Report on Teacher Development & Management Training in the DBE Agile Experiment Multi-grade Schools

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Background

Information Communication Technology (ICT) is a critical component of digital transformation or the Fourth Industrial Revolution and as such needs to be integrated into schooling both as a mechanism for teaching and learning but also to prepare our learners and teachers for the evolving social and economic context and a re-imagination of educational approaches. The need for this integration has been exacerbated by the COVID 19 pandemic. Moving forward technology in schooling must take account of the differing contexts in which teachers and learners operate and must narrow the existing inequalities and power dynamics rather than further exacerbate them.

The DBE faces particular challenges with regards to deploying ICT in schooling which it hopes to address through the partnership with Telkom and its partners. The goals of this intervention is to develop a Framework to provide guidance on the use of virtual schooling/online classroom/multi modal teaching and learning. Such a framework must take account of teachers and learners particularly regarding unequal exposure, access and capacity and ensure that teacher capacity building is part of the Framework. A successful ICT strategy and implementation in teaching and learning requires the DBE to work collaboratively with partners in the ICT sector. In addition, there are many successful ICT pilots which need to be learned from and potentially scaled.

The DBE, in collaboration with Telkom, has undertaken to explore and establish "virtual schooling" as an ICT-based alternative that will address the constraints experienced by the majority of South African children in accessing quality education and mitigate the challenges presented by the Covid-19, and any other possible pandemic, to conventional schooling in geo-physical spaces known as "schools". For this purpose, "virtual schools" or virtual classrooms are defined as online environments that enable students and instructors to communicate synchronously or asynchronously using multimodal approaches such as audio, video, instant messaging/chats, interactive whiteboards, application sharing, instant polling, augmented or virtual reality, and other such features, as though they were standing face to face in a conventional classroom. Thus the concept of a "virtual school" in this context goes beyond mere use of ICTs to enhance teaching and learning but extends to a(n) virtual "entity" functioning within and driven through ICTs to provide education for ALL.

Project Description

Kelello Consulting through Telkom enabled a number of partners to address critical components for research and to aid in the compilation of a Framework. These components include:

- Scoping of connectivity solutions by the Telkom technical team.
- The distribution of ICT equipment
- Learner-focused devices
- Teacher devices
- School-based ICT
- Multi-grade digital content
- School-level training and support
- School Management Teams & Teacher Development
- Foundation Phase Teacher Training
- Monitoring and Learning

Telkom requested that SchoolNet assist in this initiative to implement School Management Teams and Teacher Development training to 8 schools, with five schools in the Free State and three schools in Willowvale, Eastern Cape.

Overview of Professional Development in ICT

SchoolNet was requested to completed two Professional development interventions for School Management Teams and Teachers at the various multi-grade schools. Based on the goals of the project SchoolNet devised a two afternoon course programme that would guide a support both the management teams and teachers to appreciate the affordance of technologies for learning and teaching, to experience digital technologies and to plan for its implementation and use within the school.

Teacher Development

Teacher development is the core of SchoolNet's work and as such our programme is carefully considered to ensure that teachers optimally learn new skills, practice the skills and are able to implement post training. This is accomplished through a balanced integrated model that allows technological knowledge to be gained through content and pedagogical strategies using a variety of digital resources.

The teacher professional development programme included the following lessons:
- Tablet Fundamentals
- Exploring Apps for Learning
- Creating Learner-centred activities
- Digital Assessment
- Classroom Management

School Management Team Development

ICT implementation and use is largely dependent on the School Leadership. If the leadership have sufficient awareness and strategies for implementation, then the chances of optimal ICT use is exponential. To this end, SchoolNet customized a programme to provide a breadth of awareness for the school leaders to appreciate the sponsored infrastructure and were exposed to a range of ideas for how to use digital technologies in the teaching and learning dynamic as well as to enable an innovative school environment.

The leadership professional development programme included the following lessons:
- Vision for ICT
- Tablet Fundamentals
- Apps and Tools for Leaders
- The Power of Digital Assessment
- Building Capacity
- Classroom Management

Overview of the Facilitation

Willowvale, Eastern Cape

The School Management Teams and Teacher development workshops were scheduled to be hosted at Zwelinzima Primary School in Willowvale, Eastern Cape on the 9-10th November 2020 from 10h30 - 14h00. Whilst this is not one of the project Schools, it was suggested by Axium that this school had the best internet connection for the training.

Unfortunately, the start of the training was delayed, as the venue had not been confirmed (reported by the Acting principal of Zwelinzima SPS). The classrooms were therefore not organized for training which had a knock-on effect on facilitators not being able to setup and attend to technical difficulties prior to the workshop start time. Additionally whilst the school did have a strong network signal, the internet was not available and the trainers had to use SchoolNet routers and cell phones for connectivity.

Leadership Training

Three principals attended the first day. Two principals from Jongikwezi and Dumalisile SPS had some basic ICT skills whilst the principal from Hlabizulu, the oldest of the group) did need assistance to setup his email address and complete practical activities.

The first day kicked off with the traits of inspirational leaders and the Eastern Cape principals unanimously agreed that creating an atmosphere that encourages innovation is one of the crucial traits of a leader. This led nicely to the Vision activity where leaders were tasked to draft a Vision for ICT for their schools.

Tablet fundamentals was completed as a game, where participants were guided to understand different ports, storage, display and other navigational functionality on the tablets. Unfortunately, as the session progressed to Cloud Storage, an urgent meeting was called by Axium, where principals were informed of a compulsory District meeting scheduled for day 2. Dumalisile's principal also had to depart as he had to travel to Butterworth.

It was decided that virtual sessions would be organized to ensure that Principals complete day two's modules of the course.

Teacher Training

Ten teachers were in attendance with three teachers from the Project schools, and an additional 4 teacher assistants. Three Axium staff were also present.

The teacher training started off according to plan, with digital introductions. The aim of this activity was to gauge ICT skills and to what extent participants were able to manipulate basic digital tools to Introduce themselves. This activity led nicely to participants exploring, asking each other and finding a way to complete the activity.

The Bingo activity transitioned into more self-discovery as all participants were thrown into the deep end in respect of finding general tablets information, changing settings, finding apps and tools, and identifying cables and ports for external connection.

Module 2 proved started off with some hiccups with connection to the internet. Some teachers had forgotten email addresses and passwords. Once the initial hiccups were addressed, the cloud storage activity proved very useful. Many participants explained that colleagues had shared documents with them before and due to a lack of understanding they were not able to find documents nor access it. This session explored Google drive and the Online Productivity tools in detail so participants could easily find their way after the session.

The exploring Apps and Tools had to be cut short on the first day, due to participants having to leave for home. The participants agreed to start earlier to cover up the time.

Day two resumed with teachers reviewing Apps and Tools. Many opted to explore the African Storybook App which was pre-loaded, whilst others explored zero-rated sites for Foundation Phase learning. Sharing reviews using Google tools did not work well as Teacher devices were Microsoft devices and required sign-in with Microsoft Accounts which would have delayed the session further.

The Learner-centred activity focused on designing learning using the ASSURE model. This was an important consideration as participants worked through planning digital lessons and matching activities to outcomes and using assessment to prove that learning outcomes were met.
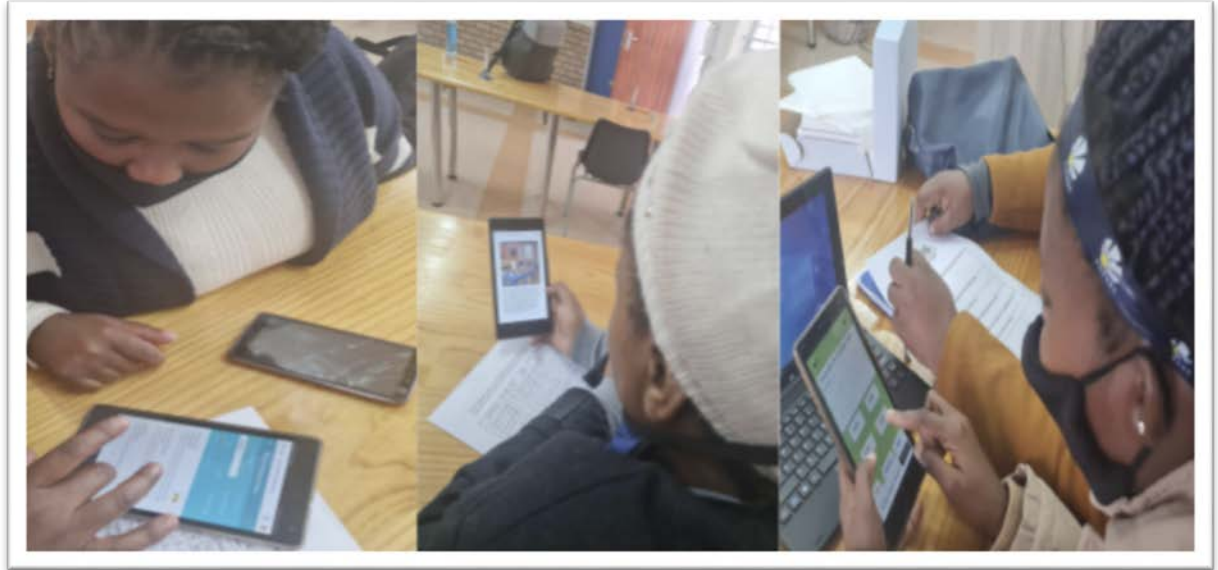
The session on Digital assessment used Kahoot as the cornerstone and required participants to first experience games as a learner and then focused on how to setup assessments as a teacher.

The last session focused on managing multigrade classrooms and optimizing technology in the classroom. This would require careful planning and consideration, but once done, implementation would be easier.

Leadership Training

All five project school Principals were at least an hour earlier than planned, which meant that the training could start on time. The represented schools were as follows:
1. Moutloatsi I/S in Thaba Nchu, Free State
2. Khune P/S in Thaba Nchu, Free State
3. Mmafane Primary School Thaba Nchu, Free Stats
4. Ditlatse PS in Thaba Nchu, Free State
5. Eersteling Primary School in Bloemfontein, Free State

Two principals were between the age of 35 and 44, whilst three principals were in the 45-54 bracket and the oldest being 54. Two of the principals struggled with the practical activities and thus the training had to follow the flow of the participants who needed support before gaining independence.

The training followed the same programme as the Eastern Cape. The traits of an inspiration leader activity revealed that the ALL female leaders cohort in Free State believed that it was most important to be Open to New Ideas, followed by creating an inspiring and innovative work environment.
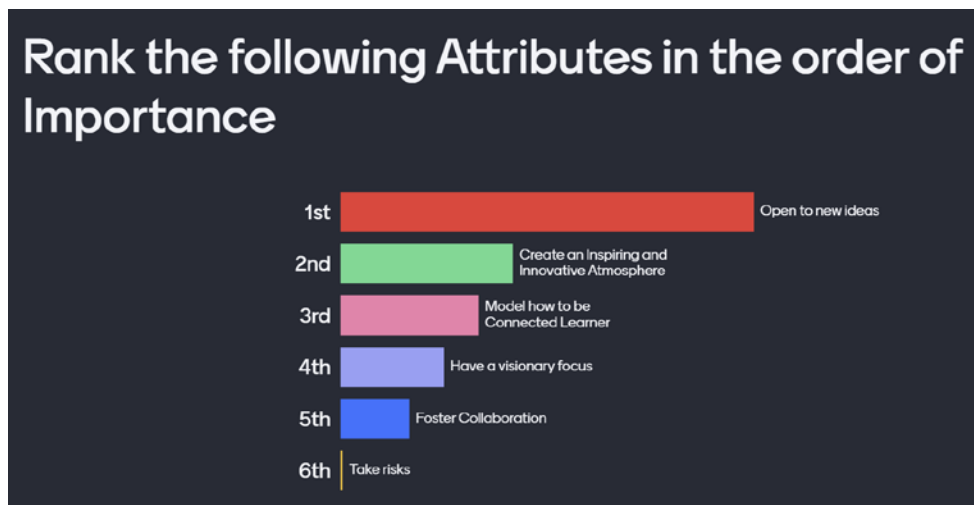

The Tablet fundamentals activity revealed that most principals had to be shown hardware and software components and much time was spent showcasing How to change display settings, connect devices, check memory, tablet IMEI settings etc.

The Cloud storage activity was quite telling as all participants had Gmail addresses and when they installed the Google Drive app, they were able to see that Google was backing up all their school documents already. We delved into filing structures and explored ideas for capturing lesson plans and learner activities to make administration easier within the school and with external stakeholders.
Day two continued with Apps and Tools and then moved onto Kahoot. The participants

took some time to firstly get the hang of the app and then play the game. This proved very successful with participants discussing the potential of digital tools for assessment and capturing the marks etc as per administrative requirements.

Unfortunately, we resorted to open discussions about Capacity building and Classroom Management, with a promised that participants will attend the Virtual sessions when they are organized. There was an indication that Saturday lessons would be better than afternoons as this would allow for sufficient time and focus on the sessions.
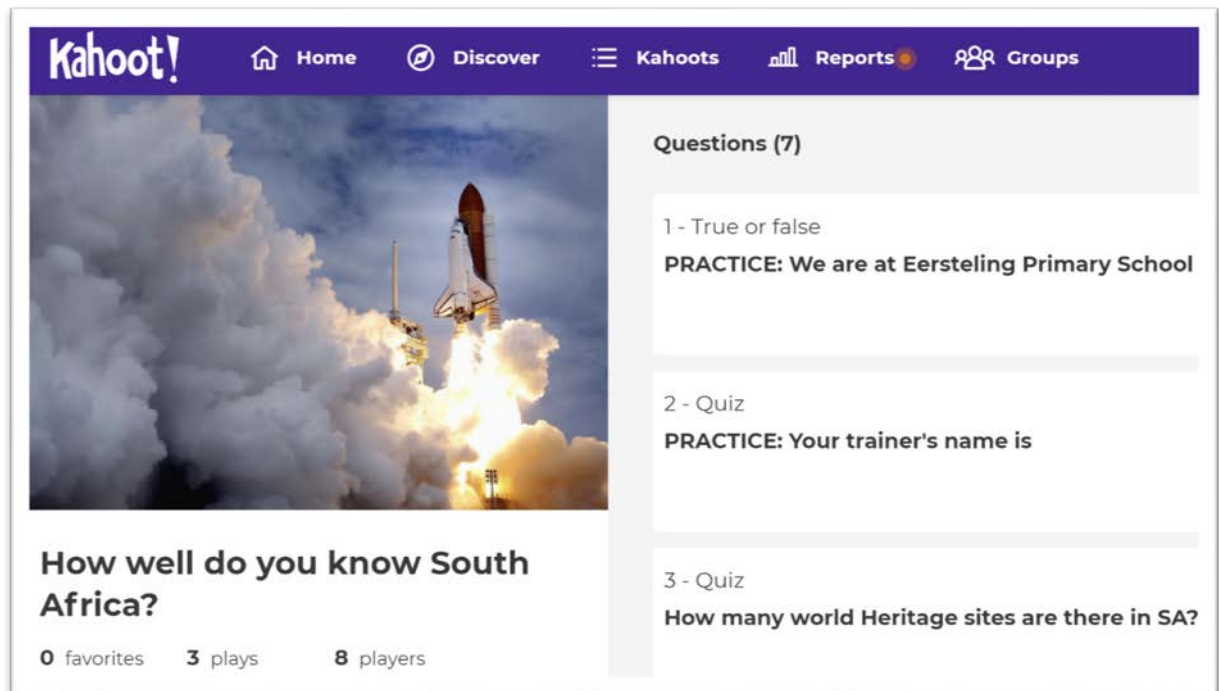
Teacher Training

There were some challenges on first day of the workshop because the tablets were a mix of Android and Windows tablets. Two foundation phase teachers from each school received Windows devices, however learners and Principals who were also teachers received Android devices. The main issue is that with Windows devices only a few Applications were installed. There was also confusion with regards to training times. Teachers were not aware that the training will run until 5 pm and that led to cutting training times a little shorter.

The facilitator started the session with an Introduction activity. This was well received as most participants had used PowerPoint before, only a few struggled a little and were assisted. The second lesson used a Bingo Game as a teaching strategy that allowed participants to practice skill and explore the new tablet. Bingo caught the teacher's attention as they were glued to their screens until lunch break, attempting to complete their exercises and making sure that they master to navigate and use the resources well. Teachers were also taken through installing Applications such as African Storybook, Multi-grade resources on their tablets which went very well.

On the second day teachers were introduced to an online assessment tool called Kahoot and were excited to explore it- so much so that it became very competitive environment. Teachers were then given an opportunity to construct their own questions using Kahoot and tested it by answering questions as a group. Kahoot was the highlight of the workshop.

Lastly the facilitator played a video and started a discussion about classroom management techniques. Based on the video they watched teachers shared their insights about issues concerning security and how they think theft should be tackled in schools.

Evaluation of Training

Leadership training

At the start of the training, participants indicated that there was fair to very good awareness of traits of effective leaders, importance of ICT vision, knowledge of Apps and Tools, importance of Skills audit and ICT Policy. There was an expression that there was some limitation to knowledge of Tablet Technologies, Cloud Storage and Digital Assessment Tools for learning.


After the training, all participants had progressed to Very good and Fair awareness and knowledge in all categories or lessons covered during the course. More work will need to done to help participants master Cloud storage, digital assessment, strategies to address skills gaps and drafting ICT policies.

Teacher training

The scenario before training indicated that 25% of teachers had limited or no knowledge of Tablets, and a further 31% indicated fair experience. Eleven (69%) participants indicated that they had limited, to fair experience of Apps and Tools for learning. Only one participant reported that they had very good experience of Digital Tools for Assessment, and 20% with knowledge of Classroom Management techniques.
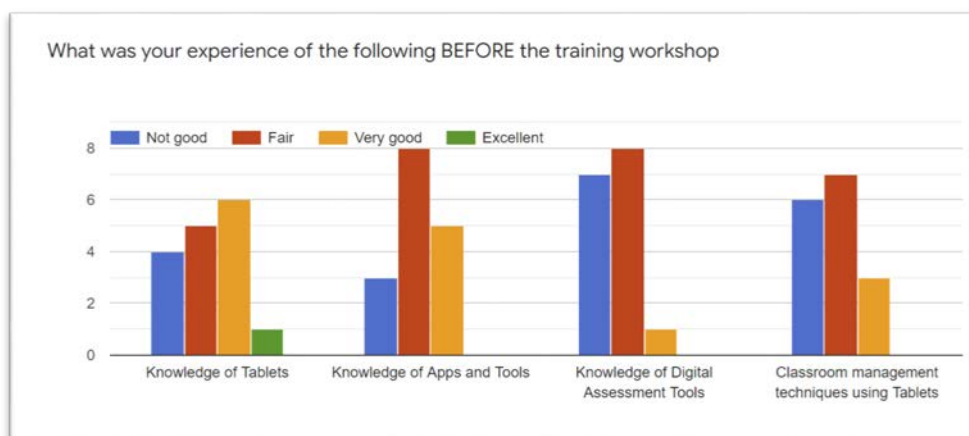
Whilst teacher training occurred over two afternoons, it was refreshing to see that a focused development with carefully considered approaches to learning did have a positive effect in participants gaining the planned skills. More than 80% of all participants indicated that after the training their knowledge of Tablets, Apps and Tools, Digital Assessment and Classroom Management improved significantly.

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You have completed a range of activities during this workshop. What is your rating of the following AFTER the training workshop

Challenges
- Learner tablets and teacher devices were on two different Operating systems which resulted in different apps being available on both devices and the teachers devices not having access to Android apps.
- In the Eastern Cape, learner tablets were not available during the training nor delivered to the schools
- Theft is an issue (Hlabizulu, EC) and the school does not have a safe space to store sponsored technologies.
- The NumberSense app installed on learner tablets requires internet connection and will not be usable until Internet connectivity is in place.
- The Read Sunshine app is also web-based and stable internet connection is required for use
- Majority of the teachers lack basic ICT skills
- Teachers need time to plan for teaching and learning and confidence will be built with more support and development
- Classrooms in Multi-grade schools are small, which means that heat generated from projectors and digital technologies will require more ventilation in classrooms.
- Invitations for training, seemingly was not received timeously
- Time for training was too short
- Project schools in the Eastern Cape, rely on Zwelinzima JSS for strong internet network signal, which poses a real threat for use of devices in the project schools.

Recommendations
- Stable internet connection is needed to run the apps included in the research. This needs to be in place as soon as possible.
- Additional time must be scheduled for training and this was the main thread of suggestions for improving further sessions.
- Participants should be given an opportunity to improve their ICT skills and understanding of ICT integration as this will contribute to improving the use of digital technologies in engaging ways for teaching and learning.

- In schools were internet connection is not strong, there needs to be an offline solution provided, perhaps with offline apps for learning or use of apps that upload learner/teacher data during slow internet traffic times
- Majority of the teachers aging and close to retirement, and it will be important for additional staff to be brought on board for continuity
- In the Eastern Cape, teacher assistants are available and there should be an arrangement for loaned devices so that they could assist teachers with planning for ICT integration
- Learner devices are different from the educators and this may pose a challenge for teachers since they are beginners themselves. It is highly recommended that teachers are sponsored with devices similar to those of their learners, with additional specifications and apps loaded for productivity.

This project would not have been possible without the Telkom Foundation, who brought the many project partners together and importantly provided the financial and digital resources to make this project happen.

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