

# Zambian Education School-based Training (ZEST) Project

## COHORT 3 EVALUATION, May 2021

*This report has been funded by the Scottish Government; however, the views expressed do not necessarily reflect the Scottish Government's official policies.*

## Acknowledgements

### **Authors:**

Dr Kris Stutchbury (OU), Dr Lore Gallastegi (OU), Clare Woodward (OU)

### **Project coordinators:**

Rachel Ayeh Hanson (OU), Martin Mwiinga (WVZ)

### **Data analysts:**

Cally Booker (OU)

### **Contributors and reviewers:**

Timmy Mudenda (WVZ); Misheck Mwanza (WVZ).

### **The Project Team gives thanks to all involved in the collection and evaluation of data as part of this process, including:**

All independent enumerators in Zambia

All District Officials in Mumbwa District

All Provincial Officials in Central Province

All Headteachers and Teachers who welcomed the enumerators into their schools, and who contributed to workshop activities

## Contents

Acknowledgements.....	0
Executive Summary.....	3
1. Rationale and aims of the Cohort 3 evaluation report.....	6
2. The Impact of the Global Pandemic.....	7
3. Background to this evaluation .....	8
4. The Cohort 3 evaluation report .....	9
4.1. Cohort 3 Evaluation Exercise .....	9
4.2. Zoom meetings .....	12
4.3. Working with District and Provincial officials .....	13
4.4. Raspberry Pi computers.....	13
5. Findings and Discussion .....	13
5.1. Teachers' classroom practice and professional skills .....	13
5.1.1. Time spent working in groups or pairs .....	13
5.1.2. Other observed classroom practice.....	17
5.1.3. Teachers' confidence in using and reported use of participatory approaches .....	21
5.2. Teachers' participation in SBCPD.....	22
5.3. Teachers' collaborative practice .....	25
5.4. Improvements in teachers and learners.....	28
5.5. Working with the District and Province .....	31
5.6. Working with Raspberry Pi computers .....	31
6. Conclusions and moving forward in ZEST .....	33
Recommendations .....	35
References .....	35
Appendix 1: The sample for the Cohort 3 evaluation.....	36
Appendix 2: Learner Activity in lessons .....	38
Appendix 3: Teacher activity during lessons.....	40
Appendix 4: Link between what the learners were doing and what the teacher was doing .....	42

## Executive Summary

The Open University (UK) and World Vision Zambia have been working with Zambia's Ministry of General Education (MOGE) since 2018 to support school based continuing professional development (SBCPD). Zambian Education School-based Training (ZEST) is working to develop an enhanced approach to SBCPD, the key elements of which are that

- i) resources are provided to support Teacher Group Meetings giving them more purpose and direction, and
- ii) all teachers are involved in planning and trying out classroom activities.

Enhanced SBCPD 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 or groups (Outcome Indicator 1). 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,

Cohort 3 (2020 school year) was considerably affected by the Covid19 Global Pandemic which took hold in 2019. By March schools in Zambia had closed and the UK was 'locked down' with all non-essential international travel suspended. The Cohort 3 evaluation draws on data by World Vision Staff working with 16 enumerators who visited 11 schools in the Mumbwa District to carry out interviews and observations with teachers, SICs and head teachers in November 2020. It also draws on data collected from Zoom meetings, WhatsApp interactions with school leaders (Head teachers, ZICs and SICs) and reports from WV monitoring visits.

The Cohort 1 and Cohort 2 evaluations collected evidence against the logframe, but also set out our 'programme theories' (the reasons behind the project activities) and looked for evidence to confirm or modify these theories. As a result of Cohort 1 evaluation, the programme was modified (e.g. changed from a 1-year to a 2-year programme). The Cohort 2 evaluation highlighted the importance of the role of the Province and District Officials in the successful implementation and sustainability of ZEST. As a result, an implementation guide has been developed for MOGE officials in different leadership roles in the province, district, zones and schools.

Cohort 3 focused on preparing for scale-up. This evaluation reports on the logframe indicators and on capacity building activities at a school, district and provincial level. It sets out the data against the project logframe and makes recommendations for Phase 2 (scale-up). All of the Cohort 3 activities were affected by the COVID19 global pandemic which was still on-going at the time of writing (April 2021). (See Section 2 (Context) below). This has impacted on our work with the Districts and MOGE.

In this study, the median value for the proportion of the lesson in which learners were engaged in pair work or group work was 5%. This is the same as the baseline level, but lower than the median reported for Cohort 2 which in all probability reflects the impact of the COVID19 pandemic, in which group work was actively discouraged owing to the need for social distancing. However, having looked at the data in more detail, there was a marked difference between the proportion of lessons in which learners engaged with pair/group work in the higher grades (4 to 7) with that in lower grades (10% and 0% respectively). This may be due to the greater difficulty in explaining and carrying out social distancing procedures for pair/group work with younger children, which led to a return to more controlled, traditional teaching with lower grades. It should also be noted that in 4

schools, lessons were observed in which more than 20% of the time was spent on group work or pair work. A challenge at District level is to find a way of sharing this good practice across schools.

ZEST also aims to increase the amount and quality of the collaboration between teachers (Outcome indicator 2), around Teacher Group Meetings, collaborative planning and observation, and reflection. Of the 11 schools in Cohort 3, 36% held at least 3 TGMs each term, and 64% averaged 3 TGMs per term over the year. These figures are less than for Cohort 2 (67% and 100%) but greater than the baseline in which 43% of schools averaged 3 or more TGMs per term. This figure was also affected by Covid19, with some schools under the impression that they could not hold TGMs owing to social distancing requirements.

Another project aim is to increase the number of teachers recording use of collaborative classroom practices (Output Indicator 1.4); this was facilitated for cohorts 1, 2 and 3 through 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. In Cohort 3, teachers were strongly encouraged to use their notebook as a planning and reflective tool. The evidence shows that this specific emphasis had a positive result with 75% of Cohort 3 teachers' written records demonstrating engagement with the teaching approaches and the process of reflection; this is much higher than in Cohort 2, where the figure was 29%.

Of particular note is the high level of discrepancy between what teachers report doing in the classroom and the data collected in the classrooms observed. This has implications for skills development in recognising a range of active teaching approaches, for the different staff involved in lesson observations and monitoring as part of a SBCPD programme: district officials, school staff and independent evaluation enumerators.

A key aim during Cohort 3 was to support District and Provincial Officials so that they could take the lead in training new Districts and schools during Phase 2. This activity was also disrupted owing to the extra responsibilities that fell to District Officers during this time, managing safety during the pandemic, and pressure caused by the need for learners returning to school to catch-up. However, World Vision have visited the District and Province when possible and the Provincial Officers led the training of five Districts in March 2021 (two new ones; the cohort 1 and cohort 2 Districts) to introduce year 2 of the programme; and the cohort 3 District as they move into year 2. Zoom meetings involving the OU, WVZ and the District during term 3 helped to set up officials in Mumbwa to lead year 2 of the programme.

Raspberry Pi computers are well-established in Cohort 3, with schools responding positively to Moodle as a platform for the resources.

The data have highlighted aspects of enhanced SBCPD which are working well, and priorities for on-going monitoring, which include:

- the role of classroom observation and how to identify active learning and teaching;
- identifying the ways in which zonal and district officers can provide support for teachers, so that good practice is shared across schools.

Key recommendations from this Evaluation include:

1. The school-zone-district structures are mobilised to share good practice between schools
2. The Province find ways of sharing good practice between districts
3. The issue of the mis-match between the reported frequency of group work and pair work and the observed frequency should be discussed as a whole team, and the District and

Provincial Officials supported in finding ways to encourage good intentions to be converted into practice.

4. Enumerator training is reviewed in order to ensure that active teaching approaches are being correctly identified.
5. The Province/Districts develop monitoring instruments.
6. Virtual meetings continue even as restrictions are lifted.
7. Through the school digital champions, schools are encouraged to continue to take ownership of the Raspberry Pi computers and upload their own resources and examples of practice.
8. The suite of resources, including the Implementation Guide, is discussed in detail with MOGE.

## 1. Rationale and aims of the Cohort 3 evaluation report

The aim of ZEST Enhanced Schools Based Continuing Professional Development (SBCPD) programme 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 (TGMs) and collaborative planning. The enhancements to the current SBCPD model are that resources are provided to support TGM activities and demonstration lessons have been replaced by an expectation that all teachers will try out the planned activities in their own lessons and reflect on how they went. Where possible, teachers are encouraged to observe each other informally for short periods of time and provide feedback. Thus, School-based Continuing Professional development (SBCPD) involves all teachers as active participants.

Cohort 3 of the ZEST project represents the end of Phase 1 (the Co-design phase). In Phase 1, we have worked with three cohorts of 200 teachers in three different Districts in Central Province to develop resources and ways of working. This will be followed by Phase 2: Scale up.

Cohort 3 was launched in December 2019 by the OU project team and WVZ for 11 schools from three zones in the Mumbwa District.

As well as supporting schools to implement the ZEST enhanced SBCPD programme using the resources provided for TGMs and to support the use of teaching approaches in their schools, the specific aims for Cohort 3 were to

- build capacity at a Provincial level in preparation for scale-up
- to introduce the final version of the materials, including those for year 2 of the programme
- test the use of Raspberry Pi computers as a way of providing access to digital materials and to build a network of school ICT ‘champions’
- to develop a detailed Implementation Guide to support the leaders of SBCPD at provincial, District, Zone and School level
- to work with the District to establish ways to integrate school support into their existing monitoring and support practices
- to prepare for scale-up by inducting cohorts 1-3 into year 2 of the programme and introducing two new Districts
- to engage the Ministry of General Education (MOGE) with a focus on sustainability for and beyond scale-up.

This Cohort 3 evaluation report complements the Year 4 annual report and logframe data submitted to the Scottish Government in April 2021, 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). The Cohort 1 and Cohort 2 evaluations focused on refining the processes and the resources. The Cohort 3 evaluation seeks to understand the issues surrounding scale-up and to produce recommendations which will ensure its success and sustainability beyond ZEST (completion date: March 2022).

Evidence for this evaluation includes an independent evaluation exercise undertaken in all 11 Cohort 3 schools in November 2020. For this we adopted the same methodology as the baseline study and the Cohort 1 and Cohort 2 evaluations, and the aim was to gather data to enable us to report the measures identified in the logframe.

This sort of experimental evaluation is essential for accountability. We have also included evidence which brings in the voices of the head teachers and SICs from the Cohort 3 schools, 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. The Impact of the Global Pandemic

COVID19 emerged globally in January 2020. By March schools in Zambia had closed and the UK was 'locked down' with all non-essential international travel suspended. In Zambia, schools partially re-opened in June (Term 2) for Grades 7, 9 and 12 (Exam grades) in small classes. All teachers were expected to return to school as well. In September (Term 3) schools re-opened for all students but operated a shift system so that students could be taught in smaller classes. The result was that, with up to three shifts a day, students spent less time in school than before the pandemic. Social distancing has limited the amount of group work that takes place, and disruptions to the school routine have impacted on TGMs. The data collected in this evaluation reflects the conditions in school during this time and should therefore be considered in that context.

With travel suspended, the project team in the UK explored ways of maintaining contact with teams in Zambia. A WhatsApp group comprising the OU team, WVZ, District officials, head teachers and school in-service co-ordinators was set up to provide a means for asynchronous sharing of programme resources in pdfs as well as videos and photographs shared by Cohort 3 schools offering examples of teaching approaches and TGMs in practice. Discussions suggested that Zoom could be a suitable platform for regular synchronous meetings that would provide the opportunity for discussion and clarifications on the use of the resources provided. During the period from June – November 2020, a total of 11 Zoom meetings were held with representatives from the Mumbwa schools, the District office, WVZ and the OU. The purpose of the meetings was to support school leaders in the activities for the term, in the absence of face-to-face workshops. These meetings provided an opportunity for the project team to hear from head teachers and SICs about how the programme was going in their schools; but also to model how to conduct an interactive meeting and how to analyse teaching; to highlight the key learning points in the resources provided; and to enable the sharing of good practice across schools. The programme materials were adapted to suit the temporary working arrangements in Term 2 and were adjusted in line with Covid19 classroom restrictions e.g. group work activities were replaced by supporting literacy across the curriculum.

Although the Zoom meetings and WhatsApp group proved to be useful for sharing practice and discussions among school leaders, it became apparent that there was limited opportunity to run the sort of reflective activities that took place during Cohort 1 and Cohort 2 workshops and which contributed valuable data for those evaluations.

The Pandemic has also affected the District's own monitoring activities and has prevented further joint work on support and monitoring in the context of Enhanced SBCPD. (Districts took on extra responsibilities, supporting and monitoring compliance with school Covid19 guidelines). Restrictions to travel within Zambia for WV and from the UK for the OU team, as well as limits on people attending meetings, has made engaging with the MoGE more difficult. The Annual Steering group meeting due to have taken place late 2020 was not possible and an opportunity has as yet not arisen to engage the MoGE with the Implementation Guide, which to date has been reviewed at District and Province level.



### 3. Background to this evaluation

The Cohort 1 and Cohort 2 evaluations informed the programme design, by reporting against the logframe indicators and examining our assumptions about how the programme would work. This evaluation builds on that work by revisiting the logframe indicators and looking forward to Phase 2. The Cohort 3 activities have laid the foundations for scale-up and we have used the evidence from this evaluation to identify key recommendations for this next phase.

#### Logframe Indicators

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

- **Outcome indicator 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) Year 4 target: 10%.
- **Output Indicator 1.4:** % of teachers recording use of collaborative classroom practice. Year 4 Target: 30%.
- **Outcome indicator 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). Year 4 target: 60%.

Drawing on a small sample (15 lesson observations) the Cohort 1 evaluation (2019) did not show quantitative improvements in the logframe indicators, but there was qualitative evidence to support the underlying assumptions of the project (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 Officials. Workshops for Cohort 2 also included Officials from Cohort 1, who were able to share their experiences.

The Cohort 2 evaluation (2020), drawing on 35 lesson observations in six schools, showed quantitative improvements in the logframe indicators and provided further qualitative evidence to support the underlying assumptions (programme theories). However, it also highlighted some confusion over the use of the Teacher Notebook and the need for a shift at a District level from a focus on 'monitoring' to one of 'support and monitoring'. At scale-up, teachers will continue to be encouraged to use notebooks (or a digital device) to record plans for classroom activities and reflections. This is carefully explained in the new Implementation Guide, drawing on the misconceptions that were revealed in the Cohort 2 evaluation.

Cohort 3 and its evaluation have been affected by the Covid19 pandemic. Work in school has been severely disrupted by the pandemic and the findings of the evaluation have to be treated with caution. For Cohort 3 our underlying assumption (programme theory) was

- by working at a Provincial and District level rather than at a school level, we will build the capacity of MoGE Officers to support the programme through scale-up.

Although there has been very positive participation and interaction through Zoom meetings, collecting evidence against this theory has been challenging as the project team were not able to visit.

During Cohort 3, the Implementation Guide was developed further in response to lessons learned, but for reasons explained above further work on the support and monitoring role of the District has been limited. Plans are being prepared to address this as we move into scale-up.

Finally, Ministry engagement efforts will continue into Phase 2 (scale-up).

## 4. The Cohort 3 evaluation report

The evaluation was designed to look for evidence of

- improved classroom practice and teaching skills
- changes in the amount and nature of collaboration between teachers and participation in SBCPD
- challenges for the Districts in leading scale-up
- how Raspberry Pi computers are being used and the support that schools need
- the impact of ZEST on teachers and learners.

This evaluation report draws on evidence from the Cohort 3 evaluation exercise, Zoom meetings held between June and November 2020, WhatsApp interactions between Cohort 3 school leaders and ZEST team (OU and WV), and interactions with provincial officials.

### 4.1. Cohort 3 Evaluation Exercise

The Cohort 3 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 and Cohort 2 evaluations was followed. The evaluation included a sample of 55 of the approximately 200 Cohort 3 teachers (including 33 who were observed teaching), from the 11 Cohort 3 schools. 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 3 evaluation as were used in the Cohort 1 and Cohort 2 evaluations. Further details of the teachers and lessons observed are included in Table 1 below and Appendix 1.

*Table 1: Cohort 3 evaluation data collection*

School code	CPD interview role (Female/Male)	Number of Teacher interviews (Female / Male)	Number of Lesson observations (Female/Male)	Grades 1-3	Grades 4-7
16	Senior teacher	5/0	3/0	2	1
17	DHT	4/1	2/1	1	2
18	SIC	5/0	3/0	1	2
19	SIC	4/1	2/1	1	2
20	SIC	1/4	0/3	2	1
21	SIC	4/1	2/1	1	2
22	SIC	4/1	2/1	1	2

23	SIC	4/1	2/1	2	1
24	SIC	4/1	2/1	1	2
25	SIC	5/0	3/0	2	1
26	SIC	4/1	2/1	1	2
Total		44/11	23/10	15	18
%		80/20	70/30	45%	55%

- 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) (or senior member of staff) 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 9 schools these were with the SIC and the remaining two with a Senior Teacher or the Deputy Head Teacher.
- b. **Teacher interview:** 5 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:** 3 teachers 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 for enumerators 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 previous evaluations in order to compare like-with-like. 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 33 lessons were observed across 11 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 2: 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. Marking	9. Listening
10. Other	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 16 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 in November 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.

The school was not aware of the details of the visit in advance in order to avoid stage-managing. The interview and observation schedules were 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 two schools where this interview was held with a Senior Teacher or depute HT. Five teachers in each school were interviewed and three 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 previous cohort evaluations and input on tablets.

### Population and Sample

All 11 schools participating in Cohort 3 in the Mumbwa District were visited. They were all government schools, (no community schools), and 6 included learners in grades 8 and 9 (although only grades from 1 to 7 were included in the evaluation). 6 were rural schools, 3 peri-urban and 2 urban. Only two schools had female head teachers, while the vast majority of staff were female (81%). Among learners 52% were female. The schools ranged in staff numbers from 38 to 7 teachers,

with the smallest school having 374 learners and 8 teachers, and the largest 1863 learners and 31 teachers. (See Appendix 1)

55 teachers were interviewed as part of the evaluation with 33 also observed teaching. The schools involved in Cohort 3 have a high percentage of female teachers (only 1 school below 50%).

Replicating the higher presence of female teachers, 80% of the teachers interviewed were female (44) while 70% of observations (23) were completed in lessons taught by a female. The majority of teachers were qualified to Diploma level (45%) with 25% to degree and 29% to certificate levels.

Three teachers were in the first two years of teaching, and one teacher had been teaching 28 years. The majority (40/55) however had been teaching between 6 and 20 years. The time teachers had been teaching in the school they were interviewed in varied with 8 teachers being in their first year in the school, 17 between 1 and 4 years, 10 having been in the same school for 5 years, and 20 between 6 and 15 years.

Teachers in Zambia often teach more than one shift, with many teaching more than one grade or subject. Conversations with teachers, district officials and World Vision colleagues indicated that the return to schools after the Covid19 school closures might increase the number of teachers having to work shifts, as classes had to be smaller to allow for social distancing. Among the 55 teachers interviewed, 41 (75%) taught more than one grade or subject before Covid19, with a slight increase to 43 (78%) post school closures. 8 teachers indicated that although they had not previously taught different grades/subjects, they were now doing so, however it is not clear if this was related to Covid19.

#### 4.2. Zoom meetings

In response to the school closures in March and the inability to hold training workshops/distribute materials, the OU re-purposed the resources into bite-size pdfs (2 to 3 pages) which were shared in the WhatsApp group to school leaders every two weeks, with group members encouraged to share photographs or videos of teachers practice. Where possible, school leaders added the materials to Raspberry Pis for all teachers to access. In term 2 (June to August) Grades 7, 9 and 12, and all teachers returned to school. Regular Zoom meetings were scheduled to offer a synchronous virtual option that could replace 'real' meetings with WVZ and the OU. Project funding was used to purchase data bundles to support virtual participation, and the meetings involved the OU, WVZ, the District Office, head teachers and school in-service co-ordinators (SICs) from each of the 11 Cohort 3 schools. These took place every two weeks and provided 'an on-going opportunity to model participatory meetings, at a time when facilitators are being encouraged to make sure TGMs involve active engagement rather than listening to a lecture' (Stutchbury, 2021<sup>1</sup>).

A series of 7 meetings led by the OU were held in Term 2 with school and district participation. For Term 3, 4 meetings were held and facilitation was gradually handed over to the District. Despite some connectivity issues, the meetings were very successful, with all schools able to make a contribution. After each meeting, notes were shared with WhatsApp group members. These notes have been used in this report to complement the data from the evaluation that took place in November 2020.

Introducing Zoom meetings has not been without challenges. Participants' initial lack of familiarity with the software, network connection stability and the ongoing management of schools during a pandemic were all factors. However, enthusiasm for these meetings was high with requests received

---

<sup>1</sup> <https://www.ukfiet.org/2021/supporting-teachers-professional-development-in-zambia-in-covid-times/>

for their continuation. The potential for developing new skills in the management of virtual meetings, for example preparation, turn-taking and summarising, can help to build a supportive virtual environment and can easily be replicated to presential TGMs in school. This, along with other methods for sharing knowledge and support, will be explored with Districts as we move into scale-up.

#### 4.3. Working with District and Provincial officials

During this period, World Vision have worked closely with the district and province. Three meetings involving the Province, WVZ and the OU have been held, and WVZ have visited the District and Provincial offices on several occasions.

Evidence for the impact of this work is limited, owing to the inability to hold workshops with structured activities that elicit understandings, share examples of practice and ask detailed questions. However, notes from the December 2019 workshops (Cohort 3 launch), Zoom meetings in Term 3, notes from the Project Officers visits to the District and Province Officers, and a monitoring report from the District (received in June 2020) have been analysed.

#### 4.4. Raspberry Pi computers

The lack of ability to travel has limited the extent of formal data that we have been able to collect about the use of the Raspberry Pi computers. However, drawing on the District monitoring report, Zoom meetings and WVZ's visits to Mwumba and Kabwe, some conclusions can be drawn.

## 5. Findings and Discussion

Overall, the picture that emerges from the data is mixed and has been impacted by the Global pandemic, school closures and the need for social distancing in classrooms.

Perhaps not surprisingly some teachers are more confident in using the approaches than others. Zoom meetings have been very positive, with good attendance (often in challenging circumstances), suggesting that they were considered to be worthwhile and valuable opportunities to encourage the sharing of good practice, and to discuss and identify ways to address challenges faced by schools. The findings are presented in six sections: teachers' classroom practice and professional skills, teachers' participation in CPD, teachers' collaborative practice, improvements in teaching and learning, learning from the province and district, and the use of Raspberry Pi computers.

### 5.1. Teachers' classroom practice and professional skills

'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.

#### 5.1.1. Time spent working in groups or pairs

The measures in Table 3 summarise the proportion of time learners spent on pair work and/or group work across all 33 lessons observed. Baseline figures are shown in brackets for comparison.

Table 3: Values for the pair work / group work observed in the lessons

	N	Mean	Median	Std. Deviation	Min	Max	25 <sup>th</sup> percentile	75 <sup>th</sup> percentile
Working or talking in groups	33	5% (8%)	0% (4%)	8% (11%)	0% (0%)	30% (52%)	0% (0%)	10% (13%)
Working or talking in pairs	33	3% (1%)	0% (0%)	8% (3%)	0% (0%)	35% (20%)	0% (0%)	0% (0%)
Total	33	8% (9%)	5% (5%)	10% (11%)	0% (0%)	35% (52%)	0% (0%)	13% (14%)

Note: four lessons in the sample fell short of the 40-minute time allotted. The proportion of time spent on pair and/or group work has been calculated based on the 40-minute total whatever the actual length of the lesson.

- The proportion of time spent on group work ranged from 0 to 35% of lesson time, with a mean of 5% (compared with mean = 8% at baseline)
- The proportion of time spent on pair work ranged from 0 to 35% of lesson time, with a mean of 3% (compared with 1% at baseline)
- The mean proportion of time spent on both types of activity was 8% (compared with 9% at baseline)
- The median proportion of lesson time spent on pair work and/or group work was 5% (compared with 5% at baseline). Year 4 target: 10%. (Outcome indicator 1)

This median of 5% falls short of the logframe indicator target for Year 4 of 10%. However, breaking the data down by grades shows a marked difference in the use of pair and group work between lower primary grades (median 0%) and upper primary grades (median 10%).

Table 4a: Pair work/group work observed in lessons for Grades 1 – 3 (N = 14)

Grades 1 – 3	Mean	Median	Std. Deviation	Min	Max	25 <sup>th</sup> percentile	75 <sup>th</sup> percentile
Working or talking in groups	4%	0%	7%	0%	25%	0%	6%
Working or talking in pairs	1%	0%	3%	0%	10%	0%	0%
Total	4%	0%	7%	0%	25%	0%	10%

Table 4b: Pair work/group work observed in lessons for Grades 4 – 7 (N = 19)

Grades 4 – 7	Mean	Median	Std. Deviation	Min	Max	25 <sup>th</sup> percentile	75 <sup>th</sup> percentile
Working or talking in groups	6%	0%	9%	0%	30%	0%	10%
Working or talking in pairs	5%	0%	9%	0%	35%	0%	10%
Total	11%	10%	10%	0%	35%	0%	15%

The percentages of pair and group work in lessons have reduced when we look at the full school data. However, when looking at upper grades it is a much more positive picture. Pair work has

increased from 1% to 5% (mean) and while group work has reduced from 8% to 6% (mean) much of this can be linked to the Covid19 restrictions in schools where group work was not permitted and social distancing had to be maintained. Looking at the median, however, it has increased to 10% (which is in line with our logframe target).

The discrepancy between the activities of younger and older learners may also be due to a greater difficulty in following government social distancing guidelines when engaging lower grades in group/pair work, leading to the teachers of these classes reverting to more traditional classroom practices.

Table 5 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 33 lessons are represented in each row of the table.

Table 5: 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	21	2	5	2	1	1	1	0	0	0	0
	64%	6%	15%	6%	3%	3%	3%	0%	0%	0%	0%
Pair work	26	1	3	1	1	0	0	1	0	0	0
	79%	3%	9%	3%	3%	0%	0%	3%	0%	0%	0%
Pair or group work	14	3	8	3	2	1	1	1	0	0	0
	42%	9%	24%	9%	6%	3%	3%	3%	0%	0%	0%

- The largest individual category is the lessons where no time is spent on pair or group work. In 21 lessons (64% of the total) there is no group work, while in 26 lessons (79% of the total) there is no pair work. However, there were only 14 lessons observed (42% of the total) where *neither* pair nor group work took place.
- There were no lessons in which both pair work *and* group work were observed.
- This table also helps to highlight the median value for pair or group work (**Outcome Indicator 1**), which is 5%. If we line up the 33 lessons in order of the proportion of time spent on pair or group work, so that the 14 lessons with no pair or group work are on the left and the lesson with the most pair or group work is on the right, we can see that the 'middle lesson' (i.e. number 17 out of the 33 observed) falls in the 5% bracket.
- This table also highlights the fact that in 8 of the 33 lessons, more than 15% of the time was spent with learners talking in pairs or groups.

This suggests that there is some good practice, but that it has not yet spread as widely as hoped. However, this data needs to be framed within the Covid19 restrictions from the MoGE around the use of group work in lessons. The four schools demonstrating more group/pair will be identified and shared with the District Officials for further follow up and support as part of the District monitoring role.

A number of contributions to Zoom meetings indicated that pair work had been regularly used by teachers who adapted to the Covid19 restrictions and was having a positive effect on learners:



- **St Edmunds:** ‘Pair work achieved by arranging desks where learners face each other while observing social distancing. Learners given open questions to discuss and work together to find ideas/solutions.’ (Zoom 2)
- **Sanje:** Teachers used pairwork last term, found it to be a good approach – learners were able to interact by sharing and listening to each other... good approach which gives learners more speaking time. They can participate after socialising with their friends. Even those learners who are struggling can learn from their partners. (Zoom 2)
- **Mumba:** Pairwork conducted last week with social distancing measures; learners given open questions to consider. Learners discussed well and presented back to class. Some were shy but most presented. (Zoom 2)

*Teachers' reported use of collaborative classroom practices*

During the teacher interviews, teachers were asked how often they use pair and group work. The data is given in Tables 5a and 5b. Two versions of the table are shown below. The first includes all 55 teacher interviews for Cohort 3 (6a); the second includes only the 33 interviews with teachers whose lessons were also observed (6b).

- Overall, the proportions are very similar in both the observed group and the complete sample.
- About half the teachers interviewed reported asking learners to work or discuss in pairs (53%) or groups (49%) in most or every lesson in the past month.
- In the group which were observed, the corresponding figures are 58% and 52%.
- Note that, due to rounding, the individual percentages in the table below do not necessarily add up to the figure quoted here.

*Table 6a: All 55 interviewed teachers' reported use of approaches*

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?	
	#	%	#	%
Every lesson	7	13%	7	13%
Most lessons	22	40%	20	36%
Once or twice a day	4	7%	5	9%
2 or 3 times in a week	5	9%	6	11%
Once a week	7	13%	4	7%
Less than once a week	1	2%	2	4%
Never	9	16%	11	20%

*Table 6b: 33 observed teachers' reported use of approaches*

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?	
	#	%	#	%
Every lesson	4	12%	5	15%

Most lessons	15	45%	12	36%
Once or twice a day	3	9%	3	9%
2 or 3 times in a week	3	9%	6	18%
Once a week	4	12%	2	6%
Less than once a week	0	0%	1	3%
Never	4	12%	4	12%

The 67% of observed teachers report using pair work in most or every lesson in the past month and 51% group work. The data from the observations (table 5) indicate that 79% of observed lessons had no pair work and 64% no group work, however only 42% of lessons included neither pair work nor group work. This discrepancy between observed practice and teachers' reported use of approaches is one that we have found in previous evaluations but is more pronounced here.

It is disappointing that 20/55 teachers admit to never using group work or pair work in their lessons. This, and the discrepancy between what teachers say and what they do could be due to a number of reasons including:

- Covid19 restrictions limited opportunities for collaboration in classrooms. Despite good intentions, teachers might have been unable to carry out their plans.
- Work on Group work in TGMs and schools was planned for Term 2 (May – July) but this was replaced by support for literacy to adhere to the MOGE guidelines limiting group work.
- The interviews were carried out in November and teachers would have been getting back to a routine after most learners had not been in school for most of the previous term (term 2), and might not have had time to develop further their skills in group work.
- Some teachers might not have felt comfortable setting up group work with an external observer in the classroom.
- The observation schedule asks observers to record activity every two minutes. If students spend 2 mins discussing an open question in pairs, this may be missed.
- It is not clear how experienced the enumerators were in identifying active teaching approaches.

#### 5.1.2. Other observed classroom practice

As well as pair work and group work, 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.

Instances of classroom practice linked to these were recorded in the observations. Tables 7a and 7b below provide information on what teachers and learners were doing during the 33 observed lessons.

Table 7a: How teachers spend their time in lessons

Teaching activity	Mean percentage of lesson time
Asking learners open questions	13.33%
Giving feedback	4.85%
Marking	4.85%
Observing or listening to learners	30.30%
Organising learning tasks or activities	1.97%
Other	7.12%
Presenting or explaining	23.18%
Recapping a previous lesson	2.27%
Walking around the classroom	2.27%
Writing on the blackboard	9.85%

Table 7b: How learners spend their time in lessons

Learning Activity	Mean percentage of lesson time
Chorus replies	6.52%
Copying	5.91%
Listening	39.85%
One is giving answers	8.64%
Organising a task	0.61%
Other	8.94%
Presenting	4.24%
Reading	0.76%
Singing songs	1.67%
Working individually	7.73%
Working or talking in groups	5.00%
Working or talking in pairs	3.18%
Writing (but not copying)	6.97%

The data from the observations offer an image of lessons where the teacher is mainly observing and listening to learners (30.30%), presenting or explaining something (23.18%) or asking learners open questions (13.33%). The data on learners offers a mixed picture of learner engagement with 52.28% of the time being used by passive activities such as listening (39.85%), chorusing replies (6.52%) or copying (5.91%), while less than 40% of time is used with more active learner participation.

As well as approaches used in lessons, the observation also took into consideration the learning environment of the classroom and resources teachers and learners used in lessons. Access to resources is limited in many cases with 24% of lessons observed having no evidence of teaching resources (apart from textbooks). 61% of teachers used a textbook, but learners had access to textbooks in only 21% of the lessons, with textbooks being shared by more than 3 learners in the vast majority of cases (71%).

Building learner confidence and motivation can be achieved by celebrating learners' work and by personal relationships between learners and teachers. Displaying learners' work recognises their effort and achievements, but unfortunately just over half of classrooms observed had no learner

work displayed (52%). Teachers addressing learners by their names demonstrates their knowledge of learners and can enhance the teacher/learner relationship. In the lessons observed, only 39% of teachers used the learners' names frequently. It is possible that both these activities have been impacted by the pandemic; disruption of the school routine and the shift systems in place may have led to both these shortcomings. In order to create smaller classes, teachers had to teach children they had not taught before.

In Zoom meetings head teachers and SICs shared examples of how teachers use the different approaches in their lessons, including using local resources to support teaching and learning in different subjects and grades, and how literacy was supported in a range of subjects which further reinforces the use of learner-centred active teaching approaches in lessons:

#### **Using local resources to support teaching and learning (Zoom meetings, Term 2)**

- **Chibila:** In Mathematics stick and counters are being used to help with addition and subtraction. Students also bought in wire to make frame skeletons.
- **Matala:** Cardboard boxes were used to make houses with sticks, grass and cardboard to make roofs. In lower grades these were used to teach social science (rural, village or town house), older grades can be taught creativity (building roofs and windows) and home economics (parts of the house). Pupils have also made shapes from cardboard to teach shapes in maths and road signs in social sciences
- **Mumba:** used seeds in a number of subjects; in science for topics of fruits and seed dispersal. In mathematics as counters. In Technology studies, for artwork e.g. mosaic, mortal and pistol (mortal stick). Bottles were also used in Home Economics under home management, food and nutrition, in Expressive art under construction and design. In science, bottles can be used when teaching substance abuse, when teaching sound in grade 7, and water treatment where bottles can be designed as tanks. In English, they can be used when teaching preposition, comparison etc.
- **Bulungu:** Bottle caps and counters have been used both in mathematics for addition and subtracting, and in music/CTS to create and make shakers.
- **Muyoba:** Local resources have been used a lot by teachers as lessons become more interesting and interactive for students when there are physical resources. (Zoom 6)

#### **Supporting literacy across subjects and grades (Zoom meetings, Term 2)**

- **Kandesha:** Teachers are using word cards and word wall across subjects, in lessons like science and social studies. When topics have been introduced in lesson, teachers have set key words for the learners to focus on.
- **Muyoba:** Teachers are working together to identify difficult words in a subject and then will go through them with learners at the start of lesson. This is helping learners to improve, as they now understand meaning.
- **Kalilwe:** Literacy is being supported across all subjects with teachers creating activities that can be used in multiple subjects. When new vocabulary is going to be used, teachers start with the words when introducing a lesson and make sure students understand before starting the rest of the lesson. They are also using music lessons to make use of syllables. All of this is helping learners to speak and pronounce without challenges and link to reading and writing.
- **Sanje:** In lessons such as technology studies, projectors are used to teach new words and the students are asked to find them on word walls. Teachers are using questioning to

check understanding. All this is helping learners to grasp concepts and also making the lesson fun for them.

- **Bulungu:** after school literacy support
- **Matala:** Teachers make sure that task is given to learners according to the level of attainment they are at. By doing this, learners are more likely to get involved in the lesson and their self-esteem will grow as they complete tasks that are attainable for them. Teachers will also pair learners struggling with a subject with someone who is stronger at that subject so that learners can learn from their friends.

#### **Roleplay** (Zoom meetings, Term 3)

**Sanje:** in a grade 2 literacy lessons, learners were asked to roleplay how parents care for their children. Learners were given instructions on the parts to play and they acted these out in front of the class. The rest of the class were then asked about what they observed. Term 3, Zoom 1

**Kandesha:** roleplay was used during a science lesson about the effects of poor ventilation, where learners were asked to demonstrate how to treat a person who is suffocating. Term 3, Zoom 1

#### **Eliciting Prior Knowledge** (Zoom meetings, Term 3)

**Kalilwe:** For keeping quiet, we still need to encourage children to come in and participate in the lesson. Those who are shy, we can use their friends e.g. put them in pairs so they can be asking each other questions and then give out the answers that they know. For misconceptions, we need to explain the reality and truth, so learners have the correct answers. We still need to continue teaching the children. Term 3, Zoom 2

#### **Giving Feedback** (Zoom meetings, Term 3)

**Makasa:** I'm impressed with 3 teachers in our school - whenever I go to observe their classes, the learners listen very attentively and participate well. When the teacher asks a question and an incorrect answer is given, the learner is asked to find someone in class to help. The learner is then asked to repeat the correct answer and given praise. Term 3, Zoom 3

**Kandesha:** I observed a lesson where a teacher was using good language such that the learners were motivated and able to give good answers. Term 3, Zoom 3

**Sanje:** teachers give feedback to learners when they are teaching and during assessment. I have observed teachers offering immediate and frequent feedback. They also make their feedback specific and use positive language when praising the learners. Zoom 3

#### **Monitoring Progress** (Zoom meetings, Term 3)

**Sanje:** I use a passport - when it's about time to knock off, I arrange my learners in front and ask them to tell me something they have learned. Those who don't remain in class, from there I will see and monitor the progress of the learners and see those who have not grasped the concept, this then calls for remedial work. Term 3, Zoom 3

**Makasa:** in larger classes we can go around the room and monitor what learners are doing on their desks. In a bigger class, learners will be grasping different points and we give feedback as we monitor their groups/pairs. Term 3, Zoom 3

### 5.1.3. Teachers' confidence in using and reported use of participatory approaches

In the teacher interviews teachers were asked about their use of and level of confidence in using the active teaching approaches included in the ZEST training resources i.e. asking open questions, using pair and group work, roleplay, using local resources, involving all learners, monitoring learning, giving feedback to learners, eliciting prior knowledge and using Assessment for Learning (AfL).

*Table 8a: Teachers levels of confidence in using teaching approaches*

	very confident		confident		I try this		I will try with help		not confident		I have not done it	
	#	%	#	%	#	%	#	%	#	%	#	%
<b>Q28: asking open questions</b>	40	72.73	14	25.45	1	1.82	0	0.00	0	0.00	0	0.00
<b>Q29: pair work</b>	27	49.09	21	38.18	3	5.45	2	3.64	1	1.82	1	1.82
<b>Q30: Group work</b>	29	52.73	21	38.18	2	3.64	1	1.82	0	0.00	2	3.64
<b>Q31: roleplay</b>	11	20.00	26	47.27	12	21.82	3	5.45	2	3.64	1	1.82
<b>Q32: Local resources</b>	37	67.27	14	25.45	3	5.45	1	1.82	0	0.00	0	0.00
<b>Q33: involve all learners</b>	37	67.27	15	27.27	3	5.45	0	0.00	0	0.00	0	0.00
<b>Q34: monitor learning</b>	42	76.36	12	21.82	1	1.82	0	0.00	0	0.00	0	0.00
<b>Q35: give feedback</b>	44	80.00	9	16.36	2	3.64	0	0.00	0	0.00	0	0.00
<b>Q36: elicit prior knowledge</b>	35	63.64	15	27.27	4	7.27	1	1.82	0	0.00	0	0.00
<b>Q37: use AfL</b>	29	52.73	23	41.82	3	5.45	0	0.00	0	0.00	0	0.00

Teachers record high levels of confidence (Table 8a) in all approaches, with the use of roleplay being the approach fewer teachers felt confident about. Their reported use of approaches is also generally very positive as are the comments above made by school leaders in the Zoom meetings. This confidence does not seem to convert to practice in the lessons which were observed, and this mismatch needs to be explored more fully.

When asked about their use of the approaches (Table 8b), teachers reported regular use of most approaches, except pair work and group work where 16% and 20% of teachers reported never using these approaches. The number of teachers reporting the use of pair work and group work conflicts with the 42% of lessons where no pair or group work was observed (Table 6). The team decided to compare further the data in relation to observed practice, reported use and level of confidence for 4 teaching approaches developed in the first two terms of ZEST: asking open questions, pair work, group work and roleplay.

Table 8b: Teachers' reported use of teaching approaches

	every lesson		most lessons		once or twice / day		2 or 3 times / week		once / week		less than once / week		never	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
<b>Q17: PW</b>	7	12.73	22	40.00	4	7.27	5	9.09	7	12.73	1	1.82	9	16.36
<b>Q18: GW</b>	7	12.73	20	36.36	5	9.09	6	10.91	4	7.27	2	3.64	11	20.00
<b>Q19: Local resources</b>	5	9.09	25	45.45	7	12.73	10	18.18	5	9.09	3	5.45	0	0.00
<b>Q20: Open Qs to promote thinking</b>	33	60.00	16	29.09	2	3.64	3	5.45	0	0.00	1	1.82	0	0.00
<b>Q21: stories, songs, games, roleplay</b>	5	9.09	19	34.55	9	16.36	10	18.18	7	12.73	3	5.45	2	3.64
<b>Q22: involve all learners</b>	34	61.82	18	32.73	2	3.64	0	0.00	0	0.00	0	0.00	1	1.82
<b>Q23: monitor learning</b>	39	70.91	15	27.27	1	1.82	0	0.00	0	0.00	0	0.00	0	0.00
<b>Q24: give feedback</b>	39	70.91	13	23.64	3	5.45	0	0.00	0	0.00	0	0.00	0	0.00
<b>Q25: elicit prior knowledge</b>	29	52.73	22	40.00	2	3.64	2	3.64	0	0.00	0	0.00	0	0.00
<b>Q26: use Assessment for Learning</b>	29	52.73	15	27.27	4	7.27	1	1.82	3	5.45	3	5.45	0	0.00
<b>Q27: support literacy</b>	18	32.73	27	49.09	2	3.64	5	9.09	3	5.45	0	0.00	0	0.00

## 5.2. Teachers' participation 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 SBCPD practice in all schools in Zambia, and routine monitoring and support visits from ZICs and District Officials.

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 reflection, collaboration and peer-support among teachers.

In table 9, each row shows the number of meetings held by an individual school in each term, the total number of meetings in the year and their average number of meetings per term.

Table 9: TGMs per term in Cohort 3 evaluation schools

School	Number of TGMs			2020 Total	2020 Average
	Term 1 - 2020	Term 2 – 2020	Term 3 – 2020		
16	2	3	2	7	2.33
17	5	1	2	8	2.67
18	3	3	3	9	3.00
19	12	5	6	23	7.67
20	3	20	10	33	11.00
21	6	2	5	13	4.33
22	4	4	2	10	3.33
23	3	1	2	6	2.00
24	4	4	6	14	4.67
25	2	3	3	8	2.67
26	2	5	3	10	3.33
Total	46	51	44	141	
Average	4.18	4.64	4.00	12.82	4.27

As explained above the 2020 school year was considerably affected by Covid19 restrictions. This data reflects the unusual conditions, and the individual responses from schools. The total number of TGMs per term ranges from 44 in Term 3 to 56 in term 2, which gives an average of 4 TGMs per term or more. Term 2 was when school leaders were involved in two-weekly Zoom meetings and resources were shared regularly through WhatsApp to use in TGMs. Some schools conducted weekly TGMs and teachers were encouraged to have informal discussions as they planned activities and observed each other which explains the higher number of TGMS in some schools (particularly 19, 20 and 26). During Term 2, only Grades 7 and 9 were in school, yet all teachers were required to attend, which could explain the high numbers of meetings in some schools. School 20 is small, with only 11 teachers. The data suggests that all formal and informal discussions have been recorded as a TGM. Exams took place in December 2020 (Term 3) which meant that the number of TGMs was lower than Terms 1 and 2.

*School by average number of TGMs held*

Tables 10a and 10b show the same information, but in the first table the information is expressed in terms of counts (the number of schools from 0 to 11) and in the second it is expressed as percentages.

Table 10a: Number of schools by average number of TGMs held in 2020

Threshold value of average number of TGMs held in a term	In Term 1 2020	In Term 2 2020	In Term 3 2020	2020 Average	
				1*	2**
0 TGMs held on average	0	0	0	0	0
≥ 1 TGMs held on average	11	11	11	11	11
≥ 2 TGMs held on average	11	9	11	8	11
≥ 3 TGMs held on average	8	8	7	4	7
≥ 4 TGMs held on average	5	5	4	0	4
≥ 5 TGMs held on average	3	3	4	0	2



Table 10b: Percentage of schools by average number of TGMs held in 2020

Threshold value of average number of TGMs held in a term	In Term 1 2020	In Term 2 2020	In Term 3 2020	2020 Average	
				1*	2**
0 TGMs held on average	0%	0%	0%	0%	0%
≥ 1 TGMs held on average	100%	100%	100%	100%	100%
≥ 2 TGMs held on average	100%	82%	100%	73%	100%
≥ 3 TGMs held on average	73%	73%	64%	36%	64%
≥ 4 TGMs held on average	45%	45%	36%	0%	36%
≥ 5 TGMs held on average	27%	27%	36%	0%	18%

\*Average 1 indicates the schools that had 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. 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.

In table 10a, 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. So, we can see that

- In each of the terms at least 7 schools achieved the threshold (64% in table 10b) and in two terms eight schools achieved the threshold (73% in table 10b).
- Over the year, however, only 4 out of the 11 schools (36% in table 10b) managed to meet the threshold of at least 3 TGMs in every term (Outcome Indicator 2). Year 4 target: 60%
- 7 out of 11 schools (64% in table 10b) 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 per term in different schools was affected during the 2020 school year by school closures and restrictions which prevented teachers from meeting in groups. Although only 36% of school held 3 or more TGMs each term, it is encouraging to see that in such difficult circumstances 64% of schools managed to have an average of more than 3 TGMS in this school year.

Schools organised their TGMs in different ways and contributions of Head teachers and/or SICS at the Zoom meetings indicated schools were 'using the learning and discussions from the ZOOM meetings and WhatsApp conversations in different way to support SBCPDs: printing the meeting notes and filing them with access for HT/DHT/SIC, using them to facilitate discussions in TGMs and giving access to all teachers via files in school or by uploading to Raspberry Pi'. (Zoom Term 2, Meeting 3)

- **Mumba:** '3 TGMs will be held per month – 1 to discuss the approach; 1 after teachers have tried the approach in their lessons, to allow reflection and re-planning of lessons; and 1 final meeting once teachers have tried the lesson again to reflect/plan.' (Zoom Term 2, Meeting 1)
- **Mumba:** Materials are sent well in advance which stimulates discussions from teachers and assists planning. In the past, it was difficult to identify the challenge/problem and materials for discussions. The introduction of meetings through Zoom as well as WhatsApp has allowed the schools to actively participate in the CPD program. At school level, WhatsApp groups have been created to share CPD issues so that even those who are not present during the TGM would have access to the information. (Zoom Term 2, Meeting 6)

Taking account of the difficult circumstances faced by schools due to Covid19 restrictions, the data on teachers' participation in SBCPD offers a positive depiction of the continued use of TGMs and teachers' attendance during this school year. Schools have embraced the adapted version of online Zoom meetings and resource distribution via WhatsApp to support SBCPD. Table 11 shows the level of attendance at TGMs.

- 'Good' attendance (60 – 79%) was achieved by every school for two out of the three terms in the sample. Only one school reported a term with 'Low' attendance (40 – 59%).
- 'Very good' attendance (80 – 100%) was achieved by 10 out of the 11 schools in at least 1 term in the year.
- Four schools achieved 'very good' attendance in all three terms of 2020.

*Table 11: Level of Attendance at TGMS by term*

Number of terms where attendance level achieved	Good *		Very good **	
	Count	Percentage	Count	Percentage
0 terms	0	0%	1	9%
≥ 1 terms	11	100%	10	91%
≥ 2 terms	11	100%	7	64%
≥ 3 terms	10	91%	4	36%

\* 'Good' attendance: 60 – 79%

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

### 5.3. Teachers' collaborative practice

In order to understand teachers' engagement with SBCPD and to support their own learning and reflection on 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 from Cohort 2 was that more work needed to be done with Headteachers and School In-service Co-ordinators to encourage the use of the teacher notebook as a planning and reflecting tool, and to understand how TGMs take place, whether the suggested activities are carried out, and, if not, how the meetings are conducted. Data suggests that meetings are taking place regularly, but C2 teachers were not always recording the TGM discussions and their teaching practice reflections in their teacher notebooks. There was also conflicting information regarding the use of teacher notebooks coming from District officials which led to some confusion regarding how they should be used by teachers.

In Cohort 3, specific emphasis was included in the induction workshop in December 2019 and in the Zoom meetings to reinforce the use of teacher notebooks to record teachers' planning and reflections. In their Term 1 report (March 2020), the Province indicated that 'ZEST was also noted as a key driver to record keeping as it was observed that most teachers had notes recorded in the ZEST note books and the system seems to be working well.' At the time of evaluation, the use of teacher notebooks among cohort 3 teachers reached 75%, well over the logframe target of 30% for Output Indicator 1.4: '% of participating teachers recording use of collaborative classroom practices'.

Collaborative practice among teachers can take a range of formats. In the teacher interviews, teachers were asked how often they talk to other teachers about their practice over the last month, giving or seeking advice when planning or reflecting on their teaching.

Table 12: Average number of times teachers report collaborating with others

School	Q11: Talk to colleagues about approaches you could use	Q12: Give advice about lesson they were going to teach	Q13: Receive advice about a lesson you were planning to teach	Q14: Talk to a colleague about a lesson you had taught and how it went	Q15: Observe a colleague teaching	Q16. Have a colleague observe you teaching
16	2.5	3.5	2.5	3.3	2.2	1.7
17	1.5	2.5	2	2.5	2.5	1.5
18	3.3	4	3.5	2.5	0.8	0.8
19	3.3	2	3.8	3.2	4.2	4.2
20	2.8	3.7	5	1.7	2.2	2.2
21	4.7	5.8	4.3	2.8	3	2.8
22	1.7	2	1.5	2	1.7	1.7
23	2.2	1.5	3	2.7	2	1.2
24	5.2	5.4	6.2	5.5	4.8	5.1
25	2.5	2.2	2.8	3	2.8	4
26	2	3.7	2	2	3.7	1.5
total	31.7	36.3	36.6	31.2	29.9	26.7
average	2.9	3.3	3.3	2.8	2.7	2.4

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

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. Table 12 indicates that teachers use a range of options to collaborate with their peers, both when planning lessons as well as to discuss lessons they have already taught.

Contributions in Zoom meetings also offered an insight into strategies school leaders used to support teacher collaboration in schools, and teachers' engagement with peer observation including:

- **Makasa:** 'A school WhatsApp group has been created for teachers to communicate. The Raspberry Pi is always available/switched on for teachers to access.' (Zoom Term 2, Meeting 1)
- **Kalilwe:** Collaborative planning happens in TGMs. An approach is chosen, lessons are planned, teachers are paired and agree to observe each other's lessons (peer observation). After the lesson, teachers share their reflections; then they swap. Peer observation is organised so that learners do not miss out – this is a plus. Observation is not as scary when done in pairs. Teachers also do individual reflection – evaluate themselves, the way they taught and see what they can change for the next lesson. (Zoom Term 2, Meeting 2)
- **Matala:** Teachers are observing each other's lesson. After teachers have taught lessons, they meet and take part in peer reflections to discuss what went well and what challenges there were before teaching the next lesson. Teachers enjoy observing one another - one-one observation is more popular than group observation (Zoom Term 2, Meeting 3)

- **St Edmunds:** When the teachers meet, they collaboratively plan, take part in peer observation and then come back and reflect what they can do to assist learners (Zoom Term 2, Meeting 5)
- **Kandesha:** During lessons teachers are encouraged to reflect and take notes. After lessons teachers can then sit down, look at what they've written and think how they can use this to improve the lesson. Teachers will observe each other's approaches, take notes and then compare and discuss these (Zoom Term 2, Meeting 5)
- **Muyoba:** Teachers are supported and encouraged to reflect in their notebooks after each lesson. Coordinators will then see the notes and strengths and reflections are shared to the school WA group to discuss. If the Headteacher attends a meeting like ZEST he does the same and sends it to WA group too (Zoom Term 2, Meeting 5)
- **Sanje:** After observations teachers will sit together to share what they observed, and this is then used to encourage to reflection on what can be done to improve a lesson. Sanje also noted it is important to encourage teachers to only share what they feel comfortable with. (Zoom Term 2, Meeting 5)
- **Shimbizhi:** After making observations on lesson, teachers sit together in TGM and look at strengths and weaknesses. Teachers are then encouraged to use these reflections if they teach the same lesson to a different class. (Zoom Term 2, Meeting 5)
- **Matala:** Reflection is linked to 2 aspects: the teaching aspect and the learning aspect. Focusing on the teaching aspect, this means observing and reflecting to help each other find strengths and solutions to problems, rather than focusing on weaknesses. By taking part in peer observation, teachers can look at each other's practices and learn from one another. Feedback provides an opportunity for individuals to build as a teacher and allows them to focus on the needs of the individual. (Zoom Term 2, Meeting 6)
- **Mumba:** Individual teachers can invite a peer to observe, as opposed to in the past where the whole group would observe one lesson (Zoom Term 2, Meeting 6)
- **Chibila:** In the past when observing a lesson, the observers were like the 'enemy' as it would often create criticism. But ZEST has meant that teachers are observing each other, discussing together and asking questions that encourage and motivate each other while coming up with solutions together. The way teachers behave is different, not going to observe as an expert but as a peer, teachers observe each other to help each other. This has encouraged discussing strengths and challenges together and the relationship between teachers has improved, teachers are mentoring one another. (Zoom Term 2, Meeting 6)
- **St Edmunds:** Much more teamwork between teachers, with teachers more confident and inviting peers and the leadership team to observe lessons. 'Never before were teachers so confident to be observed'. Teachers are working together to come up with lessons and learning aids. ZEST has motivated teachers to have a positive attitude towards work. (Zoom Term 2, Meeting 6)
- **Sanje:** "There is group encouragement – they are encouraging each other to write ideas in teacher notebooks and encouraging those teachers who have not yet tried some approaches to do so now." (Zoom Term 3, Meeting 1)
- **Bulungu:** "Teachers meet between TGMs and do reflections in groups or pairs. Teachers usually do find time to meet". (Zoom Term 3, Meeting 1)
- **Shimbizhi:** "we will support teachers through TGMs, peer monitoring, capacity building meetings, by using positive feedback and encouraging teachers to say what they think would have worked better after lessons and observations." (Zoom Term 3, Meeting 4)

- **Matala:** “monitoring and giving feedback - peer monitoring helped teachers to build courage to share where they feel that they didn’t do well.” (Zoom Term 3, Meeting 4)

The examples shared by Zoom meeting participants provide a rich picture of the different models of collaboration taking place among teachers and how this is building teacher confidence, improving teaching practice in schools and developing a reflective community of practice within schools. The data in Table 12 is more difficult to interpret, as conversations are likely to cover a range of issues, particularly during the circumstances created by the pandemic. As in Cohort 2, the giving and receiving of advice occurs more frequently than reflection on lessons, but the difference is relatively small.

#### 5.4. Improvements in teachers and learners

In the 11 CPD interviews, SICs/senior teachers were asked about any improvements they had perceived among teachers and learners since the implementation of ZEST and examples of such improvements. All schools reported they had seen improvements for teachers and learners ‘through monitoring and observing the teachers when they teach’, ‘interaction with the teachers and discussions during TGM meetings’.

##### **Improvements in teachers: How do you know there have been improvements in teaching?**

- Teachers are able to use a variety of learner centred approaches / techniques in all subjects.
- The attitude of the teachers towards teaching has improved greatly in a positive way.
- The delivery of lessons has improved
- Teachers are able to plan, prepare for lessons
- They are more learner centred.
- Improvements in results. The pass rate is high
- Teachers are able to monitor each other and discuss their experiences

##### **Examples of how teaching has improved**

Teachers are now open to using different approaches

- Teachers are now able and more confident in using the various teaching approaches.
- There are new methods of teaching
- Teachers are now able to plan effectively and use different approaches in class
- Teachers are conversant with the approaches and literacy levels have improved.
- Teachers are more confident when using the approaches in class.
- The teachers are more confident in eliciting prior knowledge
- The teachers use the teaching approach of pair work more often now
- Teachers find it easier to deliver lessons.

Teachers have started using teacher resources

- Most teachers now have teaching aids when going for class
- Teachers are using local materials as teaching aids
- There is use of local resources.
- Local resources are now been used more often than before ZEST

Teachers peer support for professional discussions

- Peer monitoring is sharpening teachers’ skills through ironing out noted mistakes
- Teachers are able to consult with each other on the challenges that they face in class

- Teachers are able to discuss challenges and successes about using the approaches in class
- Teachers are participating in TGMs

#### Impact on learners

- Teachers can confidently involve all learners in their teaching.
- Learners are able to work in pairs and groups.
- Teachers now have the skills that enable them to include all types learners in lessons. That is the slow learners and fast learners

#### **Changes in learners: How do you know there have been changes in learners?**

##### Results have improved

- Looking at their progress charts you can see the improvements.
- Improvements in learners school performance
- By going through their books, it can be seen that there is an improvement
- Going through the assessments we can see that there is an improvement in the passing percentages

##### Learners are more interactive and active in class

- By observing the classes, the involvement of the learners in class has also improved
- Learners participate in the lesson
- Learners are actively participating in group activities.
- Learners are now giving maximum participation

##### Impact on shy learners

- Shy learners have been helped through the approach of learner centred methods.

##### Impact on literacy

- Learners can read
- Learners are able to read

#### **Examples of changes in learners**

##### There is active learner participation

- The use of local materials has made the learners engage more in learning as they are able to make their own learning aids from local materials and present them.
- The learners are really more involved in the lessons, they asked for more feedback from the teachers and concentrate for longer
- Pupils are now willing to participate in class even group discussions they are slowly opening up
- Learners are able to understand and participate fully in lessons being taught

##### Impact on learner /teacher relationship

- The interaction between the learners and the teachers has improved

##### Reduction in absenteeism

- There has been improvement in attendance for the learners

#### Improvement in literacy

- Learners are reading
- Writing has improved
- Able to read and write.
- Improvement in reading levels
- Most of the learners now for example old in grades 1 and 2 are able to read most of the words on the walls showing that the literacy of the learners have improved
- Learners reading skills have improved

#### Impact on results

- performance has improved.
- Overall results from assessments has improved.

#### Impact on learners' skills

- Able to work in groups.
- Using local materials has improved the learners' creativity skills
- Learners are able to carry out tasks very well

In the final Zoom meeting in Term 2, school leaders (HTs and SICs) were asked whether the ways of working in the ZEST model of enhanced SBCPD had had an impact on their relationship with teachers. 8 out of 11 schools attended the meeting. Table 13 below indicates that the vast majority of schools found the ZEST model of SBCPD encouraged interactions with teachers improving relationships in schools.

*Table 13: ZEST enhanced SBCPD impact on school leaders and teachers' interactions*

<b>Working with teachers, compared to the past</b>		
We rarely talk about teaching and learning	0/8	0%
We talk more with teachers about teaching and learning	6/8	75%
Our relationship with our teachers has improved	6/8	75%
Our relationship with teachers is more difficult	0/8	0%

The responses from SICs and Senior Teachers regarding their perceptions and examples of change in teachers' practice and attitudes since the implementation of ZEST is very positive. However, as discussed earlier, this once again highlights a discrepancy between what they report and the lesson observations. Frequently in the context of a formal interview a positive view is given and change in professional practice takes a long time. The reported levels of increased confidence both by teachers themselves and by SICs are an important first step and as teachers gain confidence, they are more likely to use these practices more often.

It can be difficult to identify improvement in learners' outcomes over the short term, however comments from SICs and Senior Teachers suggest a number of positive changes in learners' behaviours and outcomes, in particular regarding engagement in learning and literacy activities. The comments together give an impression of learners who are actively involved in lessons, more willing to participate in group activities and demonstrating an increased enjoyment of learning.

## 5.5. Working with the District and Province

One of the aims of Cohort 3 was to work with the District to establish ways to integrate school support into their existing monitoring and support practices. During Cohort 3 this had three phases:

1. Induction: In term 1 District officers attended the induction workshop in December 2019 as participants and were supported by WV colleagues during the term.
2. Familiarisation: In term 2, district officers attended the Zoom meetings and were part of the WhatsApp group contributing to the meetings regularly. District officers joined WV in monitoring and support visits to schools.
3. Supported leadership: In term 3, District officers were encouraged to plan and lead the Zoom meetings as well as the monitoring of progress in school supported by the OU and WV.

After the initial induction workshop, World Vision worked closely with District Officers throughout the year to support and monitor the progress of Cohort 3 schools. Monthly visits to the District office were held, when restrictions allowed, and the WV Project officer visited schools with DRCC. After the visits, briefings with DEBS were held to report on findings which included feedback on the school visit, planned district support for schools, and support for struggling schools.

The District Office submitted a monitoring report in March 2020, describing their findings after the first term of ZEST. Their report mainly centred on the implementation of ZEST as a SBCPD programme to support TGMs and focused on the use of Raspberry Pi computers (see below), rather than teaching practice in classrooms. The report is broadly encouraging; activities were taking place and there was enthusiasm for the programme. Most of the challenges were technical and linked to access to resources using Raspberry Pi computers (see below). It is not clear from the report whether lesson observations took place, or whether discussions to support teachers with specific teaching approaches had taken place. This is consistent with findings from Cohort 2 in which the District see their role as 'monitoring' rather than 'supporting'. Ideally, they would be doing both, but at the end of Term 1 the emphasis should perhaps be on support. The experience of working with Cohort 3 has contributed to the final review of the draft Implementation Guide which was initially developed with Cohort 2 to support Province/District officials and school leaders (Head teachers and SICs) and which includes guidance to support teachers and schools, as well as to monitor the implementation of the ZEST enhanced SBCPD model.

At Province level the aim was to build capacity in preparation for scale-up in 2021. Like colleagues from Mumbwa district, Province officials attended the induction workshop and Zoom meetings regularly. Province officials worked with World Vision to support district officials and voiced their continued support for ZEST at a MoGE engagement meeting set up to discuss the scale-up plan. They took the lead on delivering training for the new districts coming on board in the scale-up phase and actively contributed to the review of the draft Implementation Guide.

These observations are broadly encouraging; there is 'buy in' to ZEST at the highest level in the Province. However, in the future it is hoped that there will be more focus on what is happening in lessons, and in supporting teachers to create opportunities for learners to talk to each other about their learning. It is not clear to what extent the Provincial and District Officials have engaged with the content of the materials where this is addressed.

## 5.6. Working with Raspberry Pi computers

Following the decision to use Raspberry Pi (RP) computers as a mechanism for providing access to ZEST materials, rather than SD cards, considerable progress has been made. Inevitably, the plans set



out in the report to the Scottish Government in November 2019 were disrupted by COVID19 restrictions, in particular the lack of face-to-face interaction between the OU and WVZ/Districts and schools. The collection of formal data relating to the use of the Raspberry Pi computers has not been possible but is planned for Phase 2 (Scale-up) of the project.

However, during the last year, WV monitoring visits and communication with schools using RP confirm the following has been achieved:

- All cohort 3 schools have accessed ZEST materials on Raspberry Pi computers
- Two software options have been tested: MAZI and Moodle(box), and Raspberry Pi models (3B vs 3B+). Raspberry Pi 3B+ with Moodle(box) has been selected as the preferred option for scale-up
- Each school has a dedicated school champion whose responsibility is to support teachers in the use of the Raspberry Pi
- World Vision Zambia ICT department are actively supporting the school champions, providing support and training
- The training and responsibilities assigned to school champions has gradually increased, to ensure a solid foundation for troubleshooting is available in schools
- Extra resources have been identified and uploaded to the Raspberry Pis to support Year 2 of the programme
- Models of use for the Raspberry Pis have been identified
- Schools are beginning to understand the potential of this resource, uploading their own materials to the Pi, and exploring how to make use of them in a classroom situation. For example, one teacher has expressed an interest in learning how to create quizzes for use with his learners
- Districts have recognised the potential of accessing Pis during their monitoring visits
- District/zonal officials have received Raspberry Pi training for onward delivery to their new school champions during Transition Term. Progress will be monitored, and the training model adjusted as needed ahead of scale-up.

The following lessons have been learned, which are informing the strategy for Phase 2:

- the support of the head teacher is crucial for Raspberry Pi adoption in school
- the selection of the School Champion is also crucial – they need to be fast learners, willing to share their knowledge/learnings with other teachers, and available to do so
- schools benefit from having a lead Champion and supporting Champion(s), to ensure support is available during periods of absence or in the event of teacher movement
- schools are developing their digital literacy skills and are excited by this technology. It is unlikely that the provision of SD cards would have had the same impact
- teachers are willing to share their personal devices with those who do not have, to ensure everyone can access materials
- on-going technical support from WZ is important, with initial support available via WhatsApp, followed up with school visits as needed
- a handful of school champions have demonstrated willingness to learn more – this provides an opportunity to deliver more in-depth training to a smaller group of champions, to ensure a more robust form of technical support is available within each district, which is essential for sustainability
- knowledge-sharing and support between schools is important, and should be facilitated wherever possible

- further training and engagement are needed with Districts about Pis to ensure technical support is also available at their level, and to ensure officials understand the potential for Pis in relation to their role.

## 6. Conclusions and moving forward in ZEST

Cohort 3 of ZEST was launched in Mumbwa district with a presentation workshop in December 2019 attended by head teachers, ZICs and SICS from the 11 participating schools, district officials, and led by the OU (UK) and World Vision Zambia. COVID19 emerged globally in January 2020. By March 2020, schools in Zambia had closed and the UK was 'locked down' with all non-essential international travel suspended. In Zambia, schools partially re-opened in June (Term 2) for Grades 7, 9 and 12 (Exam grades) in small classes. All teachers were expected to return to school as well. In September (Term 3) schools re-opened for all students but operated a shift system so that students could be taught in smaller classes.

The disruption caused by COVID19 presented unprecedented challenges; but the current evaluation demonstrates that the project has managed to overcome these challenges and used the pandemic crisis to identify creative ways of working with colleagues at a distance. The innovative uses of technology have ensured that schools, district and officers in Central Province continue to be supported in developing a collaborative, supportive and reflective SBCPD module which encourages active teaching and learning in primary schools.

Most of the aims for Cohort 3 have been achieved. We have:

- built capacity at a Provincial level in preparation for scale-up
- introduced the final version of the materials, including those for year 2 of the programme
- tested the use of Raspberry Pi computers as a way of providing access to digital materials and to build a network of school ICT 'champions'
- developed a detailed Implementation Guide to support the leaders of SBCPD at provincial, district, zone and school level
- worked with the District to establish ways to integrate school support into their existing monitoring and support practices
- prepared for scale-up by inducting cohorts 1-3 into year 2 of the programme and introducing two new Districts.

More work is required in order to engage the Ministry of General Education (MoGE) with a focus on sustainability for and beyond scale-up.

The logframe indicators focusing on active teaching and learning and teachers' collaborative working have been met to different degrees:

- **Outcome indicator 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). Year 4 target: 10%.
  - The median proportion of lesson time spent on pair work and/or group work is 5%,
  - However, the median proportion of time spent in higher grades (4 to 7) is 10%.
- **Output Indicator 1.4:** % of teachers recording use of collaborative classroom practice. Year 4 Target: 30%.
  - 75% of teachers recorded uses of collaborative classroom practice

- **Outcome indicator 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). Year 4 target: 60%.
  - In each of the terms at least 7 schools achieved the threshold (64%) and in two terms eight schools achieved the threshold (73%).
  - Over the year, however, only 4 out of the 11 schools (36%) managed to meet the threshold of at least 3 TGMs in every term (Outcome Indicator 2).
  - 7 out of 11 schools (64%) 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 experiences awarded by the circumstances around Cohort 3 have provided the opportunity to highlight the following key findings:

- the clear importance and value of regular meetings
- the use of Zoom/WhatsApp and perseverance in the face of network challenges
- the use of notebooks in Cohort 3 and engagement in Zoom meetings
- pair work and group work are being used in the higher grades
- the good use of local resources – particularly around literacy
- high levels of confidence amongst teachers in the teaching approaches, but this is not yet reflected in lesson observations
- regular and well-attended TGMs
- District engagement in the process and aims of ZEST, but also some concerns about their engagement in supporting teachers developing active approaches through lesson observation
- Peer observation is taking place and teachers are collaborating more
- an increased emphasis on reflection
- reports of engaged and motivated learners.

The achievements at the end of Phase 1 of ZEST are:

- An 'Enhanced SPRINT' system which fits in with existing systems and processes, and actively engages teachers in continuing professional development focused on the delivery of the Revised School Curriculum which emphasises teaching skills and values, alongside knowledge.
- Contextualised resources, covering two years of activity, to support Teacher Group Meetings (TGMs) including written and AV material, that show teachers how to be learner-centred in their approach. These will be universally available on the internet, with an open government copyright license. The resources also support school leaders in how to maintain this way of working beyond the two years.
- Offline access to these materials via the teachers' own personal device, connected to a Raspberry Pi computer.
- A network of school ICT 'champions' to support the use of the Raspberry Pi computers.
- Some evidence that changes are taking place (see Cohort 1 and Cohort 2 evaluations).
- Provincial and District officials equipped to train new Districts.

'A DRCC welcomed everyone to the final SPRINT SBCPD meeting of the term and reminded participants that the programme was designed to deepen teachers' knowledge and extend their

professional skills to keep up to date with major developments in the areas of subject content as well as pedagogy'. (Zoom Term 3, Meeting 4)

Given the challenges presented by Covid19, these achievements are welcome. They are also a necessary pre-cursor to the next step: a stronger focus on lessons and providing on-going support for teachers in how to actively engage learners. The high levels of confidence in the teaching approaches of teachers is encouraging: the mis-match between the declared use of the approaches and the classroom observations needs to be investigated, alongside more detailed training for enumerators on what to look for in lessons.

## Recommendations

1. The school-zone -district structures are mobilised to share good practice between schools
2. The Province find ways of sharing good practice between districts
3. The issue of the mis-match between the reported frequency of group work and pair work and the observed frequency should be discussed as a whole team, and the District and Provincial Officials supported in finding ways to encourage good intentions to be converted into practice.
4. Enumerator training is reviewed in order to ensure that active teaching approaches are being correctly identified.
5. The Province/Districts develop monitoring instruments
6. Virtual meetings continue even as restrictions are lifted
7. Through the school digital champions, schools are encouraged to continue to take ownership of the Raspberry Pi computers and upload their own resources and examples of practice
8. The suite of resources, including the implementation Guide, is discussed in detail with MoGE.

## References

- Alexander, R. (2015). Teaching and Learning for all? The quality imperative revisited. *International Journal of Educational Development*, 40, 250–258.
- Gallastegi, L. & Stutchbury, K (2018): *Zambian Education School-based Training (ZEST) Project Baseline Study – March 2018*; The Open University
- Hattie, J. (2012). *Visible Learning for Teachers: Maximising Impact on Learning*. Routledge.
- Korthagen, F. (2017). Inconvenient truths about teacher learning: Towards professional development 3.0. *Teachers and Teaching: Theory and Practice*, 23(4), 387–405.
- May, C., & Finch, T. (2009). Implementing, Embedding and Integrating Practices: An outline of Normalisation Process Theory. *Sociology*, 43(3), 535–554.
- Pawson, R., & Tilley, N. (1997). *Realistic Evaluation*. Sage.
- Shulman, L., & Shulman, J. (2007). How and what teachers learn; a shifting perspective. *Journal of Curriculum Studies*, 36(2), 257–271.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning and Identity*. Cambridge University Press.

## Appendix 1: The sample for the Cohort 3 evaluation

Table 14: Teachers and Learners in Cohort 3 evaluation schools by gender

School code	Number & % of FEMALE primary school TEACHERS		Number & % of MALE primary school TEACHERS		Number & % of FEMALE primary school LEARNERS		Number & % of MALE primary school LEARNERS	
	Number	%	Number	%	Number	%	Number	%
16	34	89%	4	11%	720	54%	615	46%
17	20	95%	1	5%	681	52%	620	48%
18	27	87%	4	13%	1,026	55%	837	45%
19	14	78%	4	22%	235	50%	231	50%
20	4	36%	7	64%	238	46%	274	54%
21	4	50%	4	50%	178	48%	196	52%
22	11	69%	5	31%	400	47%	446	53%
23	4	57%	3	43%	289	47%	326	53%
24	16	89%	2	11%	688	52%	623	48%
25	6	86%	1	14%	316	52%	293	48%
26	20	87%	3	13%	233	49%	239	51%
Total	160	81%	38	19%	5,004	52%	4,700	48%

Table 15: Grades observed

School code	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
16	1	0	1	0	0	1	0
17	0	1	0	0	1	0	1
18	0	1	0	0	1	0	1
19	1	0	0	0	1	0	1
20	1	0	1	0	0	1	0
21	0	0	1	0	0	1	1
22	1	0	0	0	0	1	1
23	1	0	1	0	0	1	0
24	0	0	1	1	0	0	1
25	1	0	1	0	1	0	0
26	1	0	0	0	1	1	0
Total	7	2	6	1	5	6	6
%	21.2	6.1	18.2	3.0	15.2	18.2	18.2

Table 16: Subjects observed

School code	Literacy	English	Chitonga	Maths	Integrated Science	Creative and Technical studies	Social studies	Expressive Arts	Home Economics
16	1				1			1	
17				1		1	1		
18				2	1				
19		1		1			1		
20			1	2					
21				2	1				
22	1						1		1
23		1		2					
24	1				1		1		
25	2	1							
26	1				1		1		
Total	6	3	1	10	5	1	5	1	1
%	18.2	9.1	3.0	30.3	15.2	3.0	15.2	3.0	3.0

## 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.

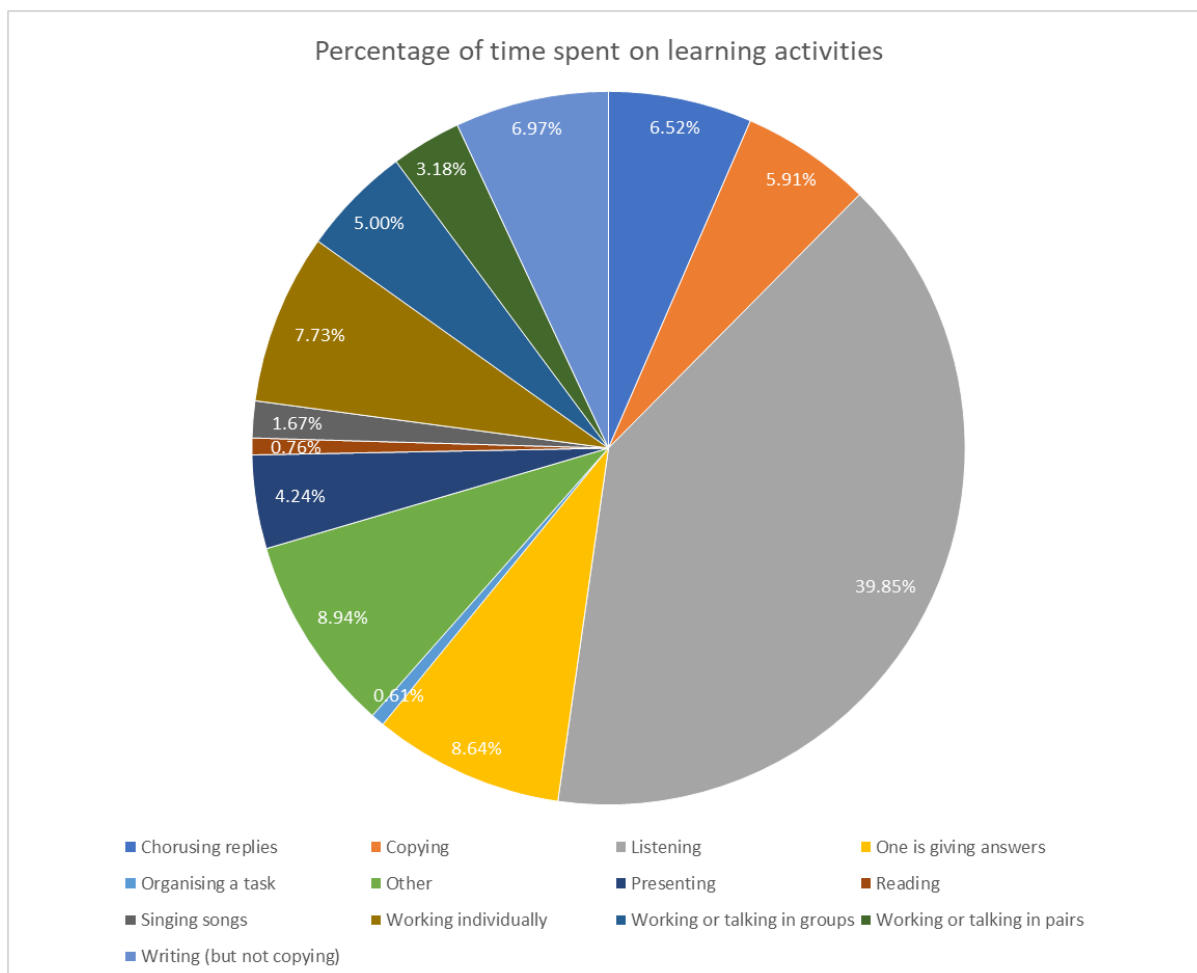


Table 17: How learners spend their time in lessons

Learning Activity	Mean percentage of lesson time
Chorus replies	6.52%
Copying	5.91%
Listening	39.85%
One is giving answers	8.64%
Organising a task	0.61%
Other	8.94%
Presenting	4.24%
Reading	0.76%
Singing songs	1.67%
Working individually	7.73%
Working or talking in groups	5.00%
Working or talking in pairs	3.18%

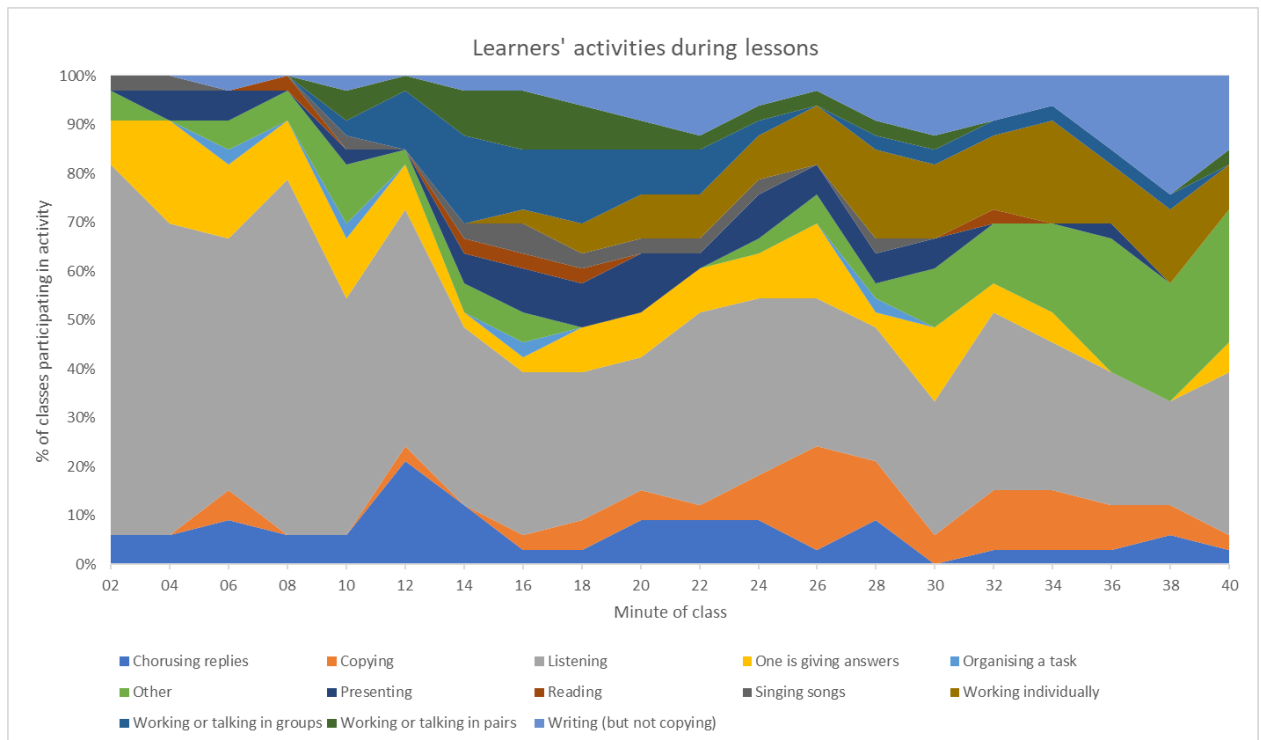
Writing (but not copying)
---------------------------

6.97%
-------

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 dark grey wedge 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 teal blue and dark green colours used to indicate working in groups or pairs, we can see that this activity peaks around 14 – 18 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' has been broken down into time spent marking (shown in grey) and time spent on other activities. The green wedge for these residual activities also includes the 1.67% of lesson time which was left blank in the observation records.

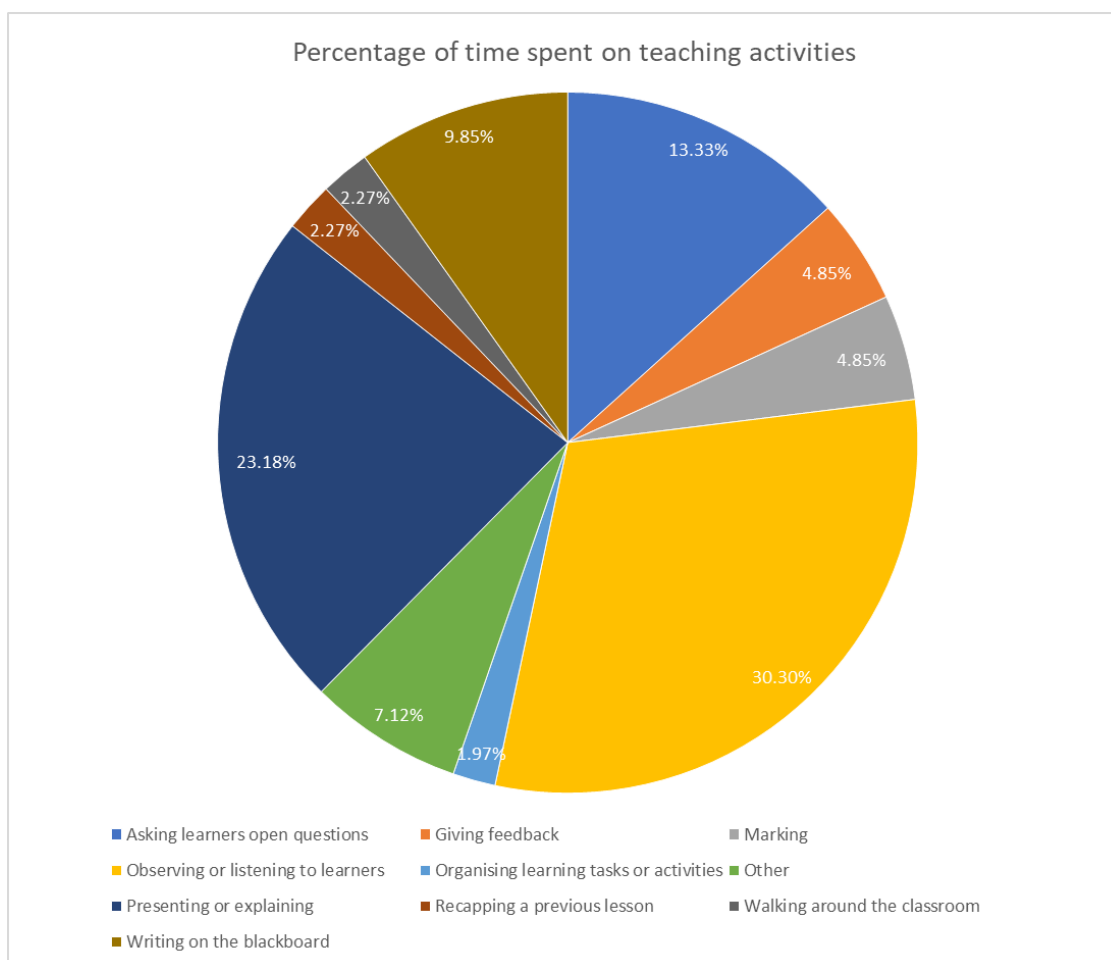


Table 18: How teachers spend their time in lessons

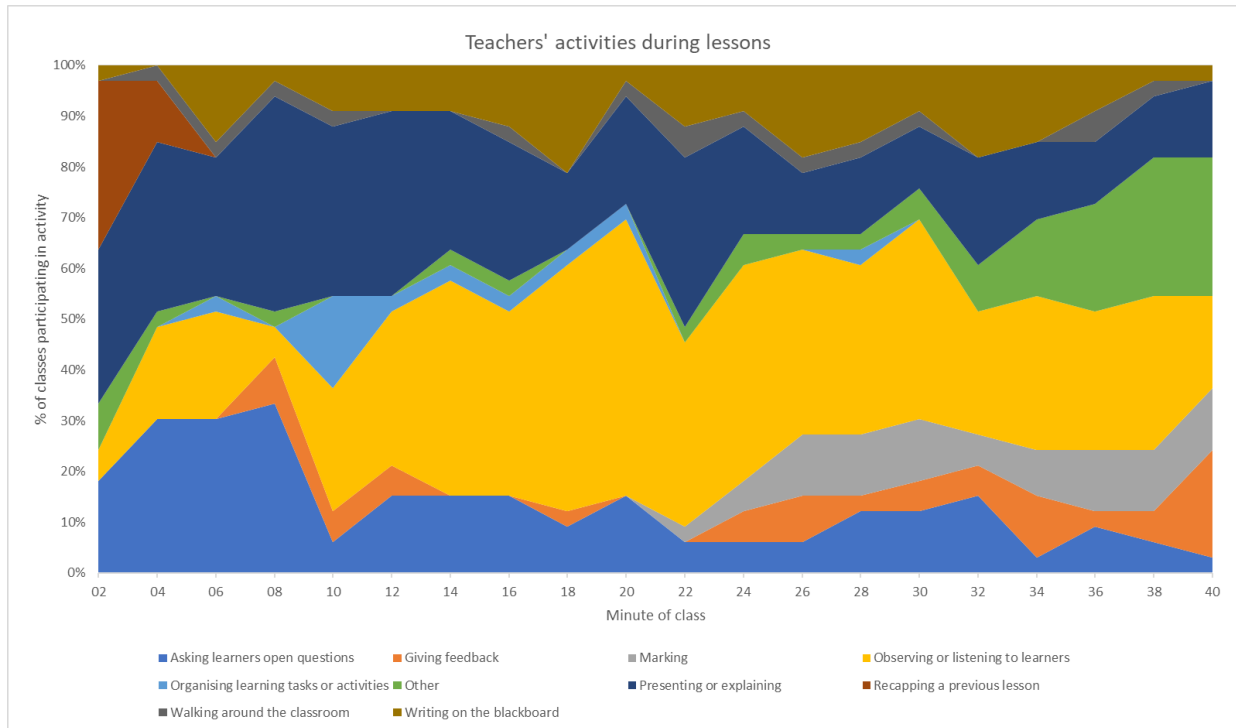
Teaching activity	Mean percentage of lesson time
Asking learners open questions	13.33%
Giving feedback	4.85%
Marking	4.85%
Observing or listening to learners	30.30%
Organising learning tasks or activities	1.97%
Other	7.12%
Presenting or explaining	23.18%
Recapping a previous lesson	2.27%
Walking around the classroom	2.27%

Writing on the blackboard
---------------------------

9.85%
-------

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 dark orange wedge at the upper 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 and the table overleaf show the categories of activity which teachers are engaged in while learners are chorusing replies, copying, listening etc.

For instance, when learners are working or talking in pairs, teachers are mainly (95.2% of the time) observing or listening to learners. In the remaining 4.8% of this time, teachers are walking around the classroom.

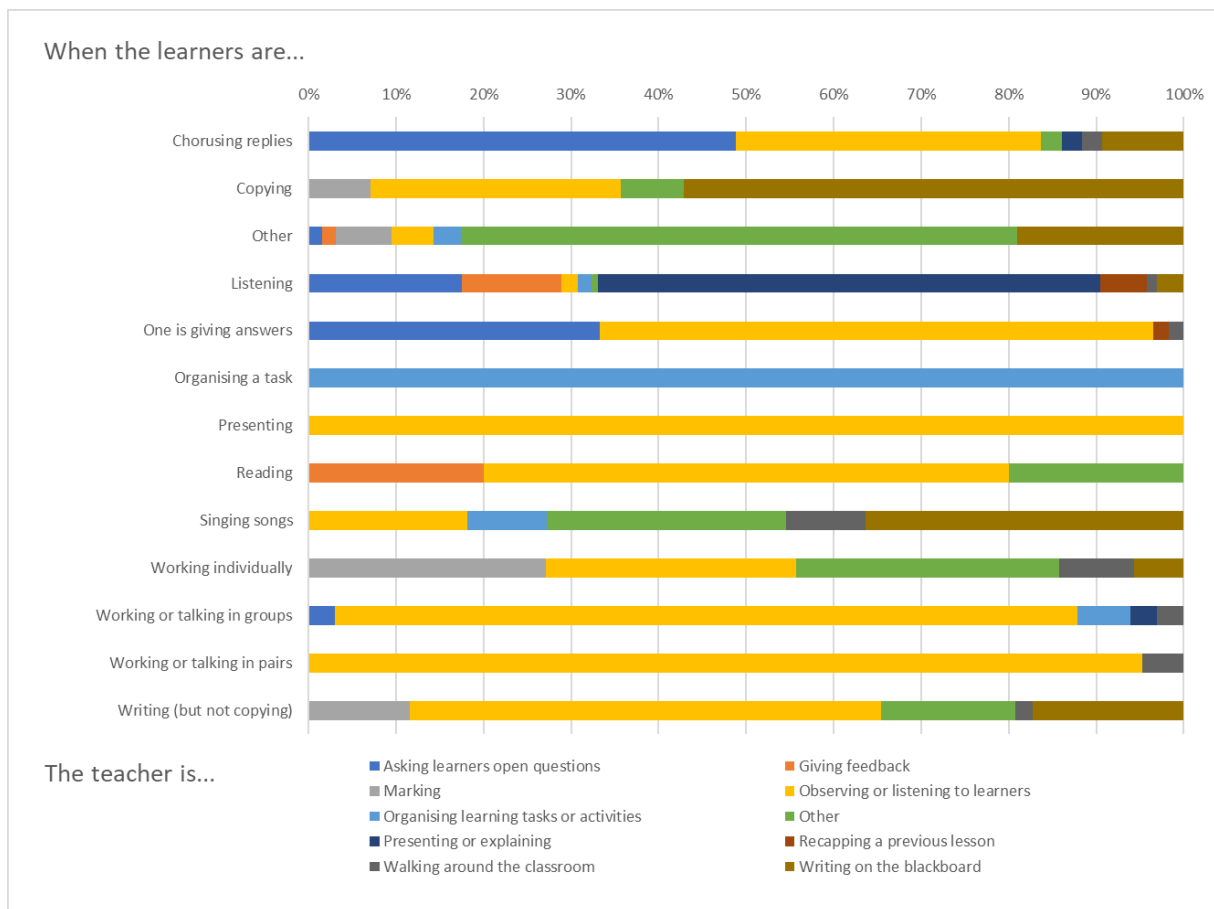


Table 19: Learners' activities broken down by teachers' activities

This table shows the same data as Figure above. The values shown here are percentages. Each row represents one learning activity and the columns are the teaching activities which correspond to it. The values in each row add up to 100%.

When the learners are...	The teacher is...										
	Asking learners open questions	Giving feedback	Marking	Observing or listening to learners	Organising learning tasks or activities	Other	Presenting or explaining	Recapping a previous lesson	Walking around the classroom	Writing on the blackboard	Total
Chorus replies	48.8	0.0	0.0	34.9	0.0	2.3	2.3	0.0	2.3	9.3	100.0
Copying	0.0	0.0	7.7	30.8	0.0	7.7	0.0	0.0	0.0	61.5	100.0
Other	1.7	1.7	6.8	5.1	3.4	67.8	0.0	0.0	0.0	20.3	100.0
Listening	17.5	11.4	0.0	1.9	1.5	0.8	57.4	5.3	1.1	3.0	100.0
One is giving answers	33.3	0.0	0.0	63.2	0.0	0.0	0.0	1.8	1.8	0.0	100.0
Organising a task	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Presenting	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Reading	0.0	20.0	0.0	60.0	0.0	20.0	0.0	0.0	0.0	0.0	100.0
Singing songs	0.0	0.0	0.0	18.2	9.1	27.3	0.0	0.0	9.1	36.4	100.0
Working individually	0.0	0.0	37.3	39.2	0.0	41.2	0.0	0.0	11.8	7.8	100.0
Working or talking in groups	3.0	0.0	0.0	84.8	6.1	0.0	3.0	0.0	3.0	0.0	100.0
Working or talking in pairs	0.0	0.0	0.0	95.2	0.0	0.0	0.0	0.0	4.8	0.0	100.0
Writing (but not copying)	0.0	0.0	13.0	60.9	0.0	17.4	0.0	0.0	2.2	19.6	100.0
Overall	13.3	4.8	4.8	30.3	2.0	7.1	23.2	2.3	2.3	9.8	100.0

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

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

For instance, when teachers are giving feedback, the learners are mostly (93.8% of the time) listening. Reading and other activities make up the remaining 6.2% of the time.

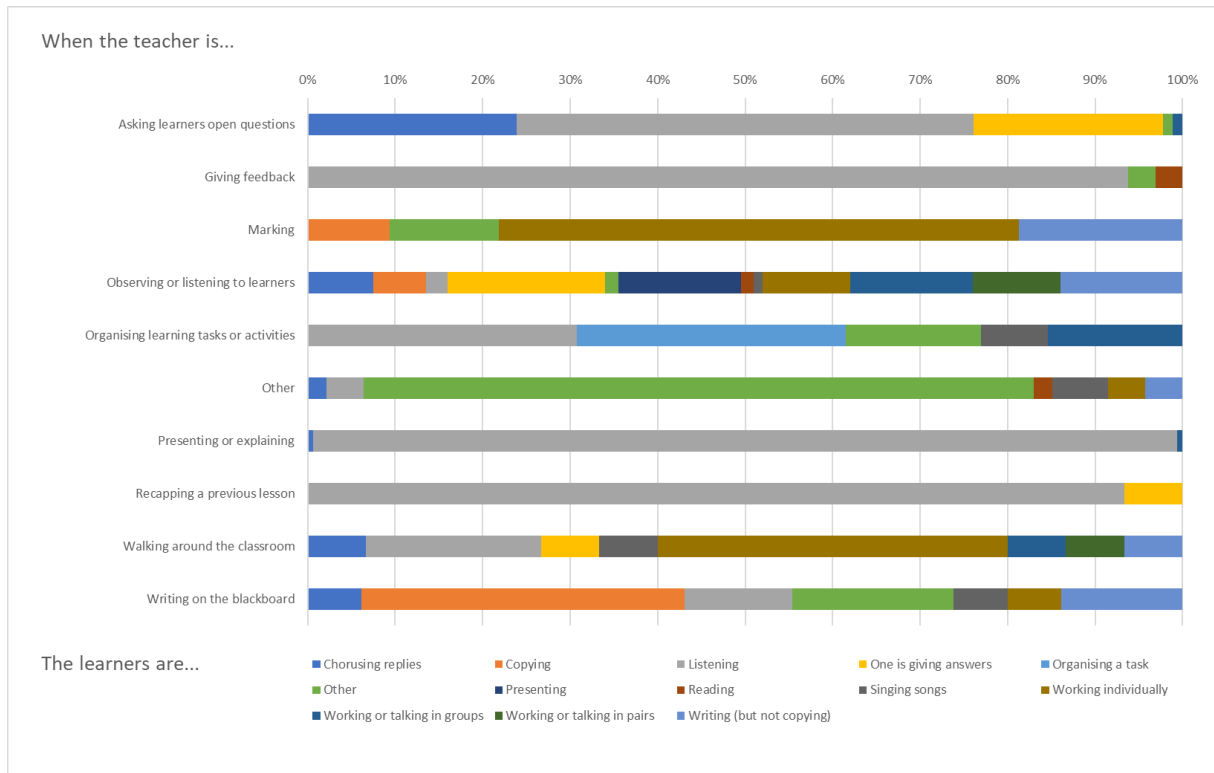


Table 20: Teachers' activities broken down by learners' activities

This table shows the same data as Figure above. The values shown here are percentages. Each row represents one teaching activity and the columns are the learning activities which correspond to it. The values in each row add up to 100%

When the teacher is...	The learners are...													Total
	Chorus replies	Copying	Listening	One is giving answers	Organising a task	Other	Presenting	Reading	Singing songs	Working individually	Working or talking in groups	Working or talking in pairs	Writing (but not copying)	
Asking learners open questions	23.9	0.0	52.3	21.6	0.0	1.1	0.0	0.0	0.0	0.0	1.1	0.0	0.0	100.0
Giving feedback	0.0	0.0	93.8	0.0	0.0	3.1	0.0	3.1	0.0	0.0	0.0	0.0	0.0	100.0
Marking	0.0	9.4	0.0	0.0	0.0	12.5	0.0	0.0	0.0	59.4	0.0	0.0	18.8	100.0
Observing or listening to learners	7.5	6.0	2.5	18.0	0.0	1.5	14.0	1.5	1.0	10.0	14.0	10.0	14.0	100.0
Organising learning tasks or activities	0.0	0.0	30.8	0.0	30.8	15.4	0.0	0.0	7.7	0.0	15.4	0.0	0.0	100.0
Other	2.1	0.0	4.3	0.0	0.0	76.6	0.0	2.1	6.4	4.3	0.0	0.0	4.3	100.0
Presenting or explaining	0.7	0.0	98.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	100.0
Recapping a previous lesson	0.0	0.0	93.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Walking around the classroom	6.7	0.0	20.0	6.7	0.0	0.0	0.0	0.0	6.7	40.0	6.7	6.7	6.7	100.0
Writing on the blackboard	6.2	36.9	12.3	0.0	0.0	18.5	0.0	0.0	6.2	6.2	0.0	0.0	13.8	100.0
Overall	6.5	5.9	39.8	8.6	0.6	8.9	4.2	0.8	1.7	7.7	5.0	3.2	7.0	100.0