Summary Report

Deloitte Project Final Report

June - August 2025

1. Background

In South Africa, integrating Information and Communication Technology (ICT) into education is essential for preparing teachers and learners for the digital economy. Despite progress, a significant digital skills gap remains. The Department of Basic Education's Professional Development Framework for Digital Learning (2018) and the recent Department of Communications and Digital Technology National Digital and Future Skills Strategy (2020) emphasise the urgent need to enhance educators' digital competencies to build a globally competitive, digitally literate society. A Bizcommunity article (4 August 2022) noted that only 30% of teachers felt ready to use technology in teaching. This limitation hampers effective technology use in classrooms and underlines the need for robust professional development in ICT pedagogy, most especially in public schools.

In addition to improving teaching, ICT plays a crucial role in:

- **Enhancing learning outcomes** through personalised, engaging experiences.
- **Bridging the digital divide** by making schools digitally literate and equipped, aligned with SA Connect's goal of universal internet access by 2030.
- **Preparing learners for the workforce**, as 75% of jobs in South Africa now require digital skills.

2. Project Plan

An initial baseline survey was conducted in each project school to determine teachers' existing ICT use, skills and competency. Additionally, the survey was used to identify specialised training requirements based on the unique needs of the teachers.

The course content is aligned with the Technological, Pedagogical and Content Knowledge Framework (Mishra & Koehler), and all activities are practical applications of how teachers can use the available technology through engaging methodologies to teach curriculum content to improve learning outcomes.

The project was designed to reach 500 teachers across all provinces. The initiative included a total of seven face-to-face sessions and three online sessions, all of which have been completed. This is a completed Summary Report.

3. Customisation of Training Materials

To address the needs of the project, customisation of materials was necessary. This customisation also allowed for addressing issues of language, local examples, and contextual relevance to be incorporated into the materials. Below is a description of the final content for the schools in the Deloitte project.

3.1 Introduction to Digital Literacy

3.1.1 Discover and Apply Word Processing

The Discover and Apply word processing module are designed to ensure that teachers can reduce their administrative burdens through learning how to create lesson plans and assessments.

Teachers will learn the following.

- Explore word processing software
- Understand word processing skills
- Use word processing resources and tools

3.1.2 Discover and Apply Spreadsheets

The training material for Discover and Apply Spreadsheets was designed to be facilitated for one full day, and the materials include a range of activities to allow teachers to explore different applications of spreadsheets for use in the school day.

The outcomes of the session are for the teachers to:

- Explore the spreadsheet software, discuss spreadsheet skills, and identify spreadsheet resources.
- Independently complete an activity to develop their budgeting skills, which is useful both in their personal and professional activities.
- Learn how to use simple and complex formulae in marksheets, which is critical in the life of a teacher

3.1.3 Designing Lessons with Multimedia

The Designing Lessons with Multimedia modules focus on activities that guide the teacher to improve learner engagement in the classroom through lesson design.

The outcome of the session is for teachers to:

- Demonstrate the use of TPACK when designing and creating lessons to improve learner engagement.
- Expand their pedagogical use of digital tools to teach curriculum content in dynamic subject lessons.

3.2 Innovation in Teaching with Artificial Intelligence (AI)

As a basic introduction to Artificial Intelligence (AI), teachers will attend a half-day session designed to:

- Discuss the role of AI in enhancing teaching and learning.
- Be aware of available digital tools and how to leverage these for enhanced teaching and learning.
- Explore AI applications in education for personalised learning, assessment and other teaching activities
- Explore AI concepts to consider how AI can be purposefully integrated into the classrooms.

3.3 Introduction to Coding

The Introduction to Coding is designed as a half-day session to offer basic block-based coding skills to teachers. Built on the popular Minecraft software, this coding module promotes critical thinking and problem-solving skills to analyse a scenario and apply computational thinking to find a solution. All teachers who complete the 14-level course will receive certification.

This course will serve a sustainable purpose as teachers will be able to use the programme to cascade to learners as part of the school's Coding and Robotics programmes.

4. Selection of Schools

To ensure optimal engagement and program effectiveness, schools were strategically chosen from the SchoolNet Schools Database and with the support of the respective Provincial Departments of Education. This selection focused on schools that have ICT infrastructure and have shown a proactive interest in ICT professional development. Further, a higher number of schools (five) were selected from KwaZulu-Natal (KZN) due to the region's demonstrated high interest in our initiatives and its significant population density, which allows for broader impact and reach within the educational community.

5. Training Statistics

The training program was delivered through a blended learning model, comprising both in-person (face-to-face) workshops and virtual (online) sessions to maximise the reach and accessibility. The implementation was strategically divided into two distinct phases to ensure effective coordination and resource allocation.

- Phase 1: Initiated in June 2025 and concluded in July 2025.
- Phase 2: Commenced immediately thereafter, running from July through August 2025 to complete the scheduled workshop series.

Initial Phase 1 reporting documented 598 teachers from 276 schools participating in the program. Engagement during this phase was strong across both delivery methods showing 162 teachers attended face-to-face workshops and 436 teachers participated in online sessions.

Building on this foundation, Phase 2 successfully delivered the remaining curriculum, with 73 teachers attending the additional face-to-face workshops.

In summary of the project's completion, the Deloitte-sponsored initiative has achieved significant direct impact:

Category	Attendance	Date
Phase 1 (Face to face)	162 Teachers	July 2025
Phase 2 (Face to face)	73 Teachers	August 2025
Online	436 Teachers	July 2025
Geographical Reach	279 Schools in all provinces	July- August 2025

To estimate the broader educational impact, we conservatively calculate that each trained teacher will influence a minimum of six classes comprising approximately 33 learners each. Therefore, the initiative's indirect reach extends to an estimated 134,200 learners, significantly amplifying the initial investment and contributing to a substantial and lasting improvement in educational outcomes.

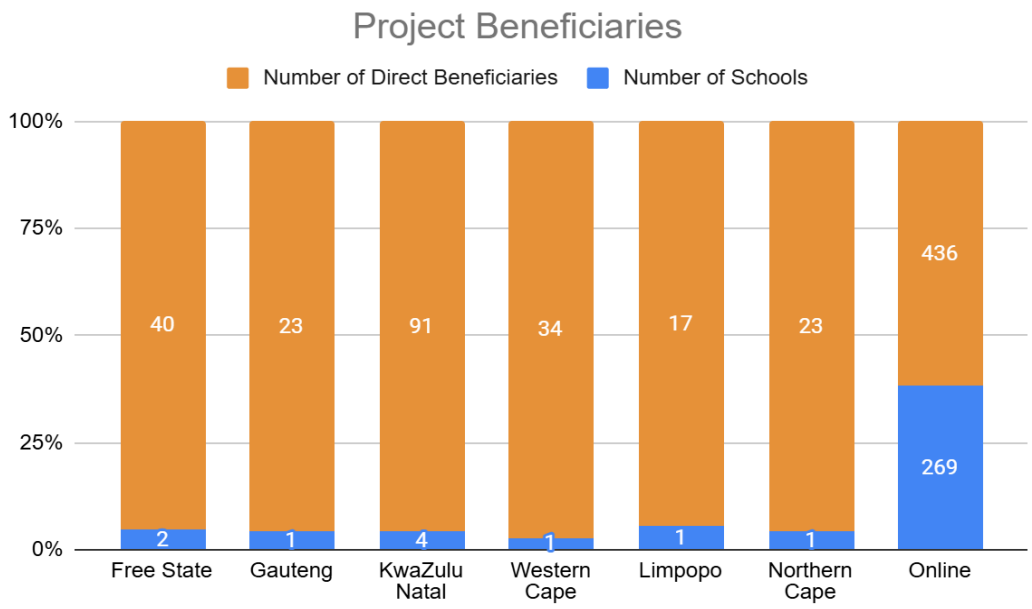


Figure 1: Beneficiaries of the Initiative

This initiative showcased interest and participation from all provinces. The graph below is indicative of huge interest from the three most populous provinces namely, KwaZulu Natal, Limpopo and North West provinces. This highlights the importance of Deloitte's sponsorship for the development of teachers in ICT Skills.

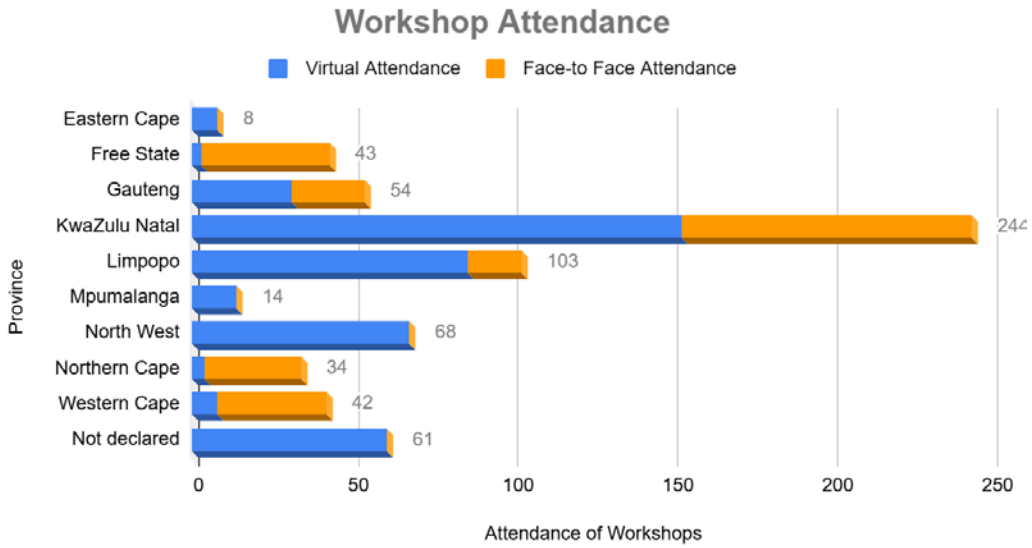


Figure 2: Workshop Attendance

Below is a table of statistics from the facilitated sessions.

Table 1: Statistics of the Workshops

				Direct Impact			Indirect Impact
Phase	**Province**	**#Schools**	**School Name**	**Overall Attendance**	**Male**	**Female**	**Overall**
	Free State (clustered)	2	Bolata Secondary School Mehloding Primary School	40	20	20	8000
	Gauteng	1	Loratong Primary School	23	5	18	4600
	KwaZulu Natal	3	King Senzangakhona High School Embizweni Secondary School Ithenjane Primary School	65	21	44	13000
	Western Cape	1	Injongo Primary School	34	8	26	6800
Phase 1	Online Sessions	269		436	134	302	87200
	KwaZulu Natal	1	Mandlezulu C.P Primary school	26	10	16	5200
	Limpopo	1	Solomonsdale Primary School	17	4	13	3400
Phase 2	Northern Cape	1	Paballelo High School	30	12	18	6000
	Total	**276**		**671**	**214**	**457**	**134200**

The Deloitte sponsored initiative has impacted 68% females and 32% males. This is an encouraging gender distribution that aligns with national efforts to advance women's participation in the digital economy. This outcome reflects the initiative's intentional focus on empowering young women through technology, particularly in a context where female representation in ICT remains disproportionately low and barriers to financial inclusion persist across South Africa.

6. Implementation of training (Face-to-Face)

6.1 Phase 1 (June- July 2025)

6.1.1. Free State

a. Bolata Secondary School/ Mehloding Primary School Clustered Training

Schools Background

Bolata Secondary School, founded in 1922, is a Quintile 1 school located in the village of Witsieshoek in the Free State province, serving the Bolata community. Under the leadership of Principal Motang D.R., the school accommodates 992 learners and is staffed by 28 teachers.

Although it lacks a fully equipped computer lab, there is one working computer in use, and the school has access to the internet and utilises Microsoft Office tools. One interactive board and a working data projector help enhance teaching where possible. Bolata Secondary fosters a strong culture of extracurricular involvement, offering soccer, netball, rope skipping, and choir.

The school encourages ICT integration, although there's currently no formal training for ICT use in teaching. Training needs for the leadership team focus on team building, while educators

require support in curriculum delivery. A teacher development plan is in place and includes elements of technology integration to support effective learning.

Mehloding Primary School

Mehloding Primary School, located in Thabo Mofutsanyane District, was established in 1940 and is situated in Bolata Village, Witsieshoek., The school is led by Principal Phatoli T.E., who currently serves 710 learners and is supported by 30 teachers and 3 administrative staff.

The school has 6 available computers; these are primarily accessed in the mathematics lab, where learners and teachers use platforms such as Google and YouTube for teaching and learning. The school has internet access, and Microsoft Office is installed on the devices. It does not currently have any interactive boards or data projectors.

The school encourages the use of ICT to enhance teaching and learning. Extracurricular activities available include soccer, netball, and cricket. Training needs have not yet been formally identified for staff or leadership, but the school has a development plan in place that acknowledges the importance of technology integration in education.

Training Overview

Training at Bolata Secondary School took place from the 26th to the 28th of June 2025. This was a clustered training session with combined teachers from Bolata Secondary School and Mehloding Secondary School, with thirty-five teachers in attendance.

The program commenced with a warm welcome from the school principal, who emphasised the critical importance of continuous professional development in technology. Participants displayed an immediate spirit of teamwork and enthusiasm. The training was structured around five core modules: Module 1: Discover and Apply Word Processing, Module 2: Innovation in Teaching AI in Education, Module 3: Discover and Apply Spreadsheets, Module 4: Designing Lessons with Multimedia and Module 5: Introduction to Coding.

A clear overview of each module's objectives was provided, alongside an explanation of the interactive activities and ongoing communication channels (WhatsApp, emails, direct calls) available for sustained support.

The day began by assessing participants' pre-existing knowledge and expectations regarding the training and general computer usage. This initial engagement revealed a strong foundation of interest and a desire to learn.

Module 1 (Discover and Apply Word Processing) focused on the practical applications of word processing, including the differences between offline and online Microsoft applications. Teachers actively participated in hands-on activities, applying their learning to create relevant classroom materials. Specific questions, such as the distinction between offline MS Office and online Microsoft 365, were addressed, providing valuable clarity.

Module 2 (Innovation in Teaching AI in Education) introduced the foundational concepts of Artificial Intelligence and explored its transformative potential in education. Participants demonstrated keen interest, readily identifying existing AI applications they knew. A key highlight was their realisation of AI's direct applicability in their field, particularly for tasks like lesson planning. The session encouraged exploration and sharing of knowledge, fostering a collaborative learning environment around AI tools.

The second day began with dedicated support for participants who sought clarification on previous lessons, ensuring a strong understanding across the group. A necessary relocation to an alternative venue with reliable power ensured uninterrupted learning.

Module 3 (Discover and Apply Spreadsheets) mirrored the practical approach of the word processing session, focusing on spreadsheet applications. Participants engaged in hands-on activities, including working with sample mark sheets and applying formulas, which are crucial for efficient data management. Module 4 (Designing Lessons with Multimedia) simplified the process of creating dynamic and engaging lessons. Participants were equipped with practical tools and applications, enabling them to design and prepare effective multimedia-rich lessons for their classrooms.

The final day continued the supportive approach, addressing any lingering questions from previous sessions to ensure a comprehensive understanding. Module 5 (Introduction to Coding) demystified coding, explaining its core concepts and its role in creating software. Participants were highly engaged, particularly in group discussions and practical activities focused on troubleshooting and safety within coding scenarios. Group presentations showcased their collaborative learning and understanding, with constructive feedback provided to refine their insights.

Throughout the program, participants consistently displayed a high level of engagement and a strong spirit of teamwork. Their positive comments and active participation in discussions and hands-on activities were evident. Teachers readily brought in their context-based leadership experiences, enriching the learning environment. While some required additional guidance with abstract concepts, they responded well to support, demonstrating a strong commitment to mastering the content. The opportunity to explore and share knowledge, particularly around AI applications, was met with enthusiasm.

6.1.2. Gauteng

a. Loratong Primary School

School Background

Loratong Primary School, established in 1985, is based in Gauteng Province in the Tshwane North District, located in Block Mthetwa, Stinkwater, Hammanskraal. Under the leadership of Principal Mr. J.R. Rakoma, the school supports 745 learners along with a staff complement of 25 teachers and 2 administrative staff members. The school serves learners from Stinkwater, New Esterus, and Trust Farm communities.

Loratong has a computer lab with six functional learner computers and four admin devices. Although the lab is not networked and lacks interactive boards and a data projector, the school is connected to the internet, and Microsoft Office is installed on all devices.

The school encourages the use of ICT in lesson planning, educator workshops, and research. Teachers are developing proficiency in Excel, Access, and Developer tools, and require additional support with basic end-user computing skills. A teacher development plan is in place, with a strong emphasis on integrating technology into teaching and learning. Learners at Loratong enjoy a rich variety of extracurricular activities, including netball, boys' and girls' soccer, volleyball, basketball, chess, khokho, and Morabaraba.

Training Overview

Day one of the training introduced educators to word processing, beginning with an assessment of their existing knowledge and addressing concerns about online connectivity and the need for offline alternatives. The session explored both Microsoft Word and Google Docs, emphasising the collaborative features of online platforms. Participants actively engaged in a group activity using Google Docs, where they collaboratively addressed questions on supporting learners with barriers, listed learner counts, and created charts. This hands-on experience effectively demonstrated the benefits of online documentation, such as remote access, real-time collaboration, and automatic saving, showcasing how these tools can significantly enhance teaching and learning.

The first day then transitioned to multimedia and the ASSURE Learning Design Model, guiding participants through its key components for effective lesson planning. A discussion revealed teachers' desire to use PowerPoint but highlighted administrative workload as a barrier. In response, Artificial Intelligence (AI) in education was introduced, focusing on its potential to reduce administrative burdens. Participants were introduced to Magic School, an AI tool for lesson planning and presentation generation. This activity successfully demonstrated the value of effective prompt writing and how AI can streamline resource creation, allowing educators more time for content development and learner engagement.

Day two focused on Discovering and Applying Spreadsheets. The session began by assessing participants' familiarity with spreadsheets, leading to discussions on data analysis. While some educators were proficient, others had limited knowledge, creating a diverse learning environment. The facilitator explained various spreadsheet products, with a focus on Microsoft Excel and Google Sheets, comparing their interfaces. Participants engaged in practical exercises using a sample marksheet and creating a personal budget. They learned to calculate totals and averages using functions like SUM and appreciated the efficiency of the Auto-fill feature. The session also covered inserting graphs and analysing data visually, which was very well received by all participants.

The final day of training centred on unplugged coding using the Tangible Rangers Coding kit. This hands-on approach involved physical, manipulative objects interacting with a digital device to execute code. Participants engaged with the RANGERS game, an interactive and fun coding experience that teaches block/puzzle coding concepts through 30 levels. Each level presented a new challenge, requiring participants to guide a ranger through an obstacle course to capture poachers. This activity provided a highly engaging and practical introduction to coding, allowing educators to experience foundational programming concepts tangibly and enjoyably.

6.1.3 KwaZulu-Natal

a. King Senzangakhona High School

School Background

King Senzangakhona High School, established in 1987, is situated in the culturally rich Makhosini area under the KwaNobamba Traditional Authority in Zululand, KwaZulu-Natal. The school is a quintile 2 school which caters to learners from disadvantaged backgrounds. The school is led by Principal S. Otuo-Acheampong, with an enrolment of 1,026 learners and has a total of 37 dedicated staff members. The school is not a fee-paying school and receives support from the Department of Education, with access to digital learning tools such as laptops and data projectors for teaching and learning. It places strong emphasis on extracurricular development, especially in sports, arts, and culture. King Senzangakhona High School remains a beacon of learning and resilience in its community.

Training Overview

The session occurred on the 26th of June with 24 teachers in attendance. It began with an exploration of different types of word processors, including Microsoft Word (various versions) and Google Docs. Participants also engaged in a collaborative discussion about these tools.

Key functionalities of word processing were demonstrated, with a focus on practical application. This included steps to: Start Microsoft Word, Type and modify headings, save documents effectively, Insert and format tables (including merging cells, inserting columns and rows) and to Enter and organise data within tables.

The importance of the Ribbon interface and its variations across different applications was discussed, aiming to enhance navigation skills. Participants actively engaged in an activity to create a document in Google Docs and share it via email. This hands-on task proved valuable, though it highlighted a need for further guidance on file naming conventions, as some "untitled documents" were submitted.

Educators were keen to understand the need for word processing tools, asking relevant questions such as the difference between offline MS Office and online Microsoft 365, which were clarified during the session. The practical application of table formatting was well-received.

There was an integration of Innovation in Teaching AI in Education. This module provided a comprehensive definition of Artificial Intelligence (AI). It emphasised its growing importance in daily life, citing popular examples like YouTube, Netflix, and Takealot, which resonated with most educators as they already used these applications on their devices.

Examples of specific AI tools were introduced, such as ChatGPT, Gemini, and Co-pilot, alongside free AI tools like Kahoot (for engagement) and ChatGPT (for stimulating interest in studies).

Crucially, the session emphasised the importance of prompt writing for generating optimal and detailed AI responses, introducing the concept of "Garbage In, Garbage Out" (GIGO) and the need for personal discretion to filter and verify AI-generated information for 100% accuracy.

Participants showed high levels of engagement particularly during the AI session, readily sharing their existing experiences with AI in their studies. A significant "aha" moment occurred when they realised the direct applicability of AI in their professional field, particularly for tasks like creating lesson plans.

A hands-on activity involved pairs downloading and exploring ChatGPT on their phones. Participants were also guided through the sign-up steps for Magic School AI, enabling them to navigate and explore its modules. A key practical outcome was educators creating their lesson plans using AI-generated content and incorporating it into their word processing learning.

b. Embizweni Secondary School

School Background

Embizweni High School, based in Umlazi District, was founded in 1982, located on Nathi Hadebe Road. The school caters to 1,279 learners and a total of 43 teachers and one administrator under the leadership of Principal Mr. M.E. Kubone.

The school is equipped with a computer lab and has 10 administrative computers. Embizweni High actively promotes the integration of ICT into teaching and learning and hopes that through the training intervention, they will be able to start practically integrating ICTs through teaching and learning. The leadership puts an emphasis on implementing change as they believe it is the driver of growing their school. Teacher training priorities include exploring alternative strategies to corporal punishment, as it is important to instil discipline in their school. The school has a teacher development plan in place that supports the use of technology in education. Soccer is the primary extracurricular activity offered at the school.

Training Overview

Training at Embizweni School happened from July 1st to 3rd, 2025, with 20 participants. Despite challenges with non-functional computer lab equipment, the training was effectively delivered by leveraging participants' devices and utilising school tablets.

The first day focused on "Discovering and Applying Word Processing." Given the non-functional computers in the lab, the session was adapted by having participants utilise their phones and laptops. A rotational system was implemented, allowing groups to connect to the internet, complete activities, and then disconnect to enable others to access the limited connectivity. The

training covered the fundamental aspects of word processing applications and extended into the critical area of online applications and cloud storage. Discussions included understanding cloud storage concepts, its accessibility, and exploring various types of cloud storage solutions, providing educators with essential knowledge for remote access and collaboration.

On the second day, the training benefited from the principal's successful organisation of school tablets, which proved instrumental in facilitating hands-on activities. These tablets were connected and utilised to cover "Designing Lessons with Multimedia." Participants were shown how to connect devices and were guided through the process of creating dynamic, multimedia-rich lessons. Following this, the session transitioned to "Discovering and Applying Spreadsheets." Educators gained practical experience with spreadsheet functionalities, learning how to organise and analyse data. This day successfully provided intensive practical engagement in both multimedia and spreadsheet applications.

The final day of training delved into more advanced and innovative topics. The session covered teaching using AI in education, recognising that participants had limited prior exposure to Artificial Intelligence. Significant time was dedicated to thoroughly explaining AI concepts and their practical applications in education, ensuring a clear and understandable introduction to this transformative technology. Following the AI segment, the training revisited "Word Processing" from a cloud-based perspective, demonstrating the use of Google Docs, and then extensively covered "Spreadsheets" by exploring Google Sheets and its functionalities, highlighting the differences between various spreadsheet programs. The day concluded with an introduction to

coding. While extensive practical coding activities were limited due to ongoing network challenges, educators gained valuable theoretical insights into this essential digital skill.

c. Ithenjane Primary School

School Background

Ithenjane Primary School, located within the Isimahla Tribal Authority near the Ithenjane Nature Reserve in KwaZulu-Natal, has served the communities of Ithenjane, Ndaya, Nsongozi, and Wubwini since its founding in 1945. It is a Quintile 2 school with 12 dedicated teachers educating 311 learners under the leadership of Principal J.D. Soko.

Although the school lacks a computer lab and interactive teaching technology, it has introduced 20 tablets and two admin computers to support teaching. Staff use these tools mainly for lesson preparation and assessments. While there is no current training programme or teacher development plan in place, the school encourages ICT integration where possible and sees digital literacy as part of its long-term vision. Learners benefit from a vibrant extracurricular programme that includes netball, soccer, chess, volleyball, cricket, and indigenous games, enriching their holistic development.

Training Overview

The training on the 23rd of July 2025, commenced with a focus on establishing foundational digital literacy. Despite initial logistical hurdles concerning projection equipment, the session was swiftly adapted to prioritise theoretical understanding of multimedia lesson design, including the distinctions between hardware and software. This resourceful approach ensured that valuable learning time was maximised. Participants were introduced to the basics of word processing, gaining initial exposure to creating and managing digital documents. This foundational segment was crucial for building confidence and preparing educators for subsequent hands-on activities.

The second day, 24 July 2025, saw a successful transition to extensive practical application, made possible by the collaboration of participants who collectively sourced essential projection equipment. This enabled a dynamic, hands-on exploration of multimedia lesson design, where educators actively connected equipment, projected content, and created engaging PowerPoint presentations in groups. Building on the previous day's introduction, the session also delved into more practical aspects of online word processors, ensuring participants gained experience with web-based document creation and collaboration. The day was rich with practical exercises, empowering educators to immediately apply their learning.

The final day of training, 26 July 2025, provided an in-depth exploration of advanced digital concepts. A significant portion of the session was dedicated to "Innovation in Teaching AI in Education." Recognising participants varied prior exposure to AI, extensive time was dedicated to defining Artificial Intelligence, explaining its relevance, and showcasing its potential in education. This segment was highly engaging, with educators actively identifying AI applications and exploring their use for tasks like lesson planning. Following this, the training transitioned to spreadsheets, with a strong emphasis on cloud-based tools like Google Sheets, highlighting their functionalities and differences from traditional desktop applications. The day concluded with an introduction to coding, providing educators with initial exposure to this critical skill, despite some limitations related to network connectivity for extensive practical exercises.

6.1.4. Western Cape

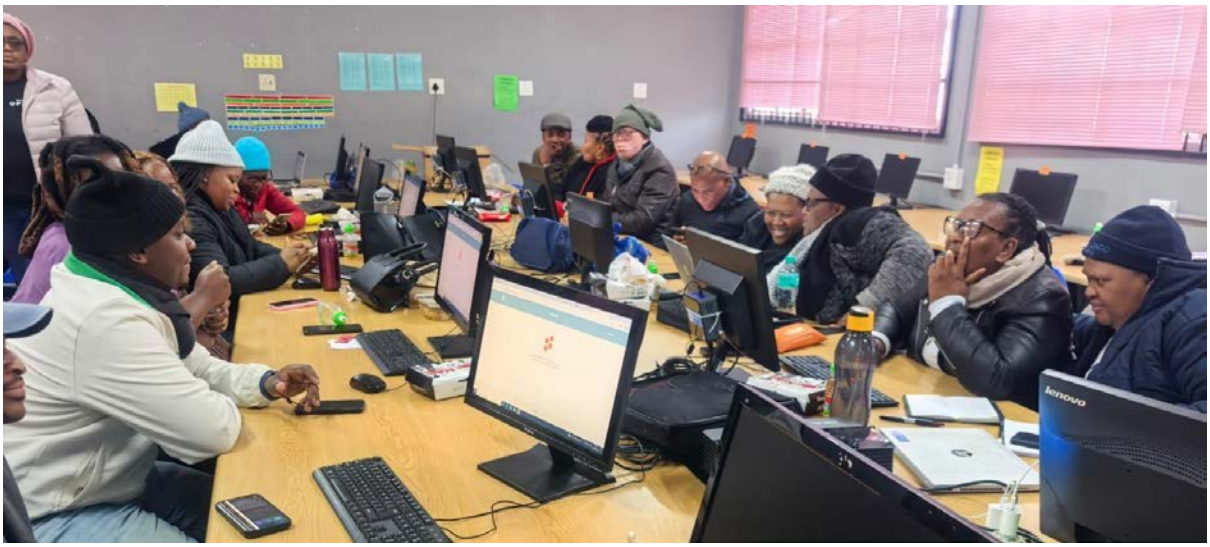
a. Injongo Primary School

School Background

Injongo Primary School, established in 1986 in Khayelitsha, Western Cape has a total of 41 teachers and 2 administrators and teaches over 1,500 learners. Teachers at the school leverage online platforms for the Maths curriculum, research, and ICT-enhanced learning. There are twelve interactive boards which help teachers with ICT integration. The school has requested training that focuses on advanced technology topics such as AI and coding, as this will help them to reflect on their current methods of teaching. The school's extracurricular programmes include dance, drama, athletics, and choir.

Training Overview

Injongo Primary School in the Western Cape had their training sessions on the 19th-20th and 23rd June 2025. A total of 24 teachers attended the training.



The training provided a comprehensive introduction to AI tools and concepts, specifically tailored for application in education. Participants were familiarised with various AI tools such as virtual teaching assistants, adaptive learning systems, and prominent AI chat assistants like ChatGPT, Gemini, Perplexity, and Co-pilot. This led to a demonstration on how AI can enhance the use of essential applications like Microsoft Word, Excel, and PowerPoint for educational purposes.

Educators were empowered to innovate and effectively integrate AI tools into their daily professional lives. This included hands-on training in preparing daily lesson plans, designing projects, assignments, formal assessment tasks, and tests using AI. Throughout the sessions, the main objective was to enhance learner engagement and performance, particularly in STEM and language subjects, through AI integration.

There was a very strong emphasis placed on encouraging the safe and responsible use of AI, ensuring alignment with the Department of Basic Education (DBE) guidelines and promoting learner data protection.

Educators were highly receptive to the training. They particularly enjoyed the hands-on learning experience, actively engaging with AI tools like Co-pilot, ChatGPT, Gemini, AI-style assistants, and adaptive learning platforms. The practical, hands-on approach directly addressed educators' anxieties, transforming their digital confidence and encouraging greater adoption of new tools.

Teachers expressed excitement about using AI in their field, particularly for tasks like lesson planning, which they previously had not considered. Educators envisioned school labs becoming dynamic spaces for learners to explore AI-driven writing, quizzes, coding, and translation tools under supervision, fostering a culture of innovation.

6.2. Phase 2: July – August 2025

6.2.1 KwaZulu-Natal

a. Mandlezulu C.P. Primary School

School Background

Mandlezulu C School, founded in 1989, is situated in the Mpuqwini Area near Nongoma in KwaZulu-Natal and caters to learners from surrounding communities such as Bhuqwini, Ntunguye, Dunn, Nzondwane, and Ncemaneni. The school is a Quintile 2 school under the leadership of Principal Z.S. Gazu. The school accommodates 436 learners, supported by 24 teachers and 2 administrative staff.

The school has a computer lab equipped with 13 computers and 15 tablets, though the lab is not networked. The Internet is available, and Microsoft Office is installed to support teaching, assessment, and administrative work through platforms such as SASAMS. The teachers at the school use overhead projectors for teaching. Staff make use of digital tools for lesson delivery and curriculum management, while leadership focuses on systems like finance recording and timetable creation.

The school offers extracurricular activities such as netball and soccer for the holistic development of learners. The school is hoping to create a teacher professional development plan which will focus on integrating technology into teaching and managing large classes.

Training Overview

The training at Mandlezulu C.P. Primary School, conducted from 6 to 8 August 2025, unfolded under challenging circumstances but gradually evolved into a meaningful and practical learning experience. Despite limited resources and connectivity issues, the sessions progressively built participant confidence and ensured hands-on engagement with essential digital skills. The training commenced with the introduction to the facilitator, followed by an evaluation of the available devices. Resource limitations were immediately apparent; most of the participants did not have personal laptops, and the desktops provided were outdated, running on Windows 7 and Microsoft Office 2010. Connectivity issues further functionality.

The training began with an introduction to word processing applications, focusing on Microsoft Word and Google Docs. Participants engaged in practical exercises to explore the differences between the two platforms. Challenges arose with Google Docs due to forgotten passwords and network issues, which limited collaboration and caused some participants to fall behind. The session also highlighted the advantages of online applications, particularly cloud storage, as an essential tool in the digital era. Transitioning to Microsoft Word, participants with minimal computer experience practised opening applications, typing, formatting, and saving documents, with emphasis on offline file management to ensure understanding.

The session concluded with an introduction to Artificial Intelligence in education, using Brisk Teaching AI and ChatGPT as practical examples. Connectivity problems and QR code scanning issues limited full participation, though several participants successfully created accounts and explored AI tools. Despite technical challenges and limited engagement during certain parts of the day, the session laid a strong foundation for subsequent activities and encouraged participants to return with renewed interest.

The second day began with a recap of the previous session and a focus on minimising activities that relied heavily on internet connectivity, given the challenges experienced on the first day. Participants expressed interest in revisiting the Brisk Teaching AI application, recognising its potential for creating lesson plans and quizzes. Introducing the importance of online assessment tools and their benefits, such as automated analysis and feedback, proved challenging due to

connectivity issues and outdated software on participants' devices. To maintain engagement, theory and slide reading were reduced, and participants were provided with materials to review independently.

Attention then shifted to spreadsheet applications, with participants sharing their prior experiences with Excel. Many had little to no experience, so training began with basic concepts and simple formulas, progressing at a patient, deliberate pace to ensure understanding. Practical exercises focused on classroom-relevant examples, such as mark sheets, to demonstrate immediate applicability. As participants gradually gained confidence, they were able to see the relevance of the training and expressed appreciation for the hands-on approach, noting that it clarified the purpose of the programme after the challenges of the previous day.

Third began with a brief recap of the previous session before moving into multimedia lesson design. PowerPoint was explored beyond its conventional use for text notes, with participants learning to embed audio and video and create offline self-marking quizzes. Hands-on exercises in slide creation and quiz design generated strong engagement, with participants actively applying the concepts and enjoying the practical aspects of the training. It became clear that practical activities captured attention far more effectively than theory-heavy explanations.

The session concluded with an introduction to coding, using Scratch for block-based programming and examples related to human behaviour and robotics. Despite limited internet access restricting full exploration of Minecraft Education, participants successfully created accounts and gained initial coding experience. While some noted the challenge of limited devices at their schools, they expressed enthusiasm for integrating coding into their teaching. Overall, the day reinforced the practical skills introduced throughout the training and left participants with tangible tools and strategies to enhance their classroom practice.

6.2.2 Limpopo

a. Solomonsdale Primary School

School Background


Solomondale Primary School is a school in Limpopo Province in the Capricorn South District. It was established in 1980 and located at Stand No. 270, Sebayeng Township, and serves 605 learners from the local community. The school operates under the leadership of Principal Mathiba S.C. and is supported by 17 teachers.

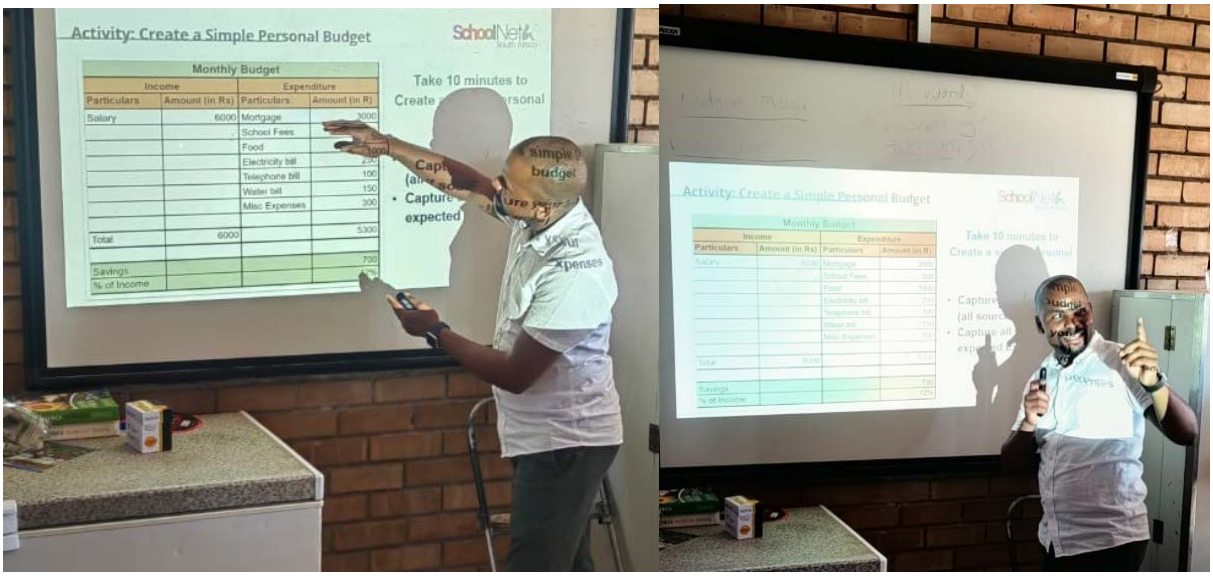
The school has a functioning computer lab with 40 learner devices and 7 administrative computers. Solomondale has internet connectivity, and Microsoft Office is installed on all devices.

The school actively promotes the integration of ICT in teaching and learning. Teachers use laptops and projectors to deliver lessons with video content and assess learners using tablets. Additional digital practices include online classroom setups, the use of the Data Driven Districts (DDD) Dashboard, and data-capturing tools.

Solomondale's extracurricular program is diverse, offering soccer, netball, chess, music, coding and robotics, providing learners with both creative and technological enrichment. Although there is no formal teacher development plan in place yet, the school recognises the importance of expanding its ICT capacity and classroom digital practices.

Training Overview

This three-day training workshop at Solomonsdale Primary School was designed to equip teachers with essential digital literacy skills and introduce them to innovative tools for classroom integration.



The workshop commenced with an introduction to word processing, covering key functionalities of Microsoft Word and Google Docs. Teachers engaged in practical exercises to create administrative documents, such as lesson plans and assessments. This session also included an introduction to Artificial Intelligence (AI), with a focus on its application in education. Participants were introduced to Gemini AI, Meta AI, Magic School AI, Co-pilot, and ChatGPT, where they learned to leverage these tools to efficiently generate lesson plans, which were then transferred to a word processing format. This component of the training was met with significant enthusiasm, as teachers recognised the immediate potential for reducing their administrative workload.

The second day focused on enhancing lesson delivery through multimedia presentations. Teachers were introduced to the concept of multimodal lessons and the use of tools like Microsoft PowerPoint. They learned a step-by-step process for integrating various media—audio,

images, and visuals—to create engaging presentations that cater to diverse learning styles. The session also included an introduction to Magic School AI, demonstrating how AI can be used to streamline the creation of these dynamic lesson presentations.

It was also dedicated to the practical application of spreadsheets using Microsoft Excel and Google Sheets. Teachers were guided through the core functionalities of these applications, including an overview of their primary purpose and key features. The session's focus was on using spreadsheets for educational purposes, specifically for creating mark sheets and analysing learner performance. Participants learned how to use fundamental functions such as SUM, AVERAGE, and IF to interpret data. The session also covered the use of graphs for data visualisation and demonstrated the versatility of spreadsheets by showing their application in personal finance, such as budgeting.

The final day focused on an introduction to basic coding. The training sessions were highly interactive and well-received. Participants gained practical skills in using everyday digital tools and were introduced to cutting-edge AI applications that can significantly streamline their administrative and instructional tasks. The program successfully laid the foundation for continued digital integration in their teaching practices.

6.2.3 Northern Cape

a. Paballelo High School

School Background

Paballelo High School in the Northern Cape (Z. F. Mgcawu District) was established in a previously disadvantaged community. It is located at 370 Gudula Street in Paballelo, Upington, and currently serves 1,192 learners. Under the leadership of Principal Mr. Zwelibanzi Moses Gudula, the school is supported by 40 teachers and 2 administrative staff.

The school operates a computer lab equipped with 28 learner devices and 2 administrative computers, all networked and connected to the internet. While interactive boards and data projectors are unavailable, ICT resources are present and partially integrated into teaching, although not all educators use them regularly. Departmental workshops and training are provided, with plans to increase digital competency among staff.

Funded through Section 21 departmental support, Paballelo High fosters academic and creative development through a rich array of extracurriculars, including football, netball, athletics, choral music, chess, and drama. The school's development initiatives are in motion, aligning with broader goals for ICT integration and inclusive education.

Training Overview

The first day of training introduced participants to digital productivity tools, beginning with word processing. The session started with an assessment of participants' existing digital skills, followed by discussions on strategies to address connectivity challenges, including the use of offline alternatives. Both Microsoft Word and Google Docs were explored, with special emphasis on their collaborative and cloud-based features. Educators participated in a group activity using Google Docs, where they worked together to respond to questions on learner support, learner counts, and data visualisation through charts. This interactive exercise demonstrated the practical benefits of online documentation, such as real-time collaboration, remote accessibility, and automatic saving of work.

Discover and Apply Spreadsheets module adopted the same hands-on approach. Participants worked with sample mark sheets to explore the application of spreadsheets in managing school data effectively. They were introduced to a variety of functions, with particular focus on the SUM formula, which they practised in calculating totals. This activity reinforced the value of spreadsheets for accuracy, efficiency, and time management in tasks such as assessments, record-keeping, and reporting.

During the training session for both modules, there was an element of Artificial Intelligence (AI) integration, where participants were introduced to ways AI can support teaching and

administrative work. They explored how AI tools can assist in generating content, enhancing productivity, and simplifying tasks within both word processors and spreadsheets. This exposure allowed educators to envision practical applications of AI in lesson preparation, learner feedback, and data analysis.

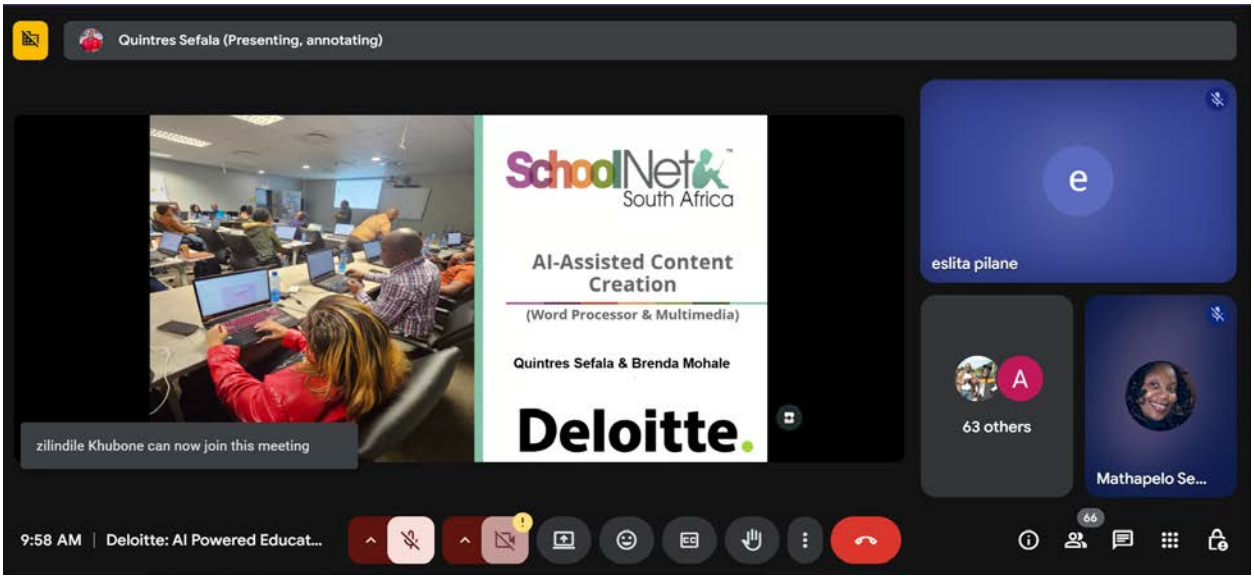
The session then transitioned to multimedia integration and the ASSURE Learning Design Model, guiding educators through its components for effective lesson planning. Discussions revealed a strong interest in using PowerPoint, though administrative workload was identified as a barrier. In response, the concept of Artificial Intelligence (AI) in education was introduced, with a focus on reducing administrative tasks. Participants were introduced to Magic School, an AI tool for lesson planning and presentation creation. This activity highlighted the importance of effective prompt writing and showcased how AI can streamline resource development, allowing more time for learner engagement.

The session concluded with an introduction to block-based coding using Scratch, where educators engaged with fundamental programming concepts through practical examples. Limited internet connectivity restricted full use of Minecraft Education; however, participants successfully created accounts and gained initial exposure to coding environments. While some highlighted the lack of devices in their schools as a key barrier, the session reinforced practical

digital skills and provided strategies to support classroom instruction. Participants expressed enthusiasm and a clear readiness to integrate coding and digital tools into their teaching practice despite existing challenges.

7. Implementation of Training (Virtual Sessions)

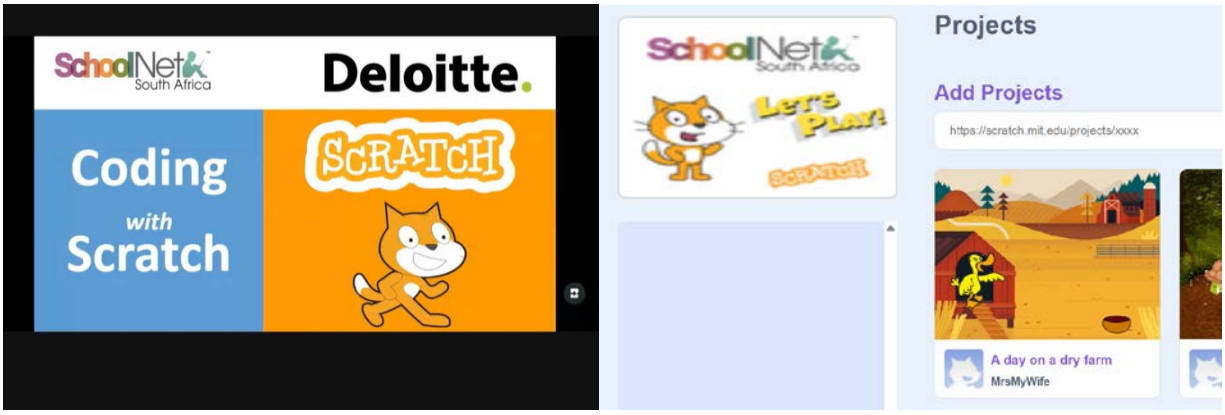
The virtual training workshop, held from July 15 to 17, 2025, consisted of three daily sessions, each repeated twice per day to maximise accessibility for participants. These sessions collectively aimed to empower educators with essential digital literacy and AI integration skills to reduce their administrative burden and focus on teaching and learning in the classroom.



This session, AI-Assisted Content Creation with a Focus on Word Processor and Multimedia, began with high energy, quickly fostering a collaborative atmosphere. Initial concerns about AI replacing human roles were addressed by demonstrating its complementary nature, with examples from everyday life easing anxieties. A significant focus was placed on prompt writing, where participants learned to craft effective prompts to maximise AI utility. Through comparative activities, educators observed how detailed prompts led to highly structured and usable AI-generated lesson plans, underscoring AI's potential to streamline administrative tasks. The

session concluded with a hands-on introduction to Magic School AI, guiding participants to create and convert lesson plans into multimedia presentations, significantly boosting their digital confidence and practical skills in leveraging AI for content creation.

Day two focused on AI-Enhanced Data Analysis with Spreadsheets. This session addressed teachers' challenges with learner data, highlighting the critical need for AI to reduce administrative workload. Participants explored Microsoft Excel, learning interface navigation and basic functionalities like SUM and Autofill for efficient calculations. The training seamlessly transitioned to integrating AI into Excel, demonstrating how to incorporate AI models for generating formulas and explaining data trends. Practical demonstrations emphasised crafting effective prompts for AI tools like ChatGPT, Gemini, and Co-pilot AI for data analysis, while also stressing data ethics and privacy. Educators highly appreciated the diverse methods for working with data and AI, demonstrating a clear understanding of how these tools can transform their data management practices.



The last day had a special focus on Introduction to Coding with Scratch. The "Coding with Scratch" session provided an interactive, hands-on introduction to block-based programming. Participants learned to navigate the Scratch platform, understanding its value for fostering problem-solving, logical thinking, and creativity. Guided through account creation and interface exploration, educators engaged in multiple hands-on coding challenges. They practised fundamental Scratch skills, such as making sprites move, drawing shapes, and creating animations. Educators displayed strong engagement, finding the immediate visual feedback from their coding efforts highly motivating. The session successfully demystified coding, making it accessible and enjoyable, and fostering a sense of community through project sharing.

The online training sessions achieved a comprehensive national reach, engaging a total of 436 teachers across all nine provinces. The provincial distribution of participants highlights this broad impact: KwaZulu-Natal led with 35.1% of attendees, followed by Limpopo (19.7%), North West (15.6%), and Gauteng (7.1%). Smaller yet significant representation came from Mpumalanga (3.2%), Eastern Cape (1.8%), Western Cape (1.8%), Northern Cape (0.9%), and Free State (0.7%). This wide geographical spread emphasises the program's success in making enhanced digital literacy and AI integration accessible nationwide, with the notable concentration in KwaZulu-Natal reflecting strategic outreach efforts.

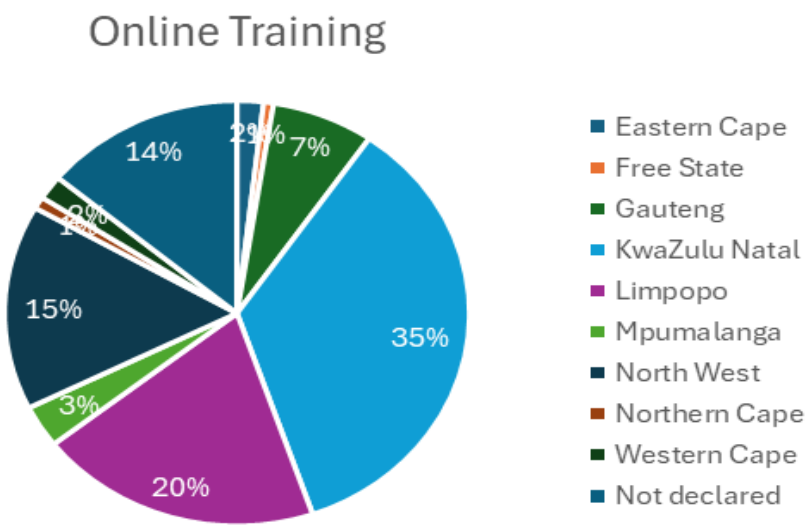


Figure 3: Virtual Session Attendance

8. Monitoring and Evaluation

Beneficiaries

The demographic profile of the educator cohort reveals a diverse age distribution, with a strong representation of younger professionals aged 20–40 years (54.5%), who are generally digitally adept and well-positioned to champion technology integration. Mid-career educators (41–50 years) and more senior educators (51+ years) make up a significant portion of the group, though they may require more structured or intensive support to adopt digital tools effectively. The gender breakdown shows a notable skew toward female educators (74.6%).

Professionally, the majority of participants are classroom teachers (82.8%), underscoring the need for practical, classroom-focused digital tools. Leadership roles such as Heads of Department, Deputy Principals, and Principals were present in smaller numbers. Educational

qualifications vary, with nearly half holding undergraduate degrees and 20.1% possessing Honours degrees, positioning them as potential leaders in digital pedagogy. However, 8.2% hold only basic certificates or matric qualifications, indicating these were teacher assistants or interns.

The graph below compares educators' digital skills before and after the face-to-face training intervention. The Baseline Survey assessed initial proficiency in the use of learning technologies. Findings showed that 41.7% of respondents were at Level 3 (Infusing ICT), demonstrating moderate integration of digital tools into curriculum activities, while 32.6% were at Levels 1 to 2, reflecting limited or emerging ICT competencies. Only 8.3% of participants achieved Level 5 (Transforming ICT Use), which represents advanced, learner-centred teaching practices. These results highlighted the urgent need to strengthen foundational and intermediate ICT skills, which informed the training focus areas.

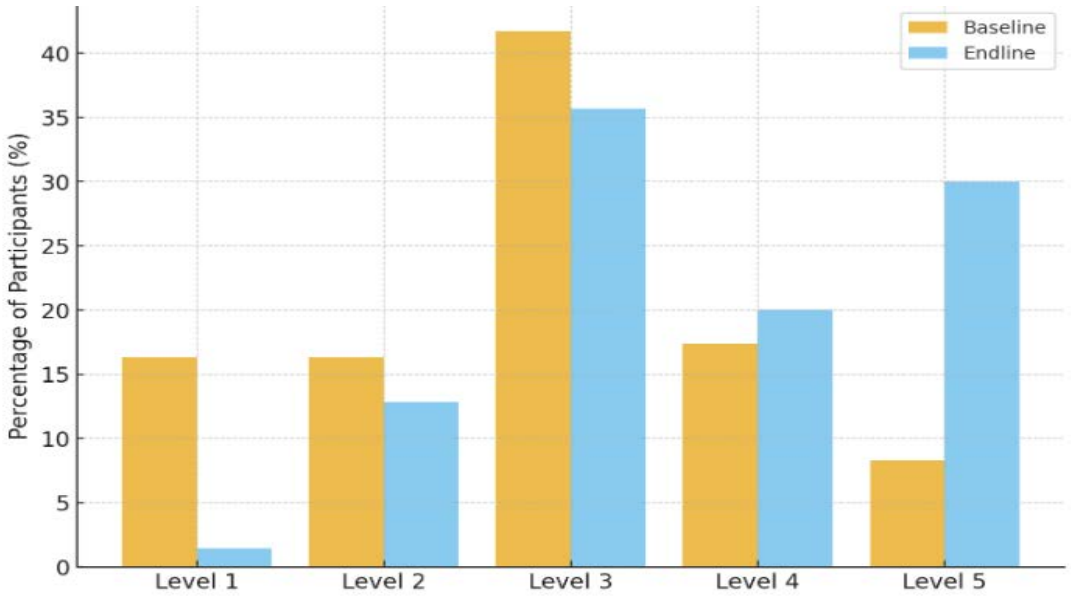


Figure 4: Self-reported gains in Skills (Before vs After Training)

The Endline Survey assessed participants' self-reported proficiency after training. Responses were categorised into five levels, reflecting the depth of ICT integration in teaching practice. The majority (85%) reported skill levels at Level 3 or higher, indicating a strong uptake of ICT integration post-training. Notably, 30% of respondents reached Level 5, showcasing transformative use of digital tools in education.

The graph clearly illustrates the shift from lower levels of proficiency (Levels 1–2) to higher levels (Levels 3–5), underscoring the effectiveness of the training in enhancing digital literacy and fostering pedagogical innovation among educators.

Training satisfaction was also notably high, with 85% confirming their needs were met and 95% finding the content clear. PowerPoint presentations, Excel training, and hands-on activities were the most valued components. Looking ahead, educators expressed strong interest in advanced software training, hardware understanding, coding, and Excel mastery, signalling a desire to deepen their digital capabilities.

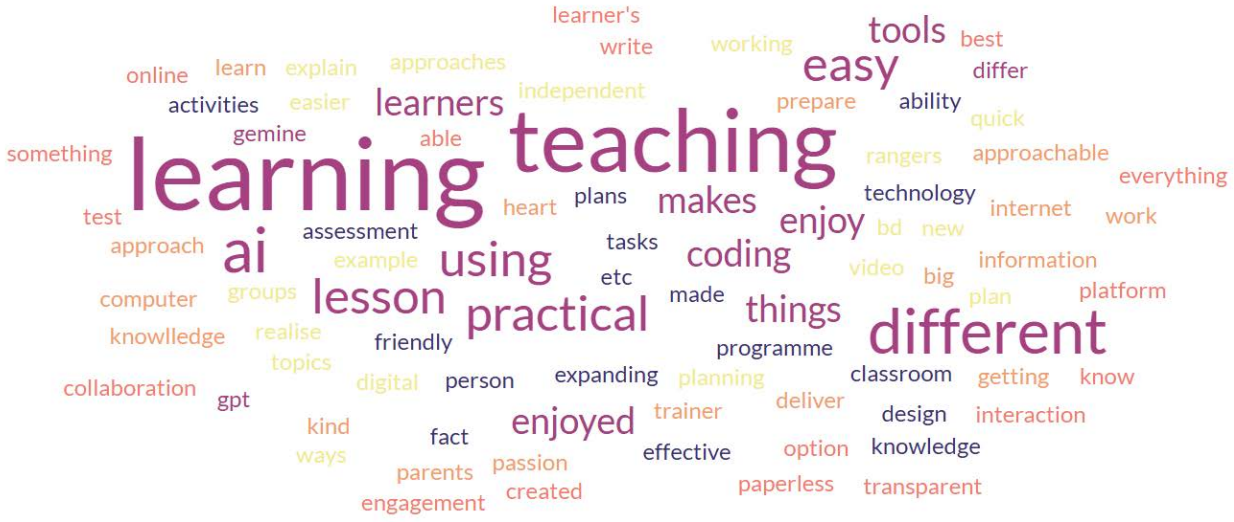


Figure 5: Word Cloud showing teachers key thoughts of the training

Below are additional comments from teachers

- *I enjoyed learning about different AI tools.*
- *Learning about differ AI like Gemini, GPT, etc.*
- *Using Ai programme for expanding my knowledge*
- *Ability to design lesson plans, activities and assessment tasks*
- *AI being classroom friendly for effective learning*
- *The fact that I'm not a technology person but he made me realise that it makes things easier and quicker and also makes learners more independent.*
- *Learning about different ways of teaching using digital teaching*
- *planning of lesson plans and working in groups with different topics*
- *The video and how she explains the lesson*
- *Learning about new teaching tools and different teaching and learning approaches.*
- *Practical example of coding using Rangers*
- *The trainer is approachable, kind and has a big heart and has got passion*
- *Practical approach*
- *I enjoy to learn about computers*
- *I enjoy it too much because I'm getting knowledge of easy teaching. All the information of the internet when you prepare work and deliver to learners easily*
- *I enjoyed learning how to write an online test for learners*
- *The interaction and engagement platform she created*
- *The collaboration and paperless option of teaching*
- *Everything was transparent; it was easy because most of the things were practical.*
- *Being able to do something that I didn't know, and do it best*

9. Challenges & Recommendations

Inadequate Infrastructure: The training was hindered by outdated or insufficient devices in some instances. This inconsistent internet connectivity is also an impediment. This limited the effectiveness of hands-on activities and created some disruptions during sessions. South Africa is still so diverse and the schools most in need are the ones with the most challenges; we will continue to seek suitable venues with reliable connectivity and with dedicated devices for all participants.

Scheduling and Logistical Constraints: Our planned training schedule was sometimes disrupted by venue restrictions and scheduling conflicts stemming from school and district obligations, including in some instances exams in June. This made it difficult for all teachers to attend consistently. To sustain learning and ensure effective ICT integration, we recommend implementing ongoing follow-up support and curating a library of digital resources for continued learning.

Varied Digital Literacy and Participant Engagement: A wide range of digital proficiency levels among teachers required facilitators to adjust the pace of the training and adjust for the levels of participants. This is not new to SchoolNet; however, it is noteworthy for future consideration that perhaps sessions should align to skill level.

10. Conclusion

This ICT teacher development program has successfully equipped educators with practical digital skills, from foundation skills in word processing, data manipulation using

spreadsheets to cutting-edge AI integration and basic coding. The interactive delivery method fostered a highly engaged and collaborative learning environment, empowering teachers to confidently apply new technologies to enhance teaching and learning in their schools. The positive participant response underscores the value and impact of such initiatives in building a digitally empowered teaching force.

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Ms Omashani Naidoo & The SchoolNet Team
www.schoolnet.org.za