

# 2017

# SCHOOL BASED ICT COMMITTEES

## Participant Manual



### Module 1

Introduction to school based  
ICT committees

## **INTEGRATING TECHNOLOGY IN THE CLASSROOM**

### **“A Guide for School Based ICT Committees”**

“If we have a passion to keep learning, a will to innovate, and a capacity to problem-solve and collaborate, we can make great things happen for the children who we serve.”

*(Will Richardson, 2012)*

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## A. INTRODUCTION

Matthew Goniwe School of Leadership and Governance (MGSLG) as the Provincial Teacher Development Institute (PTDI) has a mandate from the Gauteng Department of Education (GDE) to provide capability building programmes and projects. The groups targeted for training include:

- Teachers and Teacher Aides
- Head Office and District Officials
- School Management Teams (SMTs)
- School Governing Bodies (SGBs)
- School – Based ICT Committees
- Representative Council for Learners (RCLs)
- Parents

In 2014 the province embarked on a project to introduce technology in the classroom. In the 21<sup>st</sup> century it is expected that South African teachers begin to enhance and extend their existing classroom practices by making use of ICT. This will enable them to make teaching more vibrant and learning more interesting. It will also enable learners to compete in the international arena because modern societies expect them to be able to think critically, solve problems and be creative. The achievement of this expectation rests, first and foremost, upon the development of a highly qualified and committed teaching corpse (Darling-Hammond, 1995). The expectation therefore is that the knowledge, skills, abilities and commitments of teachers prepared today will shape and inform what is possible for the future generation of learners.

## B. PURPOSE OF THE PROGRAMME

The programme aims at capacitating School Based ICT Committees to drive and support technology-based initiatives at school and classroom levels. The committee members are key in ensuring that teachers utilise technology after receiving training and that all stakeholders work collaboratively to implement all ICT initiatives in schools. The programme could also be relevant for District-based ICT Committees.

## C. LEARNING OUTCOMES

The programme is intended to result in the following learning outcomes:

- Establishment of effective School Based ICT Committees
- Knowledge and skills needed to support ICT activities in and outside the classroom
- Integrate the use of different devices, software applications and other e-resources to enhance teaching and learning
- Manage a technology rich classroom for effective and efficient teaching and learning
- Use various methods to support teachers when they integrate technology in the classroom

## D. PROGRAMME DESIGN

The design is based on the need for MGSLG to develop material that can be used to train School Based ICT Committees so they can support teachers integrate ICTs in classrooms. MGSLG has adopted the 10:20:70 Model of training and support for all its programmes. This approach will be explained later.

## E. ASSESSMENT STRATEGY

A pre- and post-test approach has been developed to measure professional growth. Formative assessment tasks have been developed and will be conducted during the delivery of the programme.

Activities are relevant and customised for this group in order to promote the acquisition of knowledge and skills for implementing ICT integration in schools. Activities include individual, paired and group tasks. There is no summative assessment at the end of the programme.

## F. LEARNING MATERIALS

The materials consist of a Learner Participant Workbook, GDE ICT Training and Support Strategy, The Learning Journey Matrix.

## G. SACE ENDORSEMENT OF THE PROGRAMME

The programme will be sent to the South African Council for Educators (SACE) for endorsement.








	LEARNING OUTCOMES	MODULES
1.	Introduce and orient School Based ICT Committees in their roles and responsibilities	<b>Module 1</b>
2.	Develop an ICT Integration Master Plan: School ICT Policy	<b>Module 2</b>
3.	Support stakeholders in the use of ICTs for administration	<b>Module 3</b>
4.	Support stakeholders in the use of ICTs as a tool for communication	<b>Module 4</b>
5.	Use of ICTs as a tool for Professional Learning Communities (PLCs)	<b>Module 5</b>
6.	Strategies for monitoring and evaluating ICT integration and other related activities to promote development	<b>Module 6</b>
7.	Mentor and coach colleagues in the implementation of ICT integration	<b>Module 7</b>

Notional hours

It carries **XXX** number of points. The notional hours are as follows:

	MODULES	CONTACT SESSION	FORMATIVE ASSESSMENT	NOTIONAL HOURS
1	<b>Module 1:</b> Introduction to School Based ICT Committees.	1 day	ICT Committee Planning Template	6
2	<b>Module 2:</b> Developing an ICT Integration Master Plan	1 day	School ICT Policy	6
3	<b>Module 3:</b> Using ICTs as a tool for Administration	1 day	Training programme	5
4	<b>Module 4:</b> Using ICTs as a tool for Communication	1 day	Social networks for collaboration, teaching and learning	6
5	<b>Module 5:</b> Using ICTs as a tool for Professional Learning Communities	1 day	Participation in an online/ virtual environment	6
6	<b>Module 6:</b> Monitoring and Evaluation	1 day	School context task	6
7	<b>Module 7:</b> Mentoring and Coaching	1 day	School context task	5
	<b>TOTAL NUMBER OF HOURS</b>			<b>40</b>

H. ICONS USED

	Writing Activity
	Discussion as a class, pairs or in groups
	Read
	Use Google to search the internet
	Share your ideas with the class
	Use Slides to Present
	For further Reading



## I. GLOSSARY OF TERMS

<b>SMART/Paperless Classrooms</b>	Classrooms highly digitalized learning environments where learners use the internet, e-books or school network to learn
<b>Teacher Champions</b>	Teachers who promote the use of computers in their schools and Supports colleagues in their integration activities.

## J. ABBREVIATIONS

GDE	Gauteng Department of Education
HOD	Head of Department
ICTs	Information and Communications Technology
MGSLG	Matthew Goniwe School of Leadership and Governance
PTDI	Provincial Teacher Development Institute
PLC	Professional Learning Communities
RLCs	Representative Council for Learners
SACE	South African Council of Educators
SA-SAMS	South African Schools Administration Management System
SGB	School Governing Body
SMT	Senior Management Team
TDC	Teacher Development Center

# THE BACKGROUND AND CONTEXT OF ICT IN THE GAUTENG PROVINCE

## 1.1 BACKGROUND

In the 21<sup>st</sup> Century it is expected that South African teachers begin to enhance and extend their existing classroom practices by making use of ICT. This will enable them to make teaching more vibrant and learning more interesting. It will also enable learners to compete in the international arena because modern societies expect them to be able to think critically, solve problems and be creative. The achievement of this expectation rests, first and foremost, upon the development of a highly qualified and committed teaching course (Darling-Hammond, 1995). The expectation therefore is that the knowledge, skills, abilities, and commitments of teachers prepared today will shape and inform what is possible for the future generation of learners. On the other hand, Ndlovu N.S. and Lawrence D. in their paper warn implementers against falling into the following trap and believing that:

- “Access to ICTs is equivalent to quality use for educational purposes
- Representational ICT use for teaching is equivalent to quality use to improve learner performance
- Basic ICT teacher training prepares teachers for quality ICT pedagogical integration.”

The introduction of ICTs is one of the pillars of the GDE strategy for the next five years. The ICT pillar primarily focuses on creating ‘*Schools of the Future*’. The goal of this strategy is to articulate the training and support approach to be used to ensure the successful implementation of the province’s ICT strategic goal and to guide future implementation. This demands a reflection on what has worked and what has not worked as well as seeks alignment with other elements of the project to ensure an integrated approach.

The implementation of the Gauteng ICT Strategy started with a pilot in seven schools. A number of lessons were learned during this proof of concept stage. Among them were the following:

- The pilot was carried out without the meaningful and structured participation of the Head Office and District Staff
- The initiative should be led by the principal at school level to ensure participation by all stakeholders
- A change management component should be introduced to deal with resistance to change
- Technical support to be strengthened and streamlined to ensure functionality of the technology and an uninterrupted service
- Teacher Champions to be used to sustain the project at school level and further strengthened for this role
- Onsite support to be provided to the teachers in the initial stages until they gain confidence
- Technical support is one of the key success factors that can make or break the project
- Teachers need to be given the space and time to develop e-confidence
- Schools need guidance to be able to respond to the challenge of ICT integration in a structured way.

In view of the above, it is therefore important that moving forward, these lessons be addressed in the strategy of the province to ensure:

- successful implementation and
- School Based ICT Committees are well positioned to drive this process in schools.

## 1.2 SCOPE

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In South Africa today, teaching and learning requires of us to adopt new pedagogical and technological approaches where we integrate Information and Communication Technologies (ICT) in the classroom. This Training and Support strategy seeks to provide a capability building model to stakeholders involved in building the ‘*Schools of the Future*’ to help embed the utilisation of technology in all schools. Technology can also be used as a communication tool as well as to ease the administrative burden of schools. This will go a long way in improving system efficiencies. Therefore, the vision for ICT in education is captured in the statement:

*“Maximum utilisation of technology is an enabler in a classroom environment for teaching and learning. We are building classrooms of the future which are paperless and technology driven.” Lesufi (2014).*

This Training and Support Strategy targets various stakeholders to create an eco-system within a school that is able to sustain the ICT initiative. The strategy targets Learners, Teachers, School Managers, Harry Gwala Interns, Parents, School Governing Bodies, District- and School-based ICT Committees, Subject Advisors and District and Head Office staff linked to curriculum.

### 1.3 THE INTERNATIONAL EXPERIENCE

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Participation in international school partnerships provides students, teachers, leaders and school communities with the opportunity to connect with peers globally, build intercultural understanding, and enhance language learning and much more.

#### 1.3.1 Malaysia

The Malaysian Government launched the Smart Schools concept in 1999 when it integrated ICT in teaching and learning. This project was part of the Government’s Vision 2020. A differentiated approach was used where there were three levels of schools, namely: Level A was known as the *Full Class Model*; Level B+ the *Restricted Class Model* and Level B the *Laboratory Model*. While the government faced challenges relating to finance, capacity building and infrastructure, the following factors were found to be supporting conditions in schools:

**Accessibility to ICT resources:** Smart schools that participated were technology rich. Accessibility and availability were both very important. Teachers get discouraged if they cannot access the technology.

**Existence of support:** The support offered by the principal proved to be a game changer. The management of the school not only ensured that the resources were available but also monitored the use of ICT by observing teachers in class.

**Desire to change:** For ICT to be successfully integrated, the teachers must show a desire to change. They must use ICT because they genuinely believe it can improve teaching and learning and not as a result of compliance.

**School practice:** Teachers had had exposure to the use of computers before as they were introduced in 1966. They had used them for administrative purpose and not necessarily for teaching and learning.

**Influence of external forces:** There was external pressure for learner advancement in ICT on the teachers and they had to change the way in which they taught.

**Teacher commitment to innovation:** High commitment to innovation was also found to be a game changer in the schools. Teacher commitment to change is crucial for sustainability.

#### 1.3.2 Canada

Canada successfully implemented the integration of ICT in the classroom by utilising the following multi-pronged strategies to ensure that the objectives of ICT in education are achieved.

- The preparation of sufficient and up-to-date tested ICT infrastructure and equipment to all educational institutions
- The roll-out of ICT curriculum and assessment and the emphasis of integration of ICT in teaching and learning
- The upgrading of ICT knowledge and skills in students and teachers
- Increased use of ICT in educational management
- The upgrading of the maintenance and management of ICT equipment in all educational institutions.

### 1.3.3 Strategies used to train teachers on how to use ICT in Canada include the following:

- Mentoring/coaching activities with other teachers or ICT professionals
- Professional development
- Information-sharing with other staff members / discussion forum
- Training sessions
- Personal-learning activities
- Staff meetings
- Organised after-school sessions
- Informal online-learning
- Summer programs
- Courses online
- Formal credit-bearing courses

### 1.3.4 Belgium

A study of 35 Belgium primary schools was carried out to understand the nature and impact of school – based ICT policies. The following three types of ICT policy plans were identified:

- 1 A vision blueprint
- 2 A technical inventory and
- 3 A comprehensive policy plan.

The comprehensive policy plan 1 had more positive impact on the level of ICT integration into teaching and learning and its design was data driven. In this plan, all teachers were involved in the process and the ICT coordinator had clear leadership roles. The main findings in this study reported data –

- driven decision making
- monitoring activities
- organised teacher professional development and
- authorising the ICT coordinator as a leader as key to an effective school-based ICT plan.

Vanderlinde, Dexter, S. and van Braak, J. (2011), British Journal of Educational Technology, Pg 1-15.

### 1.3.5 The World Bank

The World Bank has also developed an ICT Strategy aimed at ensuring that developing countries can use ICT to transform and improve their delivery of basic services, drive innovation, realise productivity gains and improve their country's global competitiveness. The strategy consists of three pillars:

- **Transform:** this pillar seeks to make development more open and accountable and improve service delivery in the areas such as education, health and financial services
- **Innovate:** the pillar aims at developing competitive IT-based service industries and fostering ICT innovation across the economy with a focus on job creation, especially for women and the youth
- **Connect:** this pillar's goal is to increase access to affordable broadband especially for women, disabled citizens, disadvantaged communities, and people living in remote and rural areas.
- Countries such as Ireland adopted this model when rolling out their ICT Strategy. Once adopted as a guiding framework, it was customised for that environment and used across the system to create synergy between all components of the framework. It thus served a blueprint for ICT integration in the school for decision-making, continuous improvement and system change.

## 1.4 THE LEGISLATIVE FRAMEWORK

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The Training and Support Strategy must be embedded within the broader national and provincial strategies for the integration of technology in the classroom.

## 1.5 NATIONAL POLICY

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### 1.5.1 Draft e-Education White Paper (2004)

The Department of Education in collaboration with the Department of Communication developed a *Strategy for Information and Communication Technology in Education*. The strategy formed the basis for the drafting of the *e-Education White Paper* that was adopted in 2004. The goal of the policy is to develop ICT capacity for every learner in the schooling system by 2013.

To achieve this, the strategy developed the concept of e-schools where there would be:

- Learners who utilise ICTs to enhance learning
- Qualified and competent leaders would use ICTs for planning, management and administration
- Qualified and competent teachers would use ICTs to enhance teaching and learning
- Access to ICT resources that support curriculum delivery
- Connection to ICT infrastructure

### 1.5.2 Draft ICT in Education Implementation Plan

The National Department of Education published a draft *ICT in Education Plan* in 2006 to ensure that the strategy is implemented. We will not discuss this policy in detail, but we strongly advise/encourage you to please read this policy. You will find it on the website of the Department of Basic Education

### 1.5.3 The Gauteng ICT Provincial Strategy

The GDE ICT and e-Education Strategy has been developed in the context of various national and provincial policies and initiatives, and it needs to align with these to be implemented effectively. Policies taken into consideration include the National Development Plan (NDP); The ANC Manifesto; Millennium Development Goals; Gauteng Vision 2055; DBE Guidelines for e-Education; The Gauteng ICT Development Strategy; the DPSA Minimum Inter-operability Standards (MIOS); Gauteng Province TMR ten pillar strategy and the GDE ten pillars for education.

### 1.6 VISION FOR ICT

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The vision for ICT in education is captured in the statement: “Maximum utilisation of technology as an enabler in a classroom environment for teaching and learning. Building classrooms of the future which are paperless and technology driven.” Lesufi (2014). At the heart of the ICT Strategy is a new way of delivering education that involves:

- **Transforming how instruction is delivered:** blend in-person learning with eLearning; create adaptive and instructional tablet or computer-based exercises; use smart devices and interactive boards to deliver e-Lessons
- **Transforming how teachers are developed:** coach teachers on curriculum using videos; enable remote monitoring and feedback; provide broad-based peer support networks
- **Transforming how learners access learning opportunities:** allow use of videos and digital content to supplement teaching and textbooks; enable independent learning for independent students; ensure that every child always has access to current material. (GDE ICT Strategy, 2014)

### 1.7 THE GAUTENG ICT DEVELOPMENT STRATEGY (2012)

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The Gauteng Department of Economic Development has developed a comprehensive ICT Strategy to provide universal broadband and develop the necessary human resource capacity. The objectives of this strategy are as follows:

To provide universal access to broadband (as defined by the national broadband policy) for citizens, business as well as government institutions should:

- build the Network Infrastructure and Information Super-highway to encourage the development of advanced workforce with better ICT skills
- enhance economic productivity through ICT infrastructure development in order to lower the cost of doing business and increase connectivity for companies especially SMMEs
- increase the ICT skills capacity within the public and the private sectors to create a pool of ICT practitioners and entrepreneurs
- improve service delivery by providing high quality ICT services through e-government
- build an economic and industrial sector with a focus on ICT, and in particular, software industry
- ensure that innovation becomes part of the economic network in Gauteng Province in relation to ICT
- reduce the carbon footprint of the province through Green ICT

- create employment in the ICT sector.

The Gauteng Strategy commits to provide online learning in every primary and secondary school classroom as a means of increasing SA's future competitiveness and laying the foundation for ICT innovation and sector development. The GDE's Strategy will be aligned and contribute to the achievement of the provincial commitment." (Gauteng ICT Development Strategy, 2012).

## 1.8 The Gauteng Provincial 10 Pillar Strategy

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The fifth administration has adopted a ten-pillar programme of radical transformation, modernisation and reindustrialisation of Gauteng over the next five to fifteen years. These are:

- Radical economic transformation
- Decisive spatial transformation
- Accelerated social transformation
- Transformation of the state and governance
- Modernisation of the public service
- Modernisation of the economy
- Modernisation of human settlements and urban development
- Modernisation of public transport infrastructure
- Reindustrialisation of the Gauteng Province
- Taking the lead in Africa's new industrial revolution

## 1.9 GDE VISION AND MISSION STATEMENT

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### VISION STATEMENT

Ensuring every learner feels valued and inspired in our innovative education system.

### MISSION STATEMENT

We are committed to provide functional and modern schools that enable quality teaching and learning to protect and promote the right of every learner to quality, equitable and relevant education

### 1.10 STRATEGIC OUTCOME ORIENTATED GOALS:

<b>Goal 1</b>	<ul style="list-style-type: none"> <li>•Deliver quality education in a conducive learning environment</li> </ul>
<b>Goal 2</b>	<ul style="list-style-type: none"> <li>•Provide an administrative service that supports modern and innovative schools</li> </ul>
<b>Goal 3</b>	<ul style="list-style-type: none"> <li>•Transform public schooling by addressing barriers to access, equity and redress</li> </ul>
<b>Goal 4</b>	<ul style="list-style-type: none"> <li>•Increase access to quality pre-and post- schooling educational opportunities</li> </ul>

### 1.11 THE GDE 10 PILLAR STRATEGY

To support the four Strategic Outcome Orientated Goals (as mentioned above), the Gauteng Department of Education has adopted and aligned a ten-pillar strategy for the next five years that incorporates the integration of ICT. These pillars are:

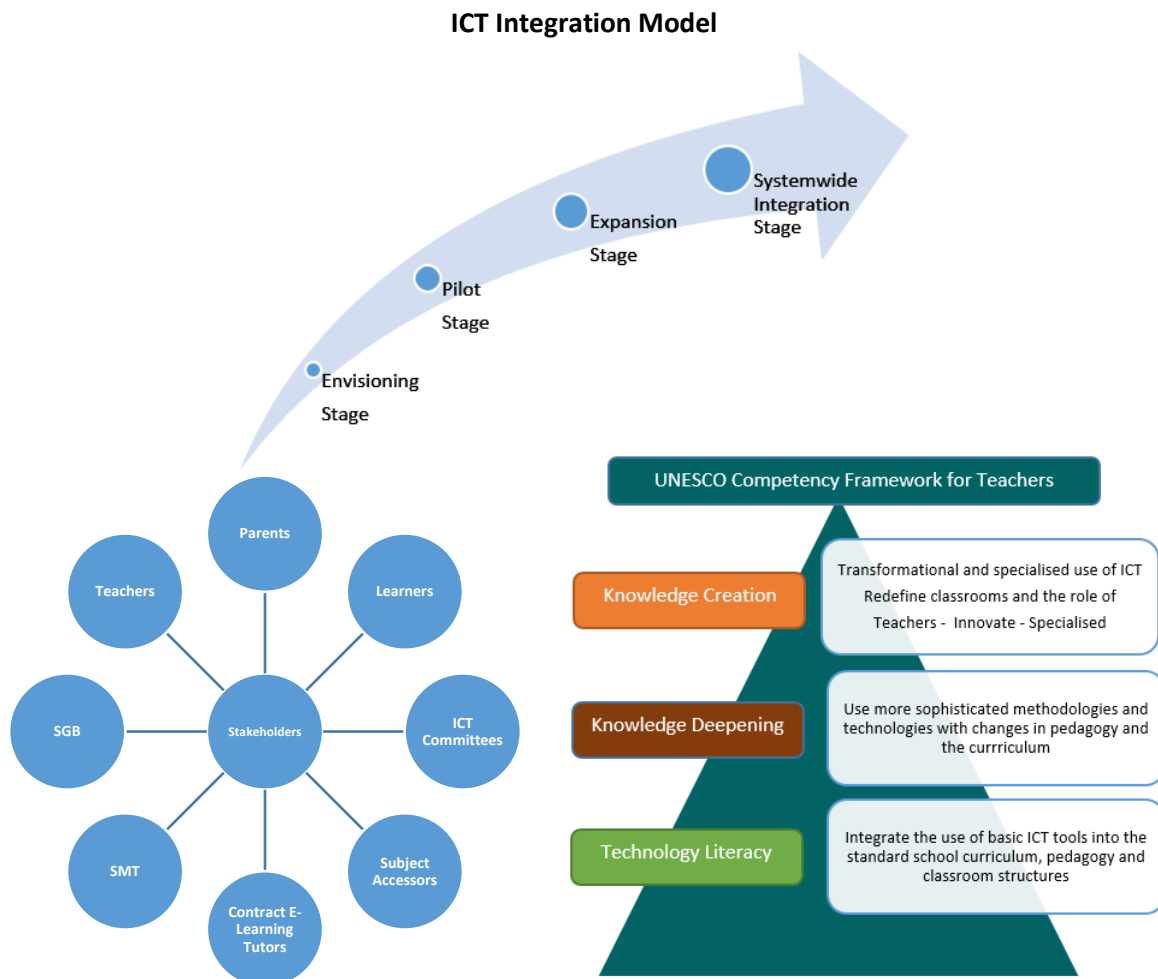
STRATEGIC OUTCOME ORIENTATED GOALS	STRATEGIC PILLARS
<b>Goal 1:</b> Deliver quality education in a conducive learning environment	<ol style="list-style-type: none"> <li>1. Curriculum and Assessment Development</li> <li>2. Teacher Provision and Support</li> <li>3. Leadership and Management</li> </ol>
<b>Goal 2:</b> Provide an administrative service that supports modern and innovative schools	<ol style="list-style-type: none"> <li>4. Infrastructure Development and Maintenance</li> <li>5. Planning, Finance and Resourcing</li> <li>6. ICT in Education</li> </ol>
<b>Goal 3:</b> Transform public schooling by addressing barriers to access, equity and redress	<ol style="list-style-type: none"> <li>7. Social Cohesion</li> <li>8. School Functionality including Community Involvement</li> </ol>
<b>Goal 4:</b> Increase access to quality pre- and post- schooling educational opportunities	<ol style="list-style-type: none"> <li>9. Skills Development</li> <li>10. Access to Quality Early Child Development (ECD)</li> </ol>



## 1.12 ALIGNMENT WITH TEACHER DEVELOPMENT STRATEGIES

### 1.12.1 Integrated Strategic Planning Framework for Teacher Development (2011)

The Integrated Strategic Planning Framework for Teacher Development is a national document that was jointly developed by stakeholders to guide the roll out of Teacher Development in the Country. The document identifies all teacher development activities and provides action to be taken.



“The primary outcome of the Plan is to **improve the quality of teacher education and development in order to improve the quality of teachers and teaching.** This Plan pertains to all teachers that service the schooling system – from Grade R to Grade 12 – including classroom teachers, school leaders and managers, subject advisors and other professionals who support teaching and learning at the school level. This includes all educators described in the Employment of Educators Act (No. 76 of 1998). The Plan addresses the career of a teacher through a number of phases from recruitment through to retirement:

- Recruitment of potential teachers
- Preparation of new teachers
- Induction into the world of work
- Career-long (continuing) professional learning and development.” (ISPFTD pg. 01)

### 1.12.2 The GDE Teacher Development Strategy

The GDE Teacher Professional Development Strategy highlights five levers, namely:

- Initial Teacher Education
- Teacher Development through In-Service Education and Training Programmes
- Teacher Development and Support through Professional Learning Communities
- Teacher Centers and Teacher Development and Support
- The use of ICT in Teacher Development

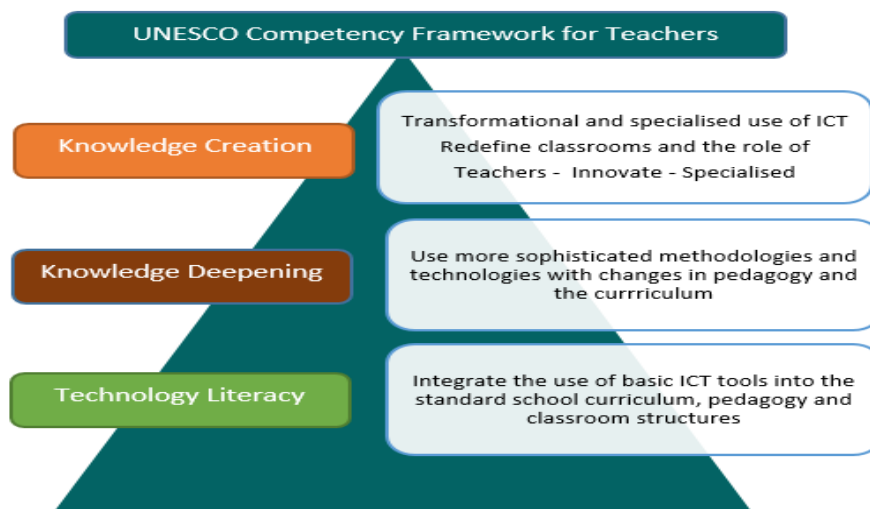
### 1.12.3 The GDE ICT Implementation Plan

In rolling out the ICT Strategy, the GDE has identified the following work streams:

- Infrastructure: e-Equipped schools and GDE offices
- Connectivity: System-wide access
- Content: Digital teaching and learning resources
- Capacity: Training, support and ICT skills development
- Support: Efficient technical support, management etc.
- Innovation: Identify & adopt feasible & useful innovations

## 1.13 STAGES OF ICT IMPLEMENTATION IN SCHOOLS

The GDE has already started looking at ways to introduce ICT in classrooms and is investing substantial capital in providing schools with access. The problem is that these efforts are uncoordinated, meaning that they have resulted in pockets of excellence but not across the province. The question is how do we take what the GDE has already achieved and create a robust strategy that is comprehensive, effective, cost-efficient, competitive, can realise the GDE’s ambitious but achievable goals and measures up to global best practice?



### 1.13.1 Envisioning Stage

The GDE's ICT Strategy must provide a single approach to navigate the ICT landscape, with a coordinated plan that avoids duplication, gaps, and financial inefficiencies. (GDE ICT Strategy, November 2014). It is anticipated that the roll-out of ICTs in education will take place over five years in four distinct stages with the first two being behind us.

The envisioning stage is the first step taken by the GDE. This stage consisted of developing detail for the holistic solution through:

- Building a Case for Change
- Setting clear vision, policy and strategy (short, medium, long-term)
- Benchmarking against best practice
- Mobilisation of resources
- Stakeholder consultation and buy-in
- Data collection and analysis
- Definition of roles and responsibilities within work streams

### 1.13.2 Pilot Project in 5 + 2 schools

Given the scale of the task where failure is not an option the GDE took a decision to pilot the concept of an integrated ICT Plan for schools in 5 + 2 schools. In each school, there would be a new way of teaching and learning, starting in January 2015. It was envisaged that the GDE would come out of the pilot with a model for taking ICTs to scale. To achieve this, work streams were set up to deal with the following matters:

- **E-content** (eBooks, Open Education Resources, e-Lessons, videos, DVDs, etc.)
- **Refurbishments** (minor and major)
- **Safety** (Physical and cyber safety)
- **Hardware** (servers, laptops, tablets, LED screens etc.)
- **Connectivity** (bandwidth, Wi-Fi, portal etc.)
- **Training and Development** (teachers, school management teams, school governing bodies, learners, parents, subject advisors, district e-learning teams, technical support staff and ICT committees)

This led to the launch of the project on 14 January 2015. This date marked the official termination of Phase 1, although there was a snag list that still needed attention across all work streams. Dealing with the snag list led to the implementation of Phase 1B of the project.

### 1.13.3 Expansion Stage

Phase 2 of the project consists of reflecting on the previous phase and closing gaps. Lessons learned would need to be documented before planning for the incorporation of more schools commences. It can

be anticipated that this stage will last longer as schools are brought on board according to an agreed plan. The plan for Phase 2 includes:

- Fixing the basics in low performing schools so they can be ready for ICT integration
- Boosting the performance of mid-performing schools to enable e-Learning to be introduced
- Turning high performing schools into Schools of the Future (from good to great)

#### 1.14 SYSTEM WIDE INTEGRATION

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This will be the last stage of the integration of ICTs in schools in the province. It will hopefully include all schools. This is a stage where the schools not only use ICTs for teaching and learning but also for administration, communication and continuous professional training and development. This will create independent learners and truly achieve the concept of a flipped classroom.

#### 1.15 THE TRAINING AND DEVELOPMENT APPROACH ADOPTED

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##### 1.15.1 Principles

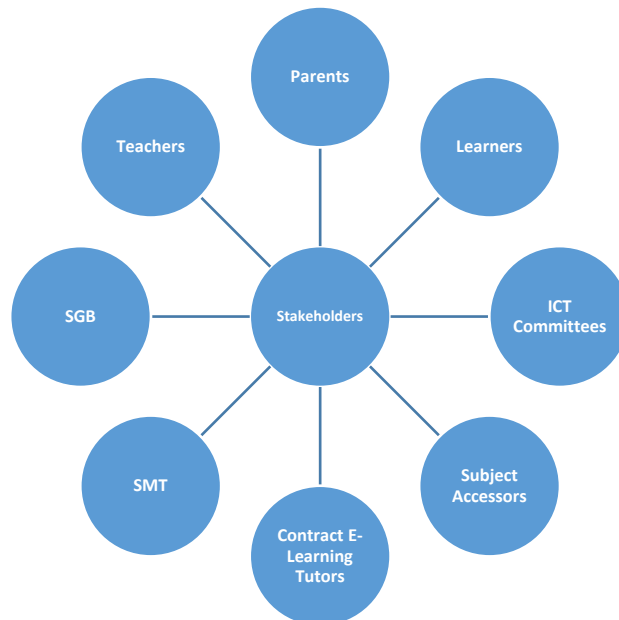
- **Integrated** – integration of technological, pedagogical and content knowledge.
- **Differentiated** – build on the current skills that teachers bring to the table
- **Sustainable** – skills transfer, management and governance structures established at school and district levels to sustain initiative through self-managed teams who take responsibility for the programme and integrate into existing job descriptions of officials
- **Scalable** – has the potential to be used in system wide integration of ICTs
- **Centralised and decentralised** – clear lines of responsibility and accountability between the PTDis and DTDCs
- **Blended** – using the 10:20:70 principle of theory, practice based and work integrated learning methodology
- **Competency based** – build from lowest to highest competencies against a predictable framework

##### 1.15.2 Capability building tools

A multi-stakeholder approach to training and development was adopted to ensure their meaningful participation at school level. It is taking the form of:

- Online assessment by the teachers and SMTs to determine level of support needed
- Personal Growth Path (PGP) developed based on results that will serve to inform the design and development of programmes
- Change management programme for SMTs
- Provision of resources in the form of e-Lessons, eBooks, OERs, eBrary and the ICT toolkit with Handbooks
- Provision of onsite support and school-based weekly reflections
- Face-to-face training (technology, content, assessment)

- Online courses
- Establishment of Professional Learning Communities (PLCs) (e.g. WhatsApp Groups)
- MGSLG reflection meetings with the leadership
- Parents' meetings and training of stakeholders
- Roadshows and extensive media coverage



### 1.15.3 Elements of the Model

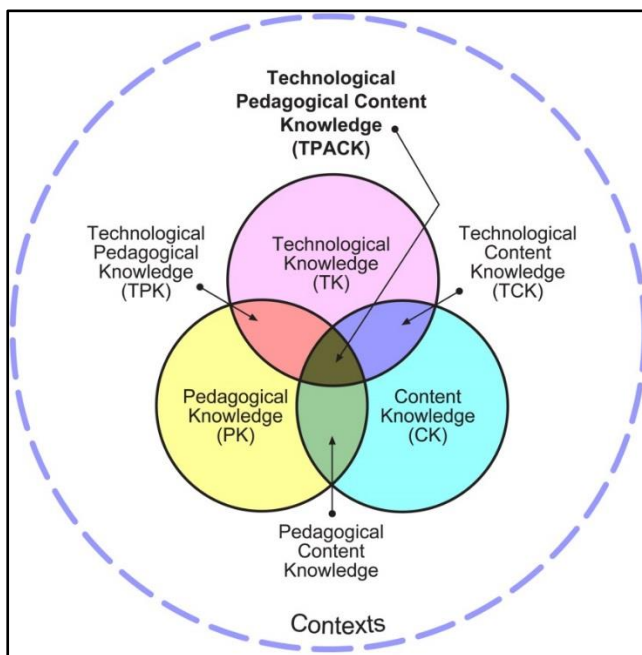
The Model incorporates the features for sustainability:

- Multi-stakeholder approach to ensure broad participation and buy-in
- Skills transfer to ICT Committees who will champion the integration of ICTs at school level
- Skills transfer to Subject Advisors who will provide onsite support to teachers as part of their role in the system, linked to their performance agreements
- Training and participation of the District e-learning Teams to support the integration of technology in schools as part of their role in the system, linked to their performance agreements
- Professional Learning Communities (PLCs) as self-managing teams that will continue with holding professional conversations at school and cluster levels
- Creating linkages to Teacher Development Centers (TDCs) that will provide opportunities for professional development under the leadership of the Teacher Development Institute and ensure the incorporation of teacher needs from the ground
- The Change Management Model will ensure that SMTs will take their rightful position in leading change in the school
- The use of an integrated approach that incorporates technology, content and pedagogy. The use of ICT provides an ideal opportunity for up-skilling and re-skilling of teachers

- Linkage to the CPTD point system that is legislated in accordance with the SACE system Integration of SA SAMS (South African Schools Administration Management System) as an administrative system to ensure the automation of some processes at school level.
- The use of ICTs as a communication tool to entrench the technical skills learned.

### 1.16 THE TPACK THEORY

Mishra and Koehler (2006) used Shulman’s theory of Pedagogical Content Knowledge (PCK) to develop the Technological Pedagogical Content Knowledge (TPCK) conceptual framework in an attempt to demonstrate the knowledge needed to integrate Information and Communications Technologies (ICTs) effectively. Later Schmidt et al. (2009) renamed it as TPACK in their description of the relationship between technology, pedagogy and content. They emphasise the importance of understanding the value of ICTs in a particular context. The figure below illustrates the framework with its seven constituents.

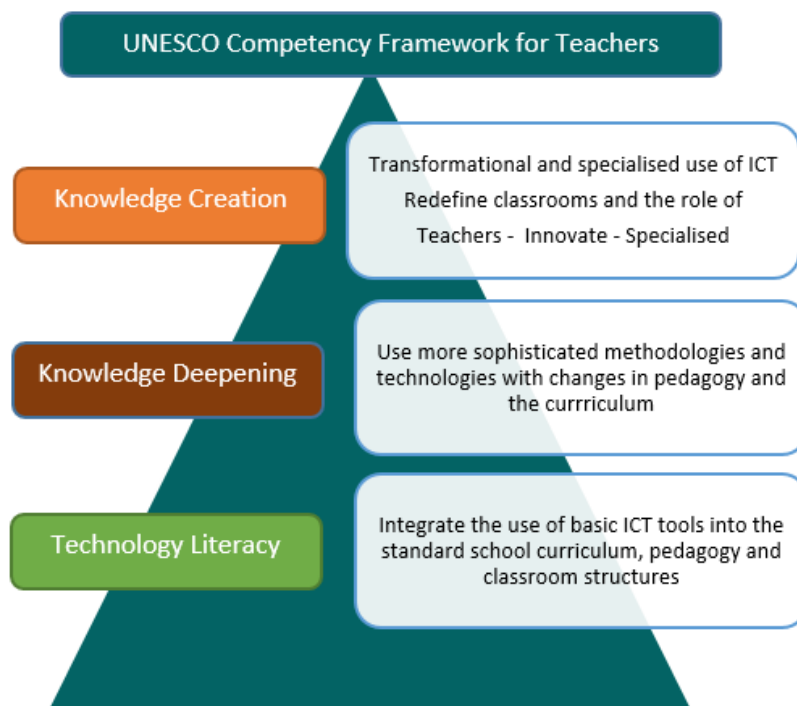


- The Technology Pedagogical Content Knowledge (TPACK) framework has been developed primarily along the following definitions of TK, CK, PK, PCK, TCK, TPK and TPACK:
  - Technology Knowledge (TK):** Technology knowledge refers to the knowledge about various technologies, ranging from low-tech technologies such as pencil and paper to digital technologies such as the internet, digital video, interactive whiteboards, and software programs.
  - Content Knowledge (CK):** Content knowledge is the knowledge about actual subject matter that is to be learned or taught.
  - Pedagogical Knowledge (PK):** Pedagogical knowledge refers to the methods and processes of teaching and includes knowledge in classroom management, assessment, lesson plan development, and student learning.
  - Pedagogical Content Knowledge (PCK):** Pedagogical content knowledge blends both content and pedagogy with the goal being to develop better teaching practices in the content areas.

- e. **Technological Content Knowledge (TCK):** Technological content knowledge suggests that teachers understand that, by using a specific technology, they can change the way learners practice and understand concepts in a specific content area.
- f. **Technological Pedagogical Knowledge (TPK):** Technological pedagogical knowledge refers to the knowledge of how various technologies can be used in teaching, and to understanding that using technology may change the way teachers teach.
- g. **Technological Pedagogical Content Knowledge (TPACK):** Technological pedagogical content knowledge refers to the knowledge required by teachers for integrating technology into their teaching in any content area.

### 1.17 THE UNESCO MODEL

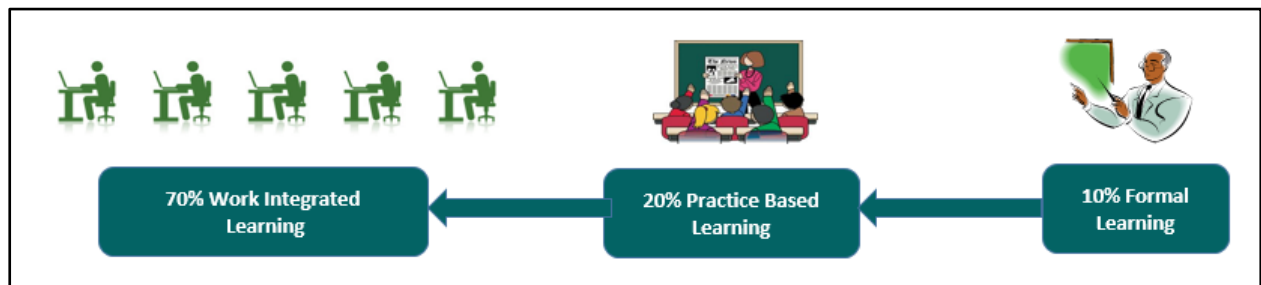
The approach to teacher development is based on the UNESCO Model which divides the stages of ICT development among teachers into three broad categories as shown in the Table below.



	TECHNOLOGICAL LITERACY	KNOWLEDGE DEEPENING	KNOWLEDGE CREATION
Understanding ICT in Education	Policy awareness	Policy understanding	Policy innovation
Curriculum and Assessment	Basic knowledge	Knowledge application	Knowledge society skills
Pedagogy	Integrate technology	Complex problem solving	Self-management
ICT	Basic tools	Complex tools	Pervasive tools
Organisation and Administration	Standard classroom	Collaborative groups	Learning organisations
Teacher Professional Learning	Digital literacy	Manage and guide	Teacher as model learner

This model shows how teacher knowledge and skills can develop from an entry point to a higher level where they are able to create knowledge with these digital technologies to achieve educational goals.

### 1.18 THE 10:20:70 FRAMEWORK FOR CONTINUOUS PROFESSIONAL TEACHER DEVELOPMENT



MGSLG uses the above framework for all its teacher professional development as an effort to promote continuous learning for its trainees. On the right hand side of the model above, the trainer presents the theory and this is where concepts are introduced and explained. Interaction at this level is encouraged to facilitate learning environments where learners actively participate in the learning experience. This should occupy 10% of the time allocated for the training. In the middle, is the practical part where learners actually practice what they have learnt in simulated or real life experiences. Lastly, the trainee adopts the knowledge and skills in their work environment and integrates these into their practice.

The model's creators hold that hands-on experience (the 70%) is the most beneficial for employees because it enables them to discover and refine their job-related skills, make decisions, address challenges and interact with influential people such as bosses and mentors within work settings. They also learn from their mistakes and receive immediate feedback on their performance.



Employees learn from others (the 20%) through a variety of activities that include social learning, coaching, mentoring, collaborative learning and other methods of interaction with peers. Encouragement and feedback are prime benefits of this valuable learning approach.

The formula holds that only 10% of professional development optimally comes from formal traditional courseware instruction and other educational events, a position that typically surprises practitioners from academic backgrounds.

### **1.19 CONCLUSION**

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The model is continuously reviewed and will thus evolve as implementation takes place. A lot of work still needs to be done to package all the training and development opportunities into programmes for replication as the project goes to scale. It is important to document the process and the lessons learned. Through this process, MGSLG will thus be able to finalise a home-grown end-to-end solution for ICT integration in the classroom.

## MODULE 1

# INTRODUCTION AND ORIENTATION FOR SCHOOL BASED ICT COMMITTEES



### 1.20 INTRODUCTION

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School Based ICT committees are the key change agents for sustained uptake of ICT in our classrooms. As such, these 7 Modules have been developed to support and allow ongoing professional development through ICT committee interventions. Module 1 sets the scene by providing understanding of ICT in Education in context and discussing the roles and responsibilities of School Based ICT Committees.

ICTs are now in the classrooms of Gauteng schools. The main challenge that still haunts the Gauteng Department of Education and many other departments worldwide is how best to promote the meaningful uptake of these digital tools in educational institutions. Whatever solution we bring to the table should be informed by existing education policies and customized to suit individual school contexts. These have been developed at national and provincial level. However, schools still need to develop ICT policies at their level. That is one of the ways that will ensure the uptake of ICTs in schools.

While every stakeholder in every school can contribute to the optimal use of available digital resources, there is a need for more knowledgeable personnel that can be tasked to provide guidance on how ICTs can meaningfully be integrated into teaching and learning in and outside the classroom.

### 1.21 OVERALL AIM OF THE MODULE

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To facilitate an establishment of a school based ICT committee by developing an understanding of its roles and responsibilities.

### 1.22 LEARNING OBJECTIVES OF THE MODULE

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At the end of this module, ICT committee members will be able to:

- Assess the ICT need/s for your school context
- Identify the roles and responsibilities of the School Based ICT Committee
- Identify indicators of an effective School ICT Committee

### 1.23 KEY ICT COMPETENCIES ADDRESSED BY THIS MODULE (UNESCO ICT Framework)

- Support of student learning through teamwork with members of the school community.
- Use of ICT for both curriculum and assessment, lead the development and implementation of the curriculum using ICT.
- Understanding of ICT for teaching, learning and administration.

The MEC launch of the GDE ICT Strategy in 2015 on a paperless SMART classroom did not only focus on the potential uses of ICT in schools but the urgency to improve teacher and learner performance in the province. Since 2015 there has been a number of initiatives by the GDE and Non-Governmental Organisations (NGOs) to encourage the use of ICT in schools. Of note is the supply of ICT resources, building of Grade 12 SMART classrooms, training of school stakeholders (Subject advisors, teachers, learners and school leaders) on ICT by Vastratech and school based technical support by Harry Gwala interns. These initiatives have added and contributed to the state of ICT in education in the Gauteng province. In the next activity, we would like you to take a closer look at the conditions of ICTs in your school.

ACTIVITY 1		
	<b>In pairs</b> , describe the ICT infrastructure, software, teacher and learner readiness to use ICTs for teaching and learning in your school.	
	In the table below, make note of the differences in the state of resources in your school	
	MY SCHOOL	MY PEER'S SCHOOL
Infrastructure		
Software		
Teacher readiness		
Learner readiness		

The evidence above justifies why each school should develop their own ICT strategies. If the use of digital technologies will have a positive impact on teaching and learning, it is important to identify and address factors in individual schools that have a potential to advance or regress ICT adoption and usage in education.

### 1.24 MODEL FOR SCHOOL ICT INTEGRATION

The UNESCO Model for school ICT integration below should help you describe and place your school at a particular phase.

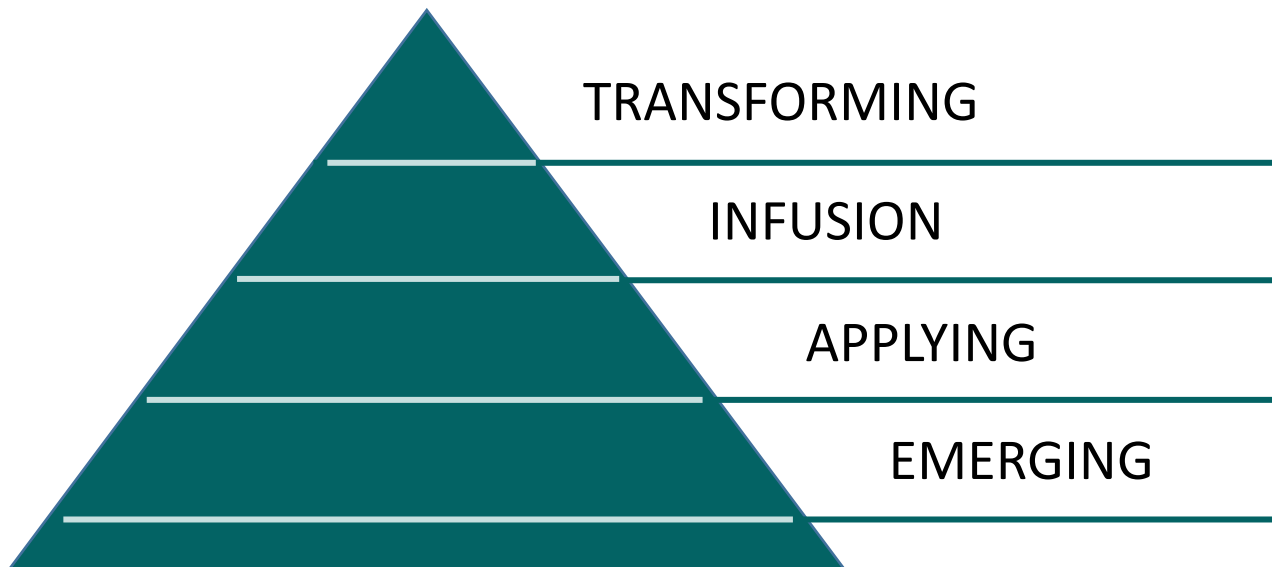


Figure 1: UNESCO Model (2002) levels of ICT Integration

In her research, [Tarishma Seegobin \(2012\)](#) describes the four UNESCO (2002) levels as follows:

#### 1.24.1 Emerging

Schools at the beginning stages of ICT development demonstrate the emerging approach. Such schools begin to purchase, or have donated, some computing equipment and software. In this initial phase, administrators, and teachers are just starting to explore the possibilities and consequences of using ICTs for school management and adding ICTs to the curriculum. Schools at this emerging phase are still firmly grounded in traditional, teacher-centered practices.

#### 1.24.2 Applying

Those schools in which a new understanding of the contribution of ICTs to learning has developed, demonstrate the applying approach. In this secondary phase, administrators and teachers use ICTs for tasks already carried out in school management and in the curriculum. Teachers largely dominate the learning environment.

#### 1.24.3 Infusing

At this stage, the infusing approach involves integrating or embedding ICTs across the curriculum, and is seen in those schools that now employ a range of computer-based technologies in laboratories, classrooms and administrative offices. Teachers explore new ways in which ICT changes their personal productivity and professional practice.

#### 1.24.4 Transforming

Schools that use ICTs to rethink and renew school organization in creative ways are at the transforming approach. ICTs become an integral, though invisible part of daily personal productivity and professional practice. ICT is taught as a separate subject at the professional level and is incorporated into all vocational areas. Such schools become centers of learning for their communities”, UNESCO in [Seegobin](#)

(2012:5,6).

**ACTIVITY 2**



*In 5 lines, state and explain the level of your school based on Seegobin's (2012) description above.*

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Now that you have been able to describe your school in terms of its level of ICT integration, you need to think about how you and your committee members can help your school advance to the next level.

**1.25 GDE ICT STRATEGY**

The GDE provides guidelines on the use of ICTs in its schools in the '[Guidelines on the Management and usage of ICTs in Public Schools in Gauteng](#)' (2011). These guidelines help identify areas that your committee can concentrate on in their intervention strategy. In your spare time, familiarize yourself with this document as it covers substantive information that you should know as a member of your ICT committee. In this section we will focus on the GDE imperatives for ICT use in schools. Pages 16 to 21 give information on how ICTs can be used to support teaching and learning. These, in a way are a replica of what the curriculum statement advocates.

### ACTIVITY 3



Read the following case study and answer the two questions that follows:

#### **CASE STUDY: South African Curriculum Framework and GDE ICT Vision Strategy**


The curriculum framework is a set of principles and guidelines which provides both a philosophical base and an organisational structure for curriculum development initiatives at all levels, be they nationally, provincially, community or school-based. The vision for South Africa encompasses a prosperous, truly united, democratic and internationally competitive country with literate, creative and critical citizens, leading productive, self-fulfilled lives in a country free of violence, discrimination and prejudice. The realisation of this vision requires appropriate, lifelong education, training and development to empower people to participate effectively in all the processes of a democratic society and to excel in fields like human and natural resource development, human and natural sciences, the arts and technology.

The primary task of educational policy makers is the establishment of a just and equitable education and training system which is relevant, of high quality and is accessible to all learners, irrespective of race, colour, gender, age, religion, ability or language. A priority for both national and provincial education departments is, therefore, the creation of a transformative, democratic, open learning system, fostering in all its users, a strong commitment to lifelong learning and development.


It takes as point of departure, that successful modern economies and societies require citizens with a strong foundation of general education, the desire and ability to continue to learn to adapt to, and develop new knowledge, skills and technologies, to move flexibly between occupations, to take responsibility for personal performance, to set and achieve high standards, and to work cooperatively.

The curriculum framework serves as a strategic intervention designed to facilitate and guide the development of a transformed education and training system in a practicable and sustainable way.

In 2016 the MEC for Education in Gauteng addressing Grade 12 Teachers at the Dome said the paperless SMART classroom is here. Therefore, all schools should be equally treated, regardless of their respective demographic area. All learners in township schools should have access to ICT such as tablets and teachers will all be using interactive boards and have laptops. There was a resounding applause from the teachers when this was said. He further promised that security is priority in all the schools to ensure that the installed interactive white boards and supplied tablets are safe and if taken or stolen they will be retrievable within the strike of lighting.

	<p>a. What are the educational goals of the curriculum framework of South Africa?</p> <p>b. How are these goals similar or different to the proposed ICT Strategy for the Gauteng Province?</p>
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Many studies confirm that effective ICT programmes in schools are promoted and driven by leadership at different levels. In other words school principals, their deputies and the HODs are more influential in coercing teachers to adopt these new technologies. It is the school leadership that commits to a budget, training and management support. While ICT school committee members may not only consist of senior members of staff (SMT), they play a significant role in making decisions that will determine the level at which ICTs are integrated in the school. It is their (ICT committees) input that school leaders can use to ensure there is a smooth adoption and infusion of these technologies into educational activities.

<b>ACTIVITY 4</b>	
	<p><b>Groups:</b> Based on your description of your school informed by the UNESCO levels (In par 1.2) and the suggestions on table 6 (page 17) of the <b>Guidelines On The Management And Usage Of ICTs In Public Schools In Gauteng</b>, what would you recommend for your school's improvement in ICT integration?</p>

A successful ICT project needs a combination of power, authority and skills.

The **power** resides with the entity that can make decisions on the budget allocation. This is the School Governing Body. They must allocate money for ICT consumables every year. They must therefore actively participate in the development of the School ICT policy. Their buy-in is crucial.

The **authority to implement** the project lies with the School Management Team. They must use their authority to give direction to staff on integrating digital technology into curriculum delivery. It is therefore advisable that the Deputy Principal becomes the chairperson of the School based ICT Committee.

The Teacher Champions have the **skills to train** other teachers and help to sustain the initiative. They must be enthusiastic and willing to be trained so they can transfer the skills to their colleagues. Functional School ICT Committees drive ICT integration in schools because they play a significant role in promoting ICT development, professional development, curriculum development, support, infrastructure and supply of resources. Their prime responsibility is to ensure that learning *with* ICT,

Learning *about* ICT and Learning *through* ICT take place in the classroom. Their mandate is simply to coordinate ICT activities in schools and to use data to improve the level of ICT use in their schools.

The GDE has made it clear what its vision is and this is reflected in its strategy for ICT use below.

It is to:

- Raise standards and performance, concentrating in particular school improvement, learner performance, raising the quality of teaching and learning;
- Help teachers to concentrate on the core task, which is teaching;
- Provide wider learning opportunities to learners;
- Development and facilitation of the 21st Century Skills;
- Support teachers on the 21st Century Skills for teachers; and
- Have SMART and paperless classrooms.

#### ACTIVITY 5



**Pairs:** How can ICT be used to help achieve the five indicators in the first bullet of the extract from the GDE ICT Strategy above?

At national level, the ICT in Education Policy called the [White Paper on e-Education](#) (2003) makes clear what ICTs are, their educational benefits and the roles to be taken by different stakeholders within the schools to promote effective use of ICTs. We will now look at what this policy brings to our understanding of ICT integration.

#### ACTIVITY 6




Read page 7 of the [White Paper on e-Education](#) (2003) and work on the class activity that follows.



ICTs have capabilities that are not found in other teaching resources. On the table below, name those ICT capabilities and state the benefits of using them for teaching and learning in your school context.



ICT CAPABILITY	ICT BENEFIT FOR TEACING AND LEARNING



ICT CAPABILITY	ICT BENEFIT FOR TEACING AND LEARNING
	<p><i>Share what you have written with your class.</i></p>

### 1.26 21<sup>st</sup> CENTURY SKILLS

Often people talk about 21<sup>st</sup> Century Skills and they associate their development with ICT use. As an ICT committee member, it is important that you know what these skills are. The next activity should help you establish your understanding of these skills.

ACTIVITY 7	
	<p>a. <i>Google 21<sup>st</sup> Century Skills and in your own words, write what these are and share your understanding of these skills with your group.</i></p> <p>b. <i>Which of those skills presented in the description do you value most and why?</i></p>
	<p>c. <i>In pairs: Pick one of the skills you have identified and discuss how these can be developed with ICTs.</i></p> <p>d. <i>Share with your group how these skills can be developed with ICTs.</i></p>

The GDE ICT STRATEGY supplements the ICT in Education policy by advocating for the development of these skills through the use of ICTs in the classroom. The question now is: what role should be played by the ICT school committees if these policy imperatives will be fulfilled in schools.

### 1.27 SUGGESTED ICT COMMITTEE ROLES AND RESPONSIBILITIES

Pages 28 and 29 of the ***Guidelines on the Management and usage of ICTs in Public Schools in Gauteng (2011)*** presents the following roles and responsibilities for School Based ICT Committees:

- ICT Planning for the school
- Working with the SMT to develop and implement an ICT policy for the school
- Scheduling and monitoring training
- Identification, evaluating and selecting educational software
- Representing the school in all e-learning activities at District or cluster level

- Representing the school at District or ICT forums and sharing information from these meetings with the school
- Promoting ICT integration in teaching and learning
- Monitoring and evaluating the effectiveness of ICT use in the school
- Design and implementation of monitoring and review process

**ACTIVITY 8**



*In groups of 4, explain how you would play each of those roles in your school that you described earlier. Share at least 2 of your ideas with the group.*

The roles presented above might seem overwhelming, but remember that you are only a committee member and responsibilities can be shared amongst members to ensure all these critical areas are catered for. The template below can be used by your committee as you prepare your ICT implementation strategy. The good thing about the template is that it captures all critical stakeholders responsible for a successful ICT implementation in schools with ICTs. These are school leaders, teachers, learners, the School Governing Body (SGB), parents and Harry Gwala.


**1.27.1 Example of Template for the Roles and Responsibilities - ICT in the School**

SMT and SGB RESPONSIBILITIES	X √	Who	Action
<b>Providing and maintaining the basic infrastructure that supports ICT</b>			
Technology Management			
Timetabling			
Budget			
After hours			
<b>Supporting usage of ICTs for management, administration, teaching and learning</b>			
Vision			
ICT Policy			
Optimal Usage			
Skills development			

Computerisation			
Curriculum ICT Integration			
Appoint ICT Coordinator			
Scheduling training			
Involving community			
Other			
<b>SCHOOL ICT COMMITTEE</b>	<b>X √</b>	<b>Who</b>	<b>Action</b>
ICT planning			
SMT liaison			
Scheduling			
Educational software			
School representative at district			
Promoting ICT integration			
Monitoring and evaluating effectiveness			
Design and implementation of review processes			
Other			
<b>ICT CO-ORDINATOR</b>	<b>X √</b>	<b>Who</b>	<b>Action</b>
Championing ICT			
System maintenance			
Managing Labs			
Managing other ICTs			
User support			
Provide training			
Provide learner ICT literacy			
Other			
<b>TEACHER AUDIT</b>	<b>ICT Literate X = √</b>	<b>Administrative Use X = √</b>	<b>Integrate with teaching</b>
			<b>Integrate with learning (learner use) X = √</b>

Teacher Name			(teacher use) X = √	

**ACTIVITY 9**



*How do you think each of these stakeholders can contribute to the smooth running of an ICT program in a school?*

- a. School leadership*
- b. Teachers*
- c. Learners*

Lack of capacity from any of these stakeholders is bound to create a gap that would disturb the smooth running of the ICT programme. It is for that reason that the ICT committee should be well versed with all operations to facilitate identification of potential problems and address them timely and efficiently. Above that, leadership from the ICT coordinator in this committee is critical if long term success is to be achieved.

**1.28 SCHOOL BASED ICT COMMITTEE COORDINATOR’S ROLE**

According to TeacherNet, an online chat page for teachers, ICT coordinators have a number of roles within a school. They highlight areas for the development of ICT within the School Development Plan, as well as coordinating the purchase and maintenance of equipment, software licences, and renewals of filtering and virus protection software. There is also some responsibility to audit staff training needs to provide suitable training opportunities. An important part of the job concerns disseminating relevant information on integration of ICT into planning the curriculum. There is also a level of interaction with other staff members as the ICT coordinator has to keep up-to-date with development issues and keep

colleagues abreast of any changes. The ICT coordinator also acts as a role model using ICT technological and pedagogical skills in everyday work.

Pages 29 -31 of the [Guidelines on the Management and usage of ICTs in Public Schools in Gauteng \(2011\)](#) describes the attributes of an ICT Committee coordinator. These include digital literacy and the knowhow of integrating ICTs pedagogically so he or she can competently drive and champion the process. Some of the school ICT coordinator’s responsibilities are:

- Staff Development
- Management and leadership of the ICT innovation in the school
- Curriculum planning
- Resource and inventory management
- Monitoring the teaching and learning using ICT

**ACTIVITY 10**



*Based on the earlier description of your school, priorities by rating what could be the ICT Coordinator’s role on the areas indicated below.*

**Prioritising the ICT Coordinator’s role**

**Rate the following areas on a priority basis 1=high 2=middle 3=low 4=not my job**

**Staff development**

- Survey staff ICT knowledge and skills
- Negotiate staff development targets with teachers
- Organise basic ICT skills training for staff
- Manage the national ICT training initiative in the school
- Plan and deliver suitable ICT courses for all teaching staff
- Management and leadership
- Advise the school principal on the key ICT decisions to be taken
- Devise the school’s vision and strategy for ICT
- Draw up the ICT development plan and report progress
- Report ICT developments to governors and parents

- Chair ICT development team meetings
- Manage ICT technicians
- Ensure the ICT policy is in place and working
- Be aware of current ICT developments both local and national
- Evaluate the quality of the school's ICT work and value for money
- Curriculum planning
- Co-ordinate the cross-curricular planning and delivery of ICT
- Research curriculum materials for use in subjects
- Formulate an e-learning strategy
- Develop an e-library and effective intranet for learning
- Advise other teaching staff on the use of software etc. in their subject area
- Ensure that ICT is meeting statutory targets in subject areas
- Resources
- Manage the school's ICT budget
- Be responsible for purchasing ICT resources; both hardware and software
- Ensure that ICT is meeting statutory targets in subject areas
- Have good technical knowledge and ICT skills
- Maintain an IT inventory for the whole school
- Be able to manage an IT network
- Fix technical problems
- Teaching and Learning
- Monitor the teaching of ICT
- Keep a record of individual pupil progress towards target levels
- Organise standardisation meetings to ensure teachers understand levels
- Survey pupils' views to find out what they think of ICT

Research and promote approaches which make learning more effective

Engaging in this activity should be highlighting areas that need urgent attention in your school at this stage of the implementation of ICTs. The exercise can be used to carry out a needs analysis before interventions are designed and implemented.

#### ACTIVITY 11



**Group Discussion:** *If you are or you were the ICT coordinator in your school, how would you use your responses, to resolve the challenges in your schools in a way that will raise the quality of ICT use in your school.*

*Remember: quality ICT use is when teaching and learning are enhanced*

#### ACTIVITY 12



*At this stage, you should be able to complete the template mentioned earlier*

### 1.29 REFERENCES

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### 1.30 SUPPORTING DOCUMENTATION

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ISPFTED 2011-2015

Gauteng ICT Development Strategy

Guidelines on the Management and Usage of ICTs in Public Schools in Gauteng (2011)

Draft E-Education White Paper

## NOTES:

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