3	8	<b>30.2</b>
3	5	5.4	5.4	5.7	<b>21.5</b>
4	5.4	5.4	5.9	3.8	<b>20.5</b>
5	2.5	1.7	2.5	1.7	<b>8.4</b>
6	4.2	5	3.8	3.8	<b>16.8</b>
<b>Total</b>	<b>25.6</b>	<b>28.4</b>	<b>28.4</b>	<b>24.5</b>	

The numbers suggest:

- There is collaboration going on, which fits in with the notes from the Cohort 2 workshops in May and December.
- There is more giving and receiving of advice than collaborative talk (bottom line of the table).
- Teachers are less likely to talk about how the lesson went than about their plans – but only slightly.
- Schools 1 and 5 show considerably less collaboration than the others. School 1 is the most concerning (last column). School 1 also recorded that 0 teachers had used the teacher Notebook in the way which was intended.

The comments from teachers in the May 2019 workshops was more encouraging. The following comments were noted:

- The only thing that has changed is that there has been an improvement in the delivery of lessons because we interact with our colleagues more because they observe us while teaching and we discuss the strengths and challenges of the delivered lesson, hence making teaching more interesting and effective (teacher Lc, Lukanga).
- Since I came to this school so many things have changed. Teachers at this school have been serious about the TGM. This has cheered me a lot. I have learnt a lot from the TGM. I was not clear about some approaches, but due to the TGMs I now know how to use different approaches in different lessons and activities. I have learnt a lot, most of the things was a challenge to me but working in groups has made the work easy (teacher Ld, Lukanga).

#### e) The work of the District Officials

The Cohort 1 evaluation highlighted the importance of the District Office in supporting the implementation of ZEST. Cohort 1 was based in a rural location so regular monitoring by the District was difficult. In Kabwe, the six schools are relatively close together which makes monitoring possible.

At the District meeting in May, District Officials were each asked to provide a short, written narrative explaining some of the work they had done. These were analysed in order to understand how they see their role and how they carry it out. This will provide insights that will inform resources to be made available to Cohorts 4 and 5, and monitoring discussions for Cohort 3.

##### i) How District Officers see their role

The evidence came from a SIC, a Headteacher, the District Education Standards Officer (DESO) and three Education Standards Officers (ESOs). In each of the accounts, they saw their role primarily as a monitor whose role was to 'inspect' and ensure that the guidelines were being implemented as intended. They offered advice based on what they saw. The advice was very closely linked to the ZEST cycle, and lesson observations highlighted where teachers had used some of the teaching approaches.

The accounts describe the monitoring of TGMs, and the observation of lessons, although the DESO also suggested that part of the monitoring role was to check the learning environment. The maintenance of records is taken very seriously, and several Districts Officers commented on the quality of the record-keeping, particularly the SIR book. Schools take the advice from the District Officers seriously and one reason why there were problems with the Teacher Notebook is that one

ESO misunderstood the purpose of the notebook and stopped teachers from using it. This will be addressed through the Implementation Guide.

The evidence from these accounts is that the District Officers see themselves primarily as monitors. They offer support when they see activities or actions that they do not consider to be correct. The SIC described some specific challenges that teachers identified which they tackled as a group, but also commented that: *'Some of the challenges needed the attention of the administration or professional guidance from the SIC/ZIC/DRCC'*.

A comment from the September workshops emphasises the fact that ZEST has been embraced by the District and Provincial Office: *'During the district Meeting, the DEBS office urged the teachers to embrace these interventions such ZEST and reminded them that refusing to receive such intervention was clear insubordination and is a serious chargeable offence'*.

This comment is both encouraging and concerning. Encouraging because ZEST is owned and supported by the District Office, but the tone is not consistent with the notion of building a 'community of practice' in which all participants 'own' the activities. The intention is that ZEST will make teachers' jobs easier more satisfying and that they will be active participants in the activities. ZEST is working with teachers; it is not something that is being done to them.

#### ii) How District Officers carry out their role

The monitoring role involves observing an activity, such as a TGM or a lesson and then *sharing 'with the teacher the actions that needed to be improved on and those that were done well' (Headteacher)*.

In the case of TGMs, two DOs intervened and took over the facilitation when they felt the activity did not reflect the intentions of ZEST.

One ESO attended a TGM and describes what they found and how they responded:

*'The SIC seemed very active. He had drawn up the agenda on the board and was ready to begin. The other teachers looked at him like pupils ready to listen.'*

*It was at this point that I intervened and asked what the objective of the meeting was. He said it was a planning meeting for a science lesson on the topic of pollination. The participants had no reference books and so we encouraged them to go and collect them for the grade level he/she was planning for. We guided that each teacher plan a lesson using the Questioning technique referring to the TESSA library following their grade level.*

*Each level was asked to present their lesson after which other participants shared their observations and inputs for the improvement of the lesson'.*

Another ESO describes how they intervened to explain the intention of ZEST:

*'However, some content/concepts by the participants was not accurate on the SPRINT system. As a monitor, I supported the facilitators by also doing some facilitation in the meeting and helping the participants to have a common understanding of the importance of the SPRINT framework and its components'.*

A SIC monitored TGMs within their school and provided a detailed report of some of the challenges which teachers were encountering:

*'Some interventions to identified problems were put in place e.g. too much noise during approach 2 (pair work) was challenging. With questioning techniques (approach 1) slow learners do not actively participate when high order questions are used. Some teachers also had a challenge to formulate higher order questions especially in Mathematics'.*

This limited sample provides some insights, but also highlights questions that will need to be investigated with Cohort 3 such as how District Officers can support teachers in being reflective and how do the monitoring instruments in place reflect the ZEST teaching approaches?

### 3 Discussion

We have found evidence from Cohort 2 to support each of the programme theories, but in doing so have identified a few ways in which the programme can be improved and a few key challenges. In this section, the implications of each set of findings will be discussed.

The aim of ZEST is to improve classroom teaching. The evidence that children are being given the opportunity to take part in pair work and group work (and hence talk about learning) is welcome; but highlights some issues that could be tackled during monitoring. Although the median % of the lesson in which learners were engaged in group work or pair work has increased, this is as result of a few teachers making significant changes. These teachers need to be identified and encouraged to support others. A significant proportion of lessons still have no group work or pair work. Pair work is less familiar to teachers but is easier to organise than group work and can be very effective in encouraging participation, particularly in the context of open questions, where learners need time to reflect and organise their answers. Effective questioning is an important teaching skill, yet it is difficult to do well. The data suggest that teachers need more support and practise in designing and asking open questions which promote thinking.

There is evidence from the teachers (May workshops) that teaching is more inclusive. Many commented on the fact that they are getting to know their learners better and value the contributions of those who are considered to be 'shy' or 'slow'. The classroom observation data revealed however, that in the 35 lessons observed, teachers only spent 5% of their time walking around the classroom. This amounts to about 2.5 minutes in a 50-minute lesson. With a large class, this does not give the teacher very much opportunity to notice and support individuals. Likewise, in one third of lessons, teachers used learners' names occasionally or seldomly. Both of these activities – walking around the room and noticing individuals and using learners' names – are important in the context of being more learner-centred and can relatively easily be addressed.

As a result of the Cohort 1 evaluation, it was decided to extend ZEST to become a two-year programme, so that the way of working has more time to become embedded. This analysis suggests that the second year of the programme could usefully re-visit the notion of learner-centred teaching and what it means in practice; and highlight some of these inclusive practices. In this way, the reported increases in confidence are more likely to manifest themselves in lessons. Early evidence suggests that in Term 1 of the second year of the programme, the number of TGMs remained the same, and the topic for discussion was as suggested in the final section of the Training Handbook: supporting literacy across the curriculum. Since input from the project has stopped, this suggests that the District Officers, HTs and SICs have absorbed the ZEST way of working into SBCPD.

The Cohort 2 evaluation provides some encouraging data around the frequency and attendance at TGMs. However, the continuing confusion over the Teacher Notebook and some of the reports from District Officers provide sights for the future.

The use of the Teacher Notebook has proved to be challenging. The purpose of the notebook is for teachers to be able to write down anything they learn in the TGMs that they consider to be useful; to plan classroom activities and to reflect on how they went. What they learn and their reflections will be personal to them, so detailed instructions about what to write are not appropriate. But this has proved to be a difficult message in an environment in which District Officials and teachers are used to receiving and passing on precise instructions. In Cohort 1, there were examples of Headteachers taking in notebooks and marking them, which was not the intention.

ZEST is built on an internationally recognised view of teacher learning which recognises the complexity of classroom teaching and is built on the notion of 'collaborate – practise – reflect' (Korthagen, 2017). It was decided to provide a notebook for all teachers at the start of ZEST in order to facilitate this process in an environment in which resources are scarce. It was also thought that the notebook would provide a useful account of the teachers' thoughts and the issues they face that would make monitoring at a distance more effective. The evidence, however, is that the notebook has an official feel to it which has created unease and the expectation that it should be filled in in a particular way. The result is that in some schools it has not been used. The concern is that teachers might not be making reflective notes on their teaching and therefore missing out on the opportunity to learn from experience, but we have no evidence either way.

Many schools expect teachers to write up and submit lesson plans in a particular format. The Teacher Notebook was not intended to replace that – rather to provide an informal space where teachers could record ideas for classroom activities which could later be converted into a formal lesson plan. This has proved to be a confusing message. In Cohort 3, the notebook has been simplified, to look more like a normal exercise book. As part of 'scale-up' it will not be possible for the project to provide a notebook for all teachers. Nevertheless, the recording of ideas during the TGMs, plans for using the teaching approaches and reflections on how the activities went are an important part of learning on ZEST and Year 2 of the programme will seek to provide specific support for the process of reflection.

ZEST seeks to support schools in creating a 'community of professional practice'. The concept of a 'community of practice' (Wenger, 1998) is predicated on the notion that learning is seen as a joint enterprise of negotiation and reflection, taking place through mutual engagement in practice, with all participants being valued equally. The comments from the teachers in May 2019, and the CPD interviews, suggest that we are beginning to see 'negotiation and reflection' through 'mutual engagement in practice' during TGMs. The increased harmony amongst teachers and a greater willingness to seek help, also suggests a flattening of structures within schools. However, evidence from the Cohort 2 District Officials is that their emphasis is on monitoring rather than support, and that they are seen as being 'more expert' than teachers rather than 'differently expert'. District Officers have the benefit of observing practice across contexts, but individual teachers are experts within their context, having the detailed knowledge of their children and the community they serve. Where there is support it is about following procedures rather than providing pedagogical support. When observing a lesson as part of monitoring, two Standards Officers referred to the fact they advised the teacher of what went well, and what needed to improve. We do not have evidence of whether or not the teacher had the opportunity to reflect on the lesson for themselves. International evidence suggests that given the complexity of teaching and the importance of understanding the context in which the teaching is taking place, reflective practice can support teacher learning very effectively (Shulman & Shulman, 2007).

## 4 Conclusions and moving forward in ZEST

The resources provided have helped to improve teachers' classroom practice and professional skills, and to support the TGM process, ensuring that they are helpful for teachers. Teachers are reporting increased confidence in using active approaches, which is reinforced to some extent by classroom observation. Teachers have reported differences in their students, including a greater willingness to participate in lessons, improved attendance and, in some cases, improved performance. Attendance at TGMs has improved and teachers are positive about collaborative planning. Questions remain however, around how these can be organised most effectively, and what happens during the TGMs. Teachers seem to welcome the opportunity to work together and to learn from each other.

We have always been aware of the importance of working at all levels of the system and have involved District officials in the co-design of workshops and activities. District Officials from Cohort 1 worked with those in Cohort 2, passing on their experience and learning.

Monitoring in Cohort 1 and 2 was slightly different. In Cohort 1, WVZ led the monitoring with support from District Officials as they became familiar with the ZEST resources and model to support SBCPD. In Cohort 2, the emphasis on monitoring was on the District as part of their own standard monitoring visits with support from WVZ. The current evaluation report has identified a number of areas that require additional support for the District Standards Team in future. More emphasis is required on their role in providing pedagogical support. Some might not have knowledge about how to teach specific topics as it is a long time since they were teachers themselves, but they do have the opportunity to work in many different schools and to learn from what they observe. They are in a strong position to support teachers in being reflective and to facilitate them in finding their own solutions to problems. We recognise that for the scale up the current Implementation Guide needs to be developed to support District Officials more explicitly in this role. The evidence from this evaluation will feed into the developments with the result that the guide will accurately reflect the challenges identified by the project team.

### Recommendations

Based on the data gathered for this evaluation, the following recommendations have emerged:

- Teachers who have embraced and are regularly using the teaching approaches need to be identified and encouraged to support others. For example, in the sample of 35 lessons, 25 lessons had no pair work but 6 had 20% or more of the time with learners talking in pairs. These 6 teachers could support others.
- Pair work is less popular than group work, even though it is easier to do well. Monitoring visits could helpfully focus on supporting teachers in organising pair work.
- Year 2 of the programme could helpfully focus on other relatively straightforward learner-centred practices such as encouraging teachers to move around the room more and to be more aware of learners needs.
- A more detailed Implementation Guide is needed for District Officials, highlighting ways of providing pedagogical support and supporting reflective practice.
- The issue of the Teacher Notebook needs to be reviewed. A way of ensuring that teachers record their ideas and thoughts about their teaching is important, but the provision of a formal notebook might have been counterproductive.

It needs to be acknowledged that the scope of this study is fairly limited. It is strengthened by the inclusion of data gathered by independent enumerators, but there is a tension between focusing on the business in hand – the project activities – and making space to collect data to support the sort of

in-depth monitoring required for a realistic evaluation. We have addressed this tension through the thoughtful use of workshop evaluations, the careful preservation of all workshop outputs and reflective conversations between the OU, WVZ and Kabwe District officials after each workshop. The classroom observation data was more consistent and easier to use than that gathered in Cohort 1 and in the Baseline study, which could be partly a result of using video footage of classroom teaching to train the enumerators. Collecting observation data is always problematic as different observers notice different things, depending on their own background and expertise. We have not had the opportunity in ZEST for joint lesson observation and monitoring (although this was planned for March 2020, before travel was stopped as a result of the COVID19 pandemic). The data in Appendix 4, which correlates what the learners were doing and what the teacher was doing, suggests that the observation data is reasonably robust despite the difficulties.

Despite the limitations, the study has provided insights which have led to the recommendations above. As soon as we are able to return to Zambia, a priority will be to work with the Cohort 3 District Officials to ensure that the lessons learnt in Cohort 2 can be implemented for Cohort 3. We will also continue to engage with Cohort 2 and look for ways to provide more support for the District Office with respect to their monitoring.

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## Appendix 1: The sample for the Cohort 2 evaluation

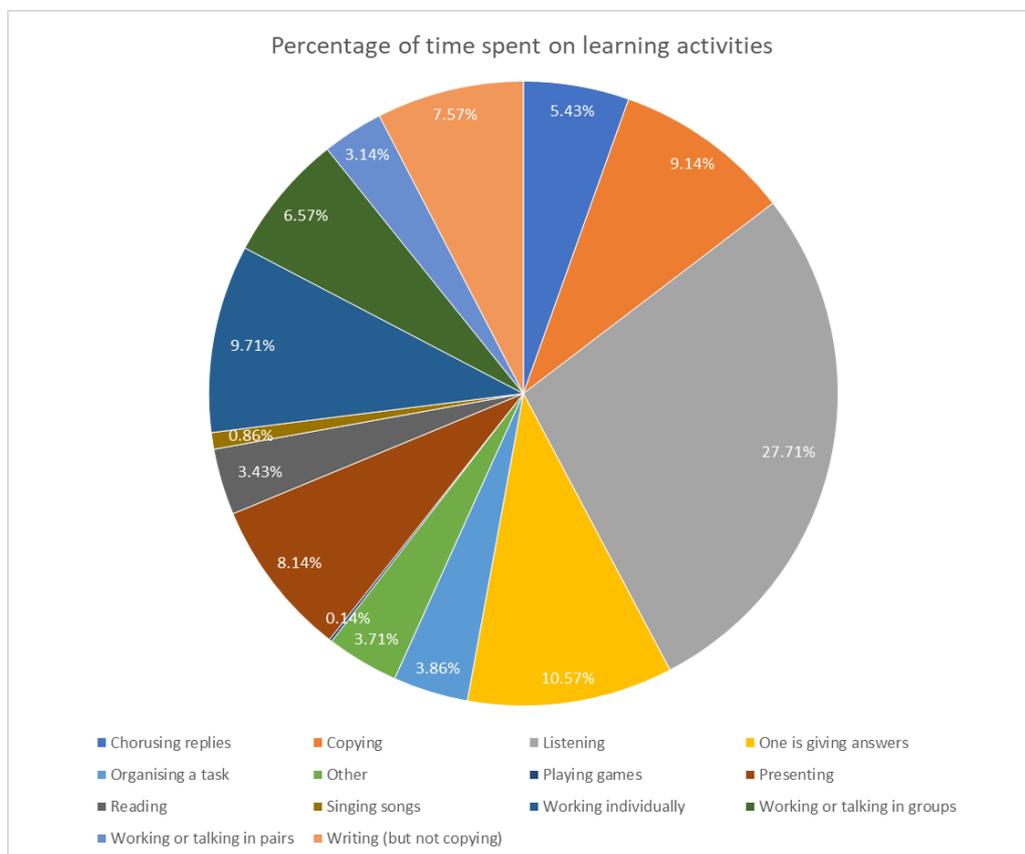
Table 14: Details of the Cohort 2 sample

C2 evaluation data							
School	Female teachers interviewed / observed	Male teachers interviewed / observed	Total				
1	5	1	6				
2	6	0	6				
3	4	2	6				
4	5	1	6				
5	5	1	6				
6	5	0	5				
<b>Total</b>	<b>30</b>	<b>5</b>	<b>35</b>				
Grades observed	School 1	School 2	School 3	School 4	School 5	School 6	Total
1	1	0	1	1	0	1	4
2	1	0	1	1	1	0	4
3	1	2	0	1	1	1	6
4	1	1	1	0	1	0	4
5	1	1	1	1	1	1	6
6	0	1	1	1	1	1	5
7	1	1	1	1	1	1	6
<b>Total</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>35</b>
Subjects observed	School 1	School 2	School 3	School 4	School 5	School 6	Total
Literacy	1	0	0	2	0	1	4
English	2	2	0	0	0	1	5
Chibemba	1	0	2	0	0	0	3
Maths	1	1	1	2	2	1	8
Science	1	1	2	0	0	1	5
Creative and Technical Studies	0	1	0	1	1	0	3
Social Studies	0	1	1	1	3	1	7
<b>Total</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>35</b>

## Appendix 2: Learner Activity in lessons

**Figure 1: How learners spend their time in lessons**

This plot and the table below show the overall percentage of time spent on each type of activity by learners in the classroom. It corresponds to Figure 5 in the Baseline report, although the plot below is broken down into more categories of activity.



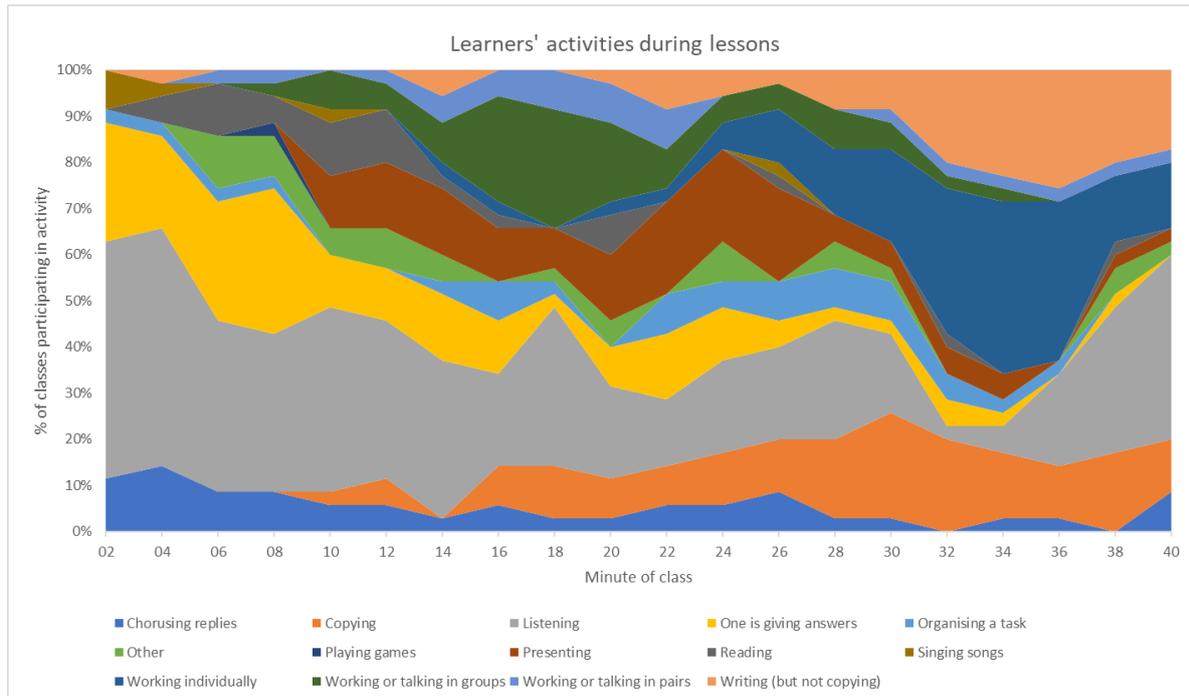
*Table 15: How learners spend their time in lessons*

Learning Activity	Mean percentage of lesson time
Chorusing replies	5.43%
Copying	9.14%
Listening	27.71%
One is giving answers	10.57%
Organising a task	3.86%
Other	3.71%
Playing games	0.14%
Presenting	8.14%
Reading	3.43%
Singing songs	0.86%
Working individually	9.71%
Working or talking in groups	6.57%
Working or talking in pairs	3.14%
Writing (but not copying)	7.57%

**Figure 2: Breakdown of learners' activity over time**

This plot shows the changing proportion over activities over time (from left to right). At each time point, the colour area shows the proportion of classes engaged in specific activities, e.g. the small ochre triangle at top left indicates those classes beginning the lesson with singing songs. It corresponds to Figure 6 in the Baseline report, although the plot below is broken down into more categories of activity.

- From the dark green and light blue colours used to indicate working in groups or pairs, we can see that this activity peaks around 15 – 20 minutes into the class time.

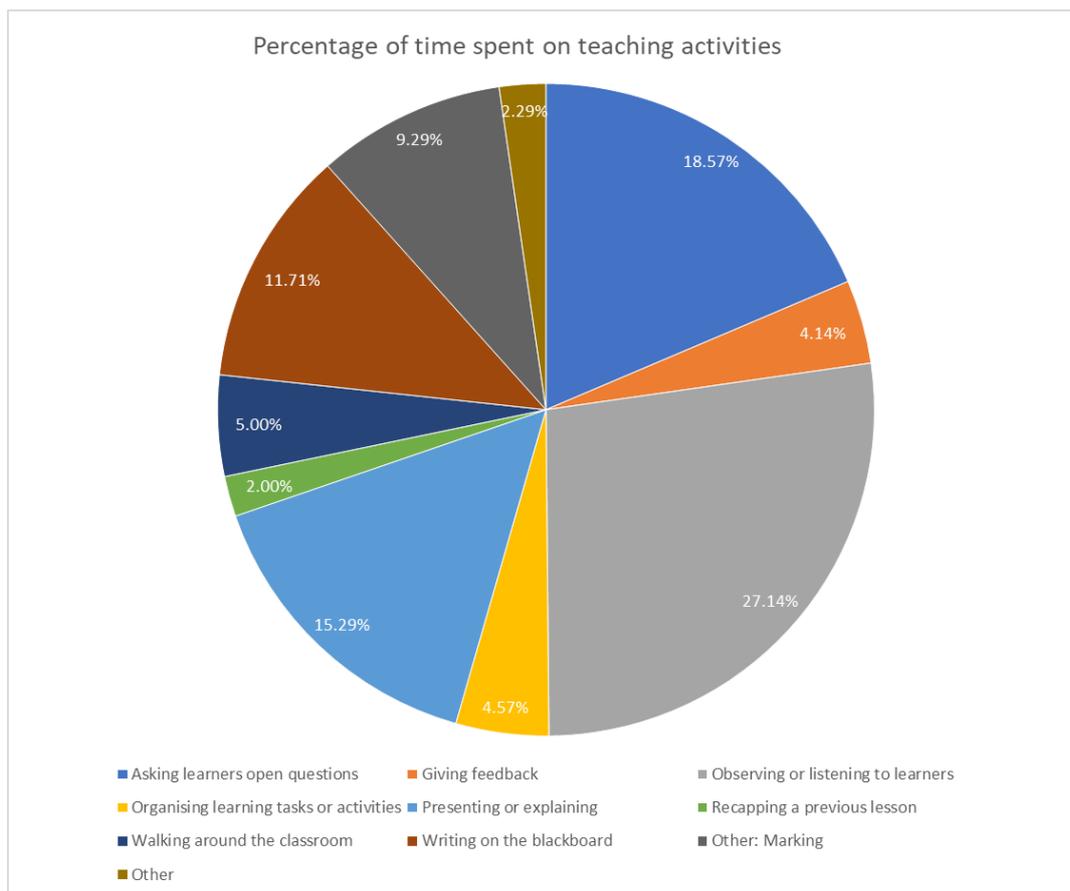


## Appendix 3: Teacher activity during lessons

**Figure 3: How teachers spend their time in lessons**

This plot and the table below show the overall percentage of time spent on each type of activity by teachers in the classroom. It corresponds to Figure 2 in the Baseline report, although the plot below is broken down into more categories of activity.

- The category 'Other' was used by the observers to describe 11.57% of lesson time. Detailed notes on this category showed that the majority of this time (9.29% of lesson time) was spent by teachers on marking learners' work.

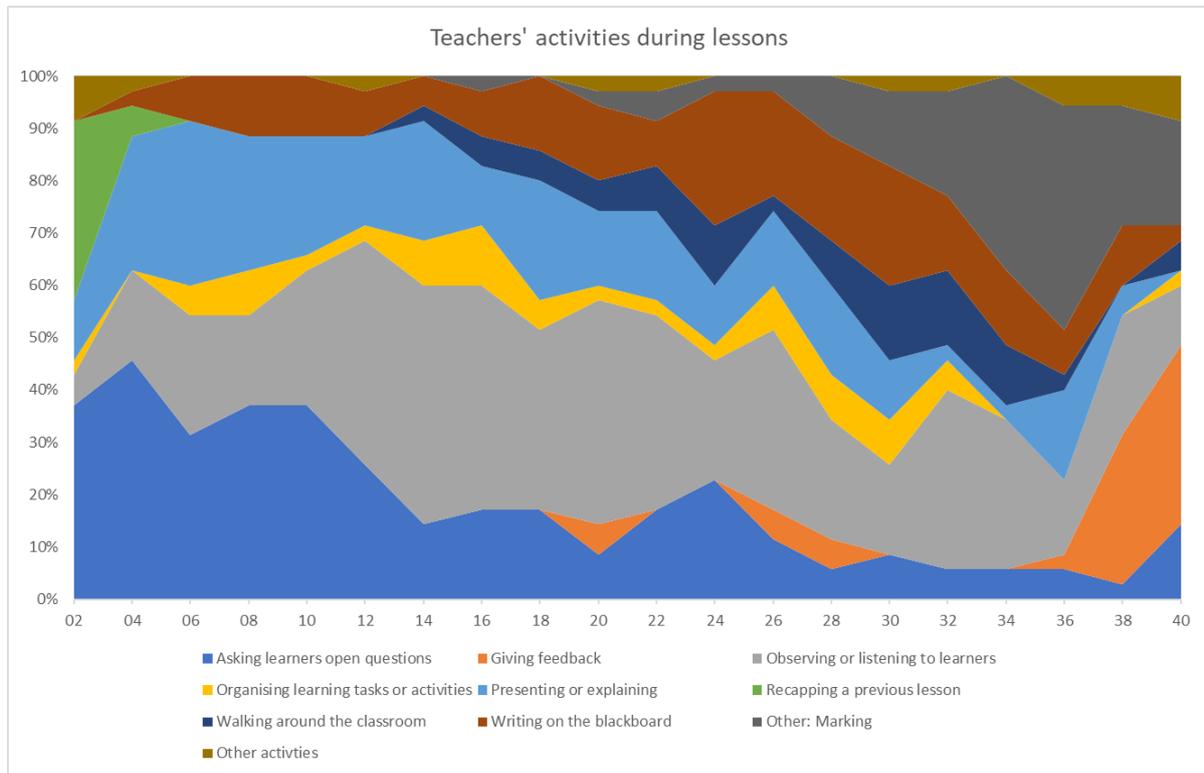


*Table 16: How teachers spend their time in lessons*

Teaching activity	Mean percentage of lesson time
Asking learners open questions	18.57%
Giving feedback	4.14%
Observing or listening to learners	27.14%
Organising learning tasks or activities	4.57%
Presenting or explaining	15.29%
Recapping a previous lesson	2.00%
Walking around the classroom	5.00%
Writing on the blackboard	11.71%
Other: Marking	9.29%
Other	2.29%

**Figure 4: Breakdown of teachers' activity over time**

This plot shows the changing proportion over activities over time (from left to right). At each time point, the colour area shows the proportion of teachers engaged in specific activities, e.g. the green triangle at top left indicates those teachers beginning the lesson with a recap of the previous lesson. It corresponds to Figure 3 in the Baseline report, although the plot below is broken down into more categories of activity.

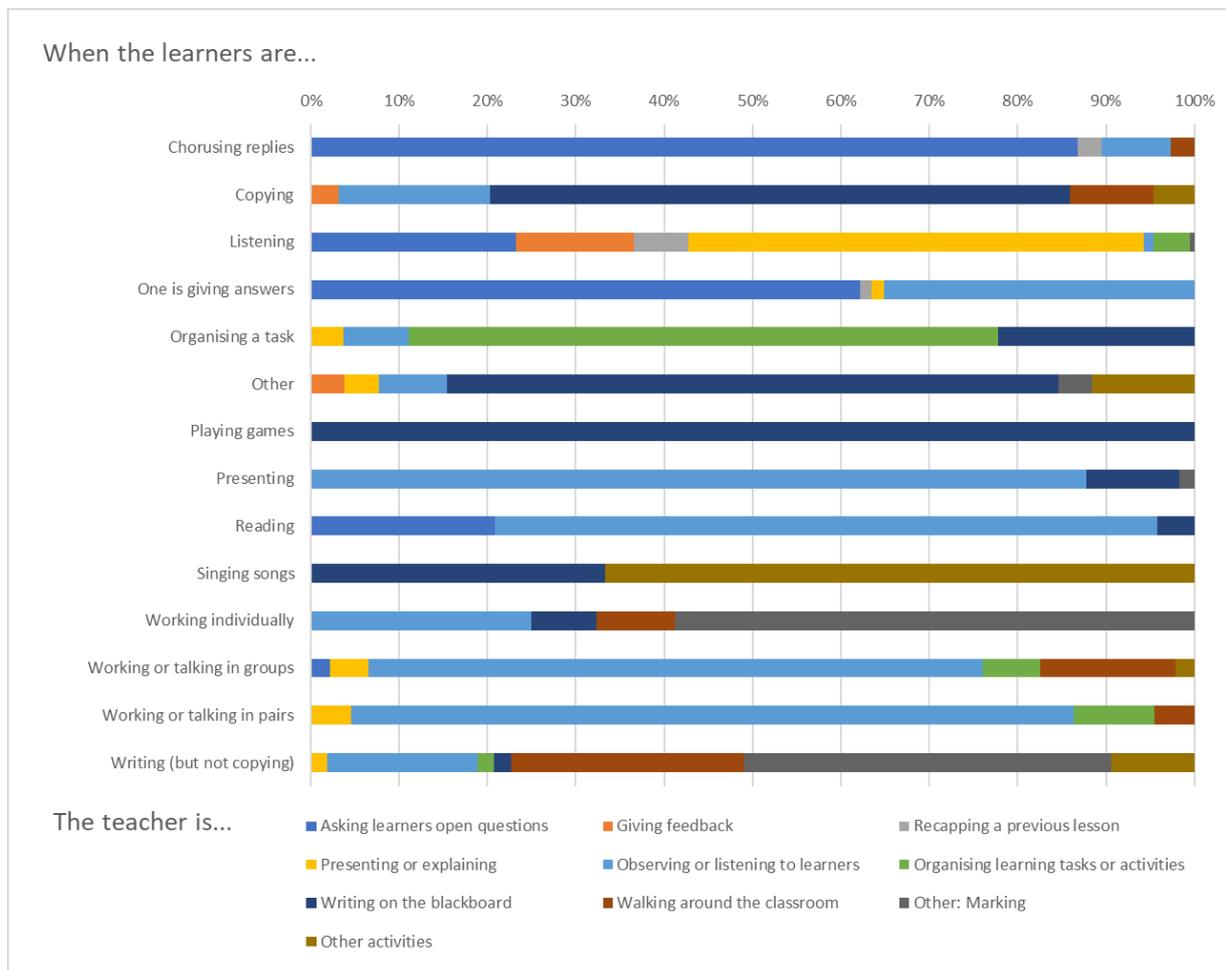


## Appendix 4: Link between what the learners were doing and what the teacher was doing

**Figure 5: Learners' activities broken down by teachers' activities**

This plot shows the categories of activity which teachers are engaged in while learners are choring replies, copying, listening etc.

For instance, when learners are working individually, teachers are mainly (58.8% of the time) marking learners' work. Other things teachers do during this activity are observing or listening to learners (25% of the time), writing on the blackboard (7.8% of the time) or walking around the classroom (8.8% of the time).



**Figure 6: Teachers' activities broken down by learners' activities**

This plot shows the categories of activity which learners are engaged in while teachers are asking questions, giving feedback and so on.

For instance, when teachers are presenting or explaining, the learners are mostly (93.5% of the time) listening. However, other activities, such as giving answers or working in groups, make up the remaining 6.5% of the time.

