COUNTRY: SOUTH AFRICA—ORGANIZATION: MIET AFRICA

SPREADING AND SUSTAINING INNOVATIVE LEARNING ENVIRONMENTS

MONITORING AND REPORTING NOTE 1

TRANSFORMING TEACHING AND LEARNING:
REDUCING BARRIERS TO LEARNING BY USING LEARNER-CENTRED APPROACHES

1   Introduction

The South Africa Country Systems Note, submitted to OECD in March this year, highlighted the transformation of teaching and learning as a key outcome of the introduction of two strategic interventions:

- Strengthening of schools to address the multi-faceted barriers to learning experienced by learners
- Developing the capacity of teachers to implement learner-centred approaches using a variety of resources, including the use of technology-based resources

The second of these interventions would help to resuscitate the almost dormant policy, the 2004 *e-Education White Paper*.

The proposed *Spreading and Sustaining Innovative Learning Environment* (*ILE*) project is unique in that it brings together these two interventions that, in the provision of education, are often viewed separately. This reinforces a holistic view for the transformation of the dispensation and practice of education. "Learner-centeredness" is central, so that learners themselves take greater responsibility for their learning, though with support from teachers, caregivers[1] and the broader school community. The basis of this transformation is two fundamental principles that reflect African values: the concept that "it takes a village to raise a child", and the principle of *Ubuntu*, "I am because you are." Both emphasize the importance of "communities" at various levels, which include "communities of practice" and "communities of support".

2   Reconfiguring roles

Learner-centred approaches demand a transformation of the roles and responsibilities of the members (stakeholders) of the "village" that raises the child. However, this transformation is in itself an overwhelming challenge: it requires changes in mind-sets and power relations,

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[1] "Caregivers" includes parents, as well as any other family member, other adult or guardian who provides daily care to the learner.

particularly of those who have traditionally regarded learners as "empty vessels into which knowledge must be poured". At a broader level, there is a need too, to re-examine the roles of key stakeholders in a transformed environment. The traditional role of Government as the primary provider of education comes into question here. Particularly in a country such as South Africa, where resources are insufficient to eliminate backlogs in service provision, expecting Government to deliver quality teaching and learning to all children within the public school system may be unreasonable, and even undesirable.

Similarly, the roles of other stakeholders in education provision (such as business, caregivers, civil society and faith-based organizations) are being questioned. Each of these stakeholders has a vested interest in a South Africa that has a well-educated, skilled population. This Monitoring and Reporting Note 1 (MN1), without professing to provide definitive answers and solutions, suggests that a re-examination of the roles of these key stakeholders is necessary, so that educating the country's children becomes a shared responsibility. The ILE project sets out to explore, within a group of schools in one education district, the reconfiguration of these roles.

The suggestion that Government should not be the sole provider of education does not imply that it does not have a lead role to play. In fact, Government has both the authority and legal mandate to ensure that education is accessible to all children. Rather, a reconfigured role for Government is that of an agent that establishes an enabling environment and, through the creation of "collaborative frameworks", promotes the development of meaningful partnerships[2] to support education. Within these frameworks, "space" is created for communities to establish themselves at each level to provide supportive networks for children to participate meaning-fully in their own education.

Collaborative frameworks support the establishment of conducive environments (at school, ward, circuit, district and other levels) within which learners engage actively in self-directed learning, but are supported by strong communities of caregivers, teachers, civil society formations, and business and industry. An example of a collaborative framework, still in its infancy, is Operation *Sukhuma Sakhe*, a multisectoral initiative established by the KwaZulu-Natal Premier's Office. The initiative involves the coordinated delivery of health and social services at municipal and local level for the purpose of reaching impoverished, under-resourced communities. In the context of education, government must strengthen and formalize such frameworks through meaningful partnerships, to allow all stakeholders to support education in a coordinated way.

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[2] *Meaningful partnerships* imply long term relationships that are guided by common goals and objectives, and within which agreed upon interventions that respond to barriers to learning and development are implemented.

2.1   THE BROAD STRATEGY

The poor performance of the education system in South Africa, despite it being allocated the largest portion of the national budget, highlights the need to address the quality of teaching and learning in schools, in particular public schools. The performance of South African Mathematics teachers in the tests conducted by the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) in 2007 was deeply concerning: only 32% of Grade 6 Mathematics teachers had the desirable level of knowledge in their subject. It is therefore not surprising that South African learners perform poorly in both local and international tests—the best teacher without the prerequisite content knowledge is as bad as a poor teacher with all the content knowledge. When this is combined with the many other barriers to learning experienced by learners in public schools—most of which go undetected and/or unaddressed—the situation appears dire.

The search for innovative approaches is therefore an imperative. Such diverse challenges cannot be addressed sufficiently by the efforts of small projects, implemented in isolation of each other or that do not align with the greater vision for education. The broad strategy for ILE—with its focus on learner-centeredness and collaborative partnerships—is a blueprint for action that will lead to a transformed system: a system in which all children are empowered to take responsibility for their own learning, both independently and collaboratively, to attain their full potential.

This vision positions "the child at the centre". It is achievable with competent and confident teachers, empowered caregivers, the support of technology-based resources and a coordinated network of agencies through which children can access social, health and welfare services. It also aligns with the vision the national Department of Basic Education (DBE), which is in turn reflected in the vision of the provincial KwaZulu-Natal Department (KZNDoE), as articulated by the Education MEC's discussion document: *Transformation of the schooling system in KwaZulu-Natal: Towards achieving redress and equity in the delivery of quality education for all* (KZNDoE: 2013).

To contribute to achieving this vision, the ILE project investigates how transformation can be achieved—starting at the level of the school, around which meaningful partnerships can be built to support the transformation. In moving towards a transformed system, the reconfiguration of roles is a key and important element, even at the level of the school. However, the vision needs a unifying entity that has the authority and resources to create a conducive environment within which all relevant stakeholders can make their investments and contributions. Government, as this unifying entity, acts as an "enabler" that creates such an environment. Collaborative part-nerships can be realized at different levels within the education system, each guided by a set of shared goals and objectives, and a clear definition of the roles of each partner.

The key stakeholders of a transformed system are identified in the next section, and their current and future roles are explained briefly. Because of its limited time span, the ILE research will not focus on the transformation of the entire system, but rather on how transformation

emerges at the level of the school and the district, and how this affects transformation at the provincial and national level.

2.2   KEY STAKEHOLDERS AND THEIR ROLES

This section identifies who the key stakeholders are that have an interest in education, and explains their current and future roles in terms of role configuration, as well as the rationale for the proposed change.

TABLE 1: STAKEHOLDERS AND THEIR ROLES

Stakeholder	Current role	Future role as per vision	Rationale for change
Department of Education (Government)	Primary provider of education, using public funds for all elements (from staffing to books and buildings)	Creates an enabling environment in which partners assist schools, teachers and learners to achieve quality education Works with other departments, unions and civil society to form collaborative partnerships that become part of the system of education provision Drafts Memoranda of Understanding (MoUs), agreements etc.	Government does not have the resources to service the education needs of all children in the country; other sectors need to become contributors in a systematic way. Education departments are best placed to initiate collaboration between, and interact with, other departments that need to bring services to schools.
Learners	Attend school, receive education dispensed at school Most mainly passive in their learning	Participate actively in activities designed by the teacher and work collaboratively with others Pursue research and embark on self-learning, using available resources Use technology as a tool in learning Have a wider choice of learning locations, including virtual space Exercise greater say in determining content	"Learning by doing" guides the learners' participation in carefully designed activities that cater for diverse learning needs. Exploration and discovery are essential skills for lifelong learning.
Teachers	Seen as all-knowing "owners of information" Use the lecture method / textbook approach to teaching	Have greater knowledge of content, and act as designer and facilitator of learning events, using a variety of resources, taking into account the diverse learning abilities, styles and learner needs	Lessons need to be used effectively, and timetabling made more flexible to maximize learner participation. The availability of technology opens new doors in terms of resources

Stakeholder	Current role	Future role as per vision	Rationale for change
Caregivers	Ensure that children are enrolled in school, and assume that they will attend school and "learn" Provide some resources for children to attend school Occasionally check the work of their children	Understand that the learners (their children) have to involve themselves actively in learning activities Support children at home by ensuring that there are spaces, time and resources for them to study Listen to what their children have to say about their studies Visit the school often to check on their children's progress and to support school activities Work with the school and school governing body (SGB) to ensure that a safe learning environment is established and maintained	Caregivers and the schools need to have stronger relationships and must communicate with each other regularly to monitor and support learning at the school. They need to create a conducive learning environment at home for their children to learn through exploration and discovery. They need to understand why the learner- centred approach should form the basis of education.
Members of the school community	Rarely involved: may attend sports or cultural events	See that the school belongs to them, and play an active role in ensuring safety and security of the school and its learners Understand that they and the school need to work together to ensure that the school is accessible to all children it serves Offer support to the school (for example by helping with maintenance and upkeep, or with assistance in the classroom) Ensure that no harmful activities are practised in the community Work with the authorities to ensure roads and other infrastructure around the school are provided	Their role is based on the principle "it takes a village to raise a child". Greater collaboration between the school and community must be established through responsible community leadership, so that the safety of children attending school is ensured. They need to understand the nature of child-centred education and the need for children to participate in community activities.
Teacher unions	Focus on the rights of teachers as workers Conduct some professional development workshops	Take collective responsibility (together with Government as employer) for organized and systematic teacher professional development Support peer classroom mentoring Contribute to the development of national norms, standards and curriculum for teacher training Ensure a balance between the child's right to education and the teachers' rights as workers	Unions are sometimes perceived as an obstacle to effective education because of an over-concentration on the rights of teachers as workers. They need to be involved as key stakeholders that take responsibility for the delivery of quality teaching and learning.

Stakeholder	Current role	Future role as per vision	Rationale for change
Other Government Departments	Focus on their own areas of work and meeting their own targets Collaboration between departments largely *ad hoc*, due to uncoordinated planning and a "silo-mentality"	Work collaboratively with each other in the three tiers of government, to ensure that all children at school are prioritized for support in a coordinated and systematic way Become the core of the partnerships established at all levels	They have the mandate to deliver particular services to the larger community. Schools offer points of reach for children who are affected by social ills and poor economic conditions that create barriers to learning.
Civil society organizations	Many currently work in an *ad hoc* way, and often on a very small scale, reaching a few schools and learners	Organized into theme-based forums, [CSOs] to operate in collaborative partnerships with Government (Education and other relevant departments) to support schools in bringing services closer to learners and their communities Services provided by CSOs guided by MoUs with Government CSOs from specific sectors (e.g. disability) especially valuable in collaborative partnerships Change from just being "watch-dogs" to become active partners	They add value to the system by supplementing services provided by Government and help to reduce the backlog, and can relieve the burden on government departments. The latter often lack capacity to provide specialist services, which can be filled by CSOs.
Faith-based organizations	Currently interact with schools in an *ad hoc* manner, mainly through supporting feeding schemes and other charitable work Sometimes provide counselling to learners affected tragedy	Play a significant role by providing "safety nets" for vulnerable learners after school hours Provide counselling services, coordinate after care for children and assist with youth development by providing a "home" for youth/homework clubs that can support learners in their schoolwork	

Stakeholder	Current role	Future role as per vision	Rationale for change
Business and industry	Currently act as sponsors of mainly small initiatives (including the provision of equipment or technology), usually in *ad hoc* way	Take greater responsibility for provision of sector-specific involvement Key partners in providing resources such as ICT infrastructure, equipment, and skills Contribute significantly in linking education to the world of work through opportunities for workplace learning, internships, scholarships and bursaries Contribute to the development of a curriculum to make education more relevant to learners' career paths	Business and industry have key roles to play in providing the necessary resources and expertise for a relevant education.

2.3   ILE: ELABORATING THE VISION

The ILE project is based on the belief that

- The education of our children is everybody's business, not only Government's.

- Government has the key responsibility of creating an enabling environment within which meaningful development of children (as future leaders and responsible citizens) can take place.

- Learners need to have a greater say in their education, and be active participants in knowledge building.

- Learners need to take greater responsibility for their own learning.

- Strong and empowered communities are essential if they are to support the learning of their children.

- Collaborative networks of individuals, organizations, government departments, business and industry and communities at all levels will promote effective and relevant education.

- Access to, and effective use of, technology is necessary for 21st century learning.

These beliefs underscore the importance of a broad and holistic approach to education, and highlight the need to ensure that learners are provided with the necessary care and support for them to concentrate on learning so that education outcomes are improved.

2.4   THE APPROACH TO TEACHER TRAINING AND CAPACITY-BUILDING

After a few months of working with the learning laboratories of change (LLC) project in South Africa, the ILE team members acknowledge that it will be wise to move ahead in small steps—the first being to enable teachers to commence their own transformation by building their

content knowledge in the subjects that they teach. In the process, teachers will be given the opportunity also to experience learner-centered teaching—i.e. by being exposed to the approach that teacher trainers will use when conducting their training.

This paper purports that leaping into the technology first—without ensuring that teachers are confident about the content that they will teach and the principles of learner-centred approaches—may be overwhelming for them. Being faced with more than one challenge at the same time may well be demotivating or demoralizing for teachers, some of whom already show little of enthusiasm for their work.

Teachers will therefore be introduced to technology-based learning gradually, as well as incrementally—as part of their learning of the content of their own subjects. This approach downplays the impression that using technology is an end in itself. Instead, the importance of technology lies in the access it provides to previously inaccessible resources that maximize learner participation in their own learning. The approach demands that teachers have the necessary content knowledge (self-mastery) so that they have the confidence to manage and facilitate learning events that encourage learners to embark on journeys of discovery using the technology platform. In turn, learners need to commit themselves to learning, and not be distracted by the novelty of technological devices.

The levels of the teachers' subject content knowledge and teaching skills in the targeted schools are very low. (As an example, only a handful of the approximately 35 teachers of Numeracy and Mathematics have a teaching qualification, and even fewer have specialized in those subjects.) As a consequence, the timing of the introduction of the ICT component has been revisited.

The revised approach for project implementation is therefore to first to develop the subject knowledge of the teachers, while concurrently introducing teaching approaches that place the learner at the centre of learning. The development of teachers' content knowledge will be done using the learner-centred methodology: teachers will therefore experience first-hand the method and benefits of learner-centred teaching. As they gain confidence in their subjects, teachers will be introduced to the technology platform: initially they will be given exercises to do in the computer lab, and will use word processing to complete exercises independently that are then shared in groups; thereafter they will use preloaded materials on the computers to complete tasks that require them to conduct research using the stored materials.

Providing a supportive learning environment is another important outcome of the ILE project; so that other barriers preventing learners from participating fully in learning activities and events can be alleviated. There is ongoing tension between what are perceived as peripheral issues and core education outcomes. Although there is agreement that learner achievement (and progression) is the primary outcome of the education sector, many still believe that care and support has little to do with teaching and learning, and treat it as unimportant and unrelated to schooling. However, particularly in the context of developing countries, the provision of care and support is necessary for learners to perform optimally. The introduction of technology, the provision of care and support, the capacity development of teachers and the

establishment of professional communities of practice are all mechanisms through which the attainment of education's core outcome is sought.

There are no illusions about the magnitude of the task—especially that of effecting a change in how teachers view and implement their roles. The introduction of technology in teaching and learning on a mass scale poses challenges in terms of changing the mind-sets of teachers, even in the most developed countries or settings. However, the advances made in technology, which are now accessible to even the remotest societies, also afford great opportunities in terms of learning and development. Coupled with this is the relative ease with which children and youth master technology (cell phones, for example). Education should therefore take the opportunity to promote change. However, to make optimal use of these opportunities, a collaborative effort and commitment to participating in and driving development is required. And central to this is the teacher at the school.

The very notion of "giving over power to learners" to take responsibility for their own learning is inconceivable to many teachers, education officials, caregivers and even learners themselves. The key challenge lies not in the innovative technology that will be provided, but rather within teachers, whose fear of technology, coupled with years of practising the "lecture method" of teaching, prevents them from embracing the opportunities to redefine classroom practice.

3 The Intervention and its Aims: revised focus

It was explained in the Systems Note that an innovative action research intervention will be implemented in five schools in the Umlazi District whereby

- Schools will be strengthened to identify and address barriers to learning through the establishment of support structures at school, circuit and district levels, and by building capacity of teachers and the system to make the curriculum accessible to all learners.

- The management capacity of the schools (i.e. of the principal and the management team) will be strengthened through a structured management and development programme for principals.

- Schools will be resourced with appropriate technology, and learners and teachers provided with tablets and laptops that will enable interactive teaching and learning to take place.

- Teachers will be trained to use the technology to deliver the curriculum in innovative and interesting ways that encourage greater participation of learners.

- Using the education centre as a node, subject teacher forums (making up communities of practice) will be established and activities to support ongoing professional development of teachers implemented, thereby leading to improved teaching skills and subject content knowledge.

Collectively, these interventions are expected to contribute to the transformation of the traditional classroom into an environment where teachers take on the role of facilitators of learning, while learners are directed in their learning to use resources made available to them digitally.

- Learners explore concepts and solve problems using technology, and in so doing spend more time engaging with the learning materials rather than passively listening to a teacher "lecturing" to them.

- Teachers use their training in screening and identifying barriers to learning, and their training in teaching for diversity (accommodating different abilities, learning styles, etc.) to devise individual support plans for learners experiencing the range of barriers commonly found in schools in socioeconomically disadvantaged locations.

- The establishment of strong networks between schools and government departments, business and other key stakeholders from the communities around the school become part of the support network for schools to assist children identified as needing support.

Although the core ideas of the System Note still remain, there has been a shift in emphasis that is presented now in this revised MN1, and which is also informed by the discussions at the OECD Meeting of Country Teams, held in Paris in July 2013. These discussions highlighted the need to locate implementation of innovative projects and programmes within the broader vision of transformation of education. This—coupled with delays in the implementation of the ICT in Education project—prompted the South Africa Country Team to revise the narrow focus in the original monitoring note (Focus on ICT in Education) and develop a more holistic vision and accompanying strategies in implementing the ILE.

Therefore, this broader vision of programme implementation marks a shift from what was presented in the Systems Note submitted in March 2013, and differs from the restricted view of transformation resulting from the introduction of technology as the only avenue of change. This paper sets out to clarify that the innovation in programme implementation results from a combination of the processes—i.e. (i) that of addressing the barriers experienced by children, and (ii) processes implemented to change the way teaching and learning takes place in the classroom.

The revised aim and objectives of the project follow.

3.1   THE AIM AND OBJECTIVES

AIM

Transformation of teaching and learning using learner-centred teaching approaches, supported by the enhanced capacity of teachers to identify and address barriers to learning using a variety of strategies and resources

OBJECTIVES

- To strengthen schools to screen for and identify children experiencing barriers to learning, and to devise strategies to reduce the impact of these on the learners' performance, taking into account their diverse learning needs

- To build the confidence of teachers in their own subject knowledge and develop their capacity to use learner-centred approaches and appropriate resources (including technology-based resources) in their lessons

- To support schools to establish partnerships with key and relevant stakeholders that will support schools in addressing barriers to learning and development

- To strengthen the management capacity of schools to better manage the school, its resources and curriculum delivery

- To establish professional learning committees of teachers of Mathematics, Science and Languages as the first step in the implementation of a Department-led teacher development programme

- To build the capacity of caregivers to support their children's learning

In the context of developing a revised focus for MN1, the ultimate goal as stated in the system note is particularly relevant: i.e. "to change the traditional lecture mode of lesson delivery to one where learners participate more actively and take greater responsibility for their own learning". This is a transformational goal that aims to change the culture of the school to one of effective teaching and learning, supported by effective school management and a reduction in the barriers to learning and development.

The implication here as well is that (within the context of the traditional teaching approaches in South Africa) this demands a revolutionary change of roles for both learners *and* teachers, which is accompanied with a major shift in power relations. It requires teachers to acknowledge that they "don't know it all", and learners to realize that they can be "explorers", setting out to learn by "doing" (active participation). Learning together and sharing knowledge with their peers also opens different ways of acquiring knowledge and skills, while at the same time providing opportunities to develop social skills and team work. Greater responsibility is placed on the teacher to plan carefully and effectively, to "script" lessons that cater for different learning levels and styles. Teachers are viewed as agents of change, and as lifelong learners themselves through unlearning "old ways" and adapting to new approaches that include becoming part of a professional learning community to share best practice.

3.2   POLICY BACKGROUND AND RATIONALE

Since 1994, South Africa has made great strides in developing policies aimed at redress and ensuring that the majority of the population (who were excluded from democratic participation during Apartheid) are now legally empowered to claim their rights as full citizens. Particularly relevant to the transformation of teaching and learning through the removal of barriers to learning is the 2001 *Education White Paper 6: Building an Inclusive Education System*.

It has been said that South Africa has developed some of the best education policies to guide the implementation of quality education programmes for *all* children. The onset of democracy understandably had a marked impact on policy development. However, due to the severity of past inequalities, effective implementation of the policies has not been achieved, resulting in gaps between policies and their rollout in practice. Nevertheless, the existence and availability of such policies are important to keep alive the vision of a transformed nation, and to ensure that frameworks do exist when resources become available for implementation.

With regards to addressing barriers to learning, *White Paper 6* provides the policy mandate for the transformation of the system through the establishment of inclusive schools. *Inclusive schools* are based on the principle that all school children in a community should learn together as far as is practical, regardless of any difficulties they may experience. This includes learners with various disabilities, special needs or general barriers to learning and development. Pro-visioning in education must extend beyond just the delivery of the curriculum to include provisioning for care and support for teaching and learning. The theme of implementing the curriculum in a fully inclusive way is carried through into various curriculum documents published over the years, the most recent being the Curriculum and Assessment Policy Statements, or CAPS. In the preamble to the CAPS documents (DBE, 2010), it is stated that

- Inclusivity should become a central part of the organization, planning and teaching at each school. This can only happen if all teachers have a sound understanding of how to recognize and address barriers to learning, and how to plan for diversity.

- The key to managing inclusivity is ensuring that barriers are identified and addressed by all the relevant support structures within the school community, including teachers, District-Based Support Teams, Institutional-Level Support Teams, caregivers and Special Schools as Resource Centres.

- To address barriers in the classroom, teachers should use various curriculum differentiation strategies such as those included in the DBE's *Guidelines for Inclusive Teaching and Learning* (2010).

Clearly, there is an emphasis on the making the curriculum accessible to all learners, and an emphasis on support for teaching and learning. A project currently being implemented in Umlazi that deals with barriers to learning, aims to address this issue by building capacity of teachers in areas such as developing curriculum differentiation strategies. Teachers are required to be creative in doing this by using a variety of resources and media in their teaching. The proposed ICT in Education (ICT-Ed) project offers teachers a broader and extended dimension in terms of making use of resources in classroom teaching.

The 2004 *e-Education White Paper* provides the policy framework within which projects such as the ICT-Ed intervention are located. However, it is now widely accepted that the goal articulated in the *e-Education White Paper* will not be met within the stated timeframes, and that the search for ways to achieve the goal has been slow.

The rationale for the ICT-Ed intervention can be found in the definition of e-Education given in the White Paper:

> In the South African context, the concept of e-Education revolves around the use of ICTs to accelerate the achievement on national education goals. E-Education is about connecting learners and teachers to each other and to professional support services, and providing platforms for learning. E-Education will connect learners and teachers to better information, ideas and one another via effective combinations of pedagogy and technology in support of educational reform. It supports larger systematic, pedagogical, curricular and assessment reforms that will facilitate improved education and improved use of educational resources such as ICT. [DoE, 2004]

It is clear from this definition that ICT in education is not about teaching learners how to use technology devices as ends in themselves, but rather to use technology as a tool for teaching and learning. Considering the impact that mobile telecommunications has had on transforming person-to-person communications, even in the deepest rural areas, there exist real opportunities to exploit the same transformational effect in using technology for improved teaching and learning.

The ICT-Ed intervention therefore promises to address the aspirations contained in the definition of e-Education articulated in the White Paper. However, to bring the aspirations embedded in the goal to fruition is not without its challenges. Ford and Botha (2010) point out three key issues (among others) that are prevalent in failed e-Education projects in South Africa:

• The lack of ICT-literacy at a general level amongst teachers

• Stringent and structured forms of teaching with little/no scope for lateral thinking

• The realization of the importance of technology, but an inability to incorporate this due to lack of training, adequate infrastructure and integration with the current curriculum

The ICT-Ed intervention plans to address these three issues by putting in place strategies that include teacher training and support that covers (i) ICT-literacy, (ii) teaching skills that encourage learner-centred approaches, and (iii) curriculum support that aims to enhance the content knowledge of teachers.

An important component of the teacher support strategy is the establishment of teacher subject forums or professional learning communities. The DBE, in collaboration with its partners (Provincial Departments of Education, teacher unions, higher education institutions and CSOs) is finalizing its own strategy for teacher development. The Department advocates strongly for the establishment of professional learning communities of teachers, as an attempt to revive the teacher subject committees (which did exist in the separate education departments of the pre-democracy era).

Ongoing teacher professional development is the underpinning principle that guides the strengthening of schools and the education system in the ICT-Ed intervention. Hence, initial training of teachers, followed-up by monthly classroom support visits and quarterly meetings of subject teachers as communities of practice, are included. These professional development activities resonate well with the current global view on best practice, which is supported by research. The OECD TALIS research (2009) draws significant conclusions on professional

development of teachers and its effects on teachers' beliefs, and the importance of teachers' beliefs in shaping the way they teach. The study found that the "direction of those effects, however, is quite consistent. If professional learning activities have any effect on teacher beliefs, it is in the direction of stronger constructivist and weaker direct transmission beliefs." It is no coincidence that this links well with the second issue characterizing failed e-Education projects (as identified by the Ford and Botha study) as "*Stringent and structured forms of teaching with little/no scope for lateral thinking*".

These assertions support the emphasis given to ongoing teacher professional development in the ICT-Ed intervention, and that teacher training focus strongly on learner-centred approaches that are consistent with constructivist beliefs about teaching and learning (*teacher as facilitator, learning-by-doing, problem-solving* and *process more important than product*).

As a positive spin-off of the use of technology, the ICT-Ed intervention also provides for the lessening of the administrative burden of teachers and other school staff by putting in place a system that can monitor learner attendance and progress. The technology can generate reports and send instant messages to caregivers in the event of their children being absent. In bringing together ICT-Ed and care and support, the two systems work effectively in support of each other: teachers trained in the screening and identification of learning barriers are able to capture this information into the learner database at the school. Such information can be relayed speedily to a network of support organizations or government departments, making referrals of cases faster and easier to track. In the same way, learners with specific learning difficulties (e.g. in reading) can be attended to by the teacher whose time will have been freed up when learners work on their e-tablets on individual or group tasks.

3.3   TARGET POPULATIONS AND INSTITUTIONS

The ILE project (which aims to look closely at schools, and for which technology and ICT-Ed will form part of the resources), encompasses 196 schools spread across three districts in KwaZulu-Natal. However, for the purposes of the intensive LLC study, three primary schools in the Umlazi District will form the focus of the study. The three schools were selected from a cluster of nine schools as they are currently benefitting from an intervention that focuses reducing the negative effects of barriers on learning and will also benefit from the ICT-Ed intervention when it is introduced.

SOCIOECONOMIC BACKGROUND

The three schools in the LLC study, together with six other schools, are part of the ILE project falling under the jurisdiction of the Umlazi Education District—one of 12 education districts in KwaZulu-Natal, one of the most populous and rural of the nine provinces in South Africa.

The province is home to about 10.5 million people of diverse religious, cultural, ethnic and race groups, of whom over 80% are descended from the Zulu nation of King Shaka. However, 49% of

the population is poor and reside in rural areas or "townships" (often comprising informal settlements in urban and peri-urban areas), of which Umlazi is a typical example.

The three chosen project schools come from areas mainly bordering the Umlazi township proper. Although all in the eThekwini metropolitan area, many are "rural" in nature. Such schools suffer higher levels of poverty and deprivation.

All three schools report high levels of unemployment (between70 and 90%), especially amongst the youth, as well as high levels of crime. Alcohol and drug abuse is prevalent around each school. Although there are a few lower middle class homes around the schools, the owners generally prefer to send their children to schools in the more affluent suburbs and townships in Durban.

SELECTION CRITERIA FOR SCHOOLS

The three primary schools that will form the core of the LLC study are Masuku, Manzolwandle and Isiphingo, which were selected because: they (i) are part of the barriers to learning pro-gramme; (ii) have also been chosen to participate in ICT-Ed when it is implemented; (iii) have Grades 5 to 7 classes.

With regard to the third criterion above, it is easier to measure the effects of the intervention in Grades 5 to 7 because

- English is the common language of instruction in these grades.
- Learners are easier to track because they remain in the same school for the three grades.
- Teaching starts to become more formal than in lower grades, and teachers tend to use the lecture method.
- The cognitive development of learners in this age band (9–12 years)—in which they begin to move from the concrete to the abstract—means that they are more capable of independent study.

PROFILE OF THE SELECTED SCHOOLS

Each of the three schools falls within a different circuit[3] in the Umlazi Education District. The following profiles were provided by the schools' principals.

(National standardized tests, known as Annual National Assessments, or ANA, are administered annually in September to measure learner performance. The pass mark is 40%. ANA results are shown for the three schools.)

a.   Masuku Primary School

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[3] A circuit is made of 3-4 wards, each ward being a cluster of between 15 and 30 schools. It is under the supervision of a circuit manager, who is responsible for overseeing the implementation of education at the schools.

The school is in the Umbumbulu Circuit. It was established by the community in 1988 and initially consisted of three classrooms. It has since been moved twice; in 2012 it moved to its present premises that were built for it by the KZNDoE.

The staff comprises 26 teachers, of whom 20 are female.

Its current enrolment (2013) is 1205 learners, in classes from Grades R–7.[4] The principal reports that most of the learners come from very poor families residing in the areas surrounding the school, and live with either their grandparents or other guardians. Most of the learners usually walk to school, while a few use public transport (taxis). The majority of the population in the area are unemployed, and crime and violence are rife.

The school's 2012 ANA results in the relevant grades are shown below.

TABLE 2: MASUKU PRIMARY, ANA RESULTS 2012

Grade	Literacy[5]	Numeracy
4	43	43
5	53	67
6	35	28

b.   Manzolwandle Primary School

The school, located in the Mxenge Circuit, was established in 1969 under the Zulu Government (the old homelands' system), offering Grades 5 to 8. In 1991, however, this was changed, and the school now offers Grades 5 to 7, with a current enrolment of 521. There are 17 teachers, of whom 16 are female.

Until the mid-1990s, the school was heavily affected by political in-fighting and turmoil in the area, the effects of which are still felt today. There is much poverty, high unemployment, food shortages, high-levels of crime and drug abuse in the area. HIV and AIDS is rife, and many of the learners are living with their grandparents, or even alone. Most learners come from the areas directly surrounding the school and walk to school. Some, however, come from further and use taxis to get to school.

TABLE 3: MANZOLWANDLE PRIMARY, ANA RESULTS 2012

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[4] Grade R (also referred to as Grade 0), is a non-compulsory year of pre-school. As part of Early Childhood Development, there is a major drive to promote schools to the establishment of Grade R classes in primary schools.

[5] First Additional Language (i.e. in this case, English)

Grade	Literacy	Numeracy
5	25	36
6	37	23
7	Not available	Not available

c.   Isiphingo Primary School

This school, located in the Phumelela Circuit, was established in 1974. The learner enrolment in 2013 is 1085, in Grades R to 7. There are 27 state paid teachers (plus another three paid by the School Governing Body), of whom 24 are female.

As with most schools in the area, Isiphingo's surrounds are characterized by high levels of unemployment, poverty, crime and poor socioeconomic conditions. Substance abuse is rife, especially amongst the unemployed and youth. Many learners' only daily meal comes from the school's feeding scheme.

TABLE 4: ISIPHINGO PRIMARY, ANA RESULTS 2012

Grade	Literacy	Numeracy
4	41	36
5	44	28
6	46	17

3.4   PROJECT GOVERNANCE AND ACCOUNTABILITY

The ILE project, led by the provincial Department of Education (i.e. KZNDoE), will fall under the responsibility of the Senior General Manager, Curriculum Management and Delivery.

At the national level, the DBE will be an "interested partner", with the responsibility of scaling-up successful education innovations to other provinces.

At school level, the school management team (SMT), headed by the principal, will "own" and lead the project. An integral part of the SMT is the institution level support team (ILST) of the school. This mandatory structure is responsible for coordinating the screening and identification of learners, and overseeing the implementation of measures to access support for learners experiencing barriers to learning.

The ILST has the power to co-opt members of the SGB to support the screening and identification process. Its functionality is critical because the successful screening and identification of learners is a key process in the eradication of barriers to learning, as well as the transformation of schools. In terms of the ILE project, both the SMT and ILST are critical structures for ensuring joint ownership for the project—which is essential for promoting greater caregiver and learner involvement in the education at the school. Communication with and the cooperation of care-

givers and the community are also important in addressing security concerns (e.g. safeguarding the infrastructure and installed technology) at the schools.

A project steering committee (PSC) established at district level, comprises district officials from the KZNDoE, drawn from the units responsible for curriculum, management and governance, human resource development, physical infrastructure, Maths, Science and Technology, and special needs education. Provincial officials responsible for these areas, as well as funders' representatives, are also invited to the PSC meetings, where reports are presented and progress discussed. Jointly formulated terms of reference (see **Appendix 1**) guide the functioning of the PSC, which is chaired by the district manager or nominated representative.

MIET Africa, as the Department's lead implementing partner, has the critical role of ensuring that through orientation and training, the teachers, school management, caregivers and members of the community are involved as key stakeholders and partners. (MIET Africa is also the coordinator for the ILE project).

Other partners supporting the project include ReMagine, responsible for resource mobilization and installation of the ICT infrastructure; the Umoya Technology group, responsible for the installation of digital learning materials and connectivity; First National Bank Fund and the First Rand Empowerment Foundation (through Tshikululu Social Investments), responsible for resourcing the care and support activities of the barriers-to-learning programme, and participating in the action research.

4 Strategies and Activities

4.1 THE TWO "STRANDS"

The project, to be implemented as a "learning laboratory", is a combination of two interventions, both designed to address barriers to learning and improve learner performance.

a. ADDRESSING BARRIERS TO LEARNING AND DEVELOPMENT STRAND

This strand seeks to strengthen schools to address the socioeconomic, psychosocial and intrinsic barriers that are experienced by learners, and which impact on their ability to devote attention to their studies. It supports the second strand to achieve its outcome of improved learner performance.

However, in the actual implementation of the strategies and activities, there will not be a linear rollout process that separates the implementation of the teaching and learning transformation component from the eradication of barriers to learning component. Some activities will be implemented concurrently. For example, while the schools' ILSTs are being established and strengthened (through orientation and the training and building of capacity of management and staff), the content knowledge of teachers can be assessed, and they can commence with the

programme of capacity development in their subject content areas, even if the technology and infrastructure has not yet been installed.

b. TRANSFORMING TEACHING AND LEARNING STRAND

This component addresses the needs of teachers in respect of capacity building (subject content and teaching skills), and the needs of learners experiencing *pedagogical* barriers. It is directly linked to the outcome of improved learner performance. The ICT-Ed project is a key part of the transformation of teaching and learning component, as it builds on and facilitates the capacity-building of teachers in their subject content knowledge and teaching skills. ICT is therefore both a tool and a resource in the transformation of teaching and learning that aims to achieve learner-centred teaching and learning environments at the schools.

4.2   IMPLEMENTATION STAFF

The training and orientation of teachers, school management, caregivers, and communities are implemented by training coordinators, each of whom is responsible for the training in a cluster of schools (nine schools in the case of Umlazi District, three of which are the LLC schools). The training coordinator is a qualified education specialist who has training in Inclusive Education, care and support, as well as the requisite coordination and facilitation skills. The training coordinators also have subject specific knowledge and experience in literacy or numeracy or both, and have experience in using learner-centred methodologies in their specialist subject/s. MIET Africa recruits these staff members from a database of experienced trainers (compiled over the years from similar projects implemented in the province and nationally). Although such trainers enter the project with knowledge and experience, they are given an induction, orientation and training programme to fulfil the specific needs of the project.

4.3   ACTIVITIES

A summary of the activities for each strand is provided below.

a. ADDRESSING BARRIERS TO LEARNING AND DEVELOPMENT STRAND

- Training and building the capacity of teachers to implement the screening, identification, assessment and support process in their classes, so that learners experiencing barriers to learning can be detected and appropriately supported
- Training principals and SMTs in effective school and curriculum management
- Establishing support structures at each school to assist learners identified as needing support
- Establishing a multisectoral network of support agencies and service providers that operate in the area and that can provide the necessary support to identified learners

- Facilitating support for needy learners and their families through the organization of multisectoral service delivery days in collaboration with provincial and local government-driven initiatives.

b. **TRANSFORMING TEACHING AND LEARNING STRAND**

- Assessing teachers to establish their levels of competence in subject content knowledge and teaching skills

- Training and building the capacity of teachers in content knowledge and teaching skills

- Training teachers in using ICT in lesson planning and teaching content

- Conducting classroom observation and support visits, accompanied by reflection meetings to provide feedback

- Installing and supplying ICT infrastructure and equipment at schools

- Training and supporting teachers on how to plan lessons and use technology to design learner-centred learning activities

- Establishing professional learning communities of practice

    Teachers of Mathematics, Science and Languages will be encouraged to meet regularly in their subject groups at a nodal centre (education centre or school) to share lesson plans, teaching experiences and best practice.

The teacher preparation, capacity-building, training and support programme is summarized below.

TABLE 5: TRAINING AND SUPPORT PROGRAMME

Component	Target group	Implementation mode	Trainer requirements
Care and support, inclusion and barriers to learning	All teachers in the school	School-based training, 10 days x two and half hours per day; Sessions begin at 13h00 and end at 15h30	Specialized training and experience in establishing inclusive schools; working knowledge of *Education White Paper 6*; good adult learning facilitation skills
Subject content knowledge	Literacy and Numeracy teachers; HODs for curriculum management and delivery	Fortnightly training sessions; task and assignment completion and feedback sessions; use of digital platform for self-learning and blended learning	Teaching qualification and experience in the subject; knowledge of and experience in learner-centred approaches and technology-based teaching for the relevant subject
Teaching skills	All Literacy and Numeracy teachers	Fortnightly training sessions in learner-centred teaching (theory and practice), researching and preparing resources, lesson planning and delivery; simulated/mock classroom teaching; teaching for diversity assessment approaches	Teaching qualification and experience in the subject; expertise and experience in learner-centred approaches and assessment for the relevant subject; expertise in ICT in education

Component	Target group	Implementation mode	Trainer requirements
Classroom observation, mentoring and support	All teachers in the school	School visits conducted by the trainers as follow-up mentoring and support sessions for individual and groups of teachers to discuss classroom practice, challenges and solutions; class observations for providing feedback to teachers	Trainers with the knowledge and experience are required for these visits because they need to observe classroom practice and provide constructive input; trainers are trained in mentoring and supporting teachers (use of appropriate tools).
Professional development sharing networks	All teachers and subject advisors	Project staff facilitate and coordinate the meetings and workshops of the subject committees held as part of the professional development of teachers. Such committees may be school-based, circuit- or even district-based. As technology is introduced, virtual and online "committees" making use of the technology platform are established. Circuit/district meetings are held once per quarter, after hours. The DBE and South African Council of Educators are negotiating incentives to be awarded to teachers attending professional development programmes	Trainers are required to be efficient coordinators to set up meetings in collaboration with the subject advisors and other education specialists at the district level.

5 Monitoring and evaluation

This section of the paper discusses the monitoring and evaluation (M&E) approach and the theory of change that underpins the interventions in the transformation of teaching and learning.

5.1 APPROACH TO M&E

The approach to formulating the theory and the subsequent monitoring of the implementation of the programme will be guided by the principles of Realist Evaluation as found in the work of Ray Pawson and Nick Tilley (2004). They state that the purpose of Realist Evaluation is to have an "explanatory quest" that does not ask "What works?" or "Does this programme work?", but rather: "What works for whom in what circumstances, and in what respects and how?"

As a first step, the realist approach requires that the intervention's underlying theory of change be articulated. This is a hallmark of the theory-driven evaluation tradition, to which the Realist Evaluation approach belongs.

The motivation for using such an approach is explained by Pawson and Tilley:

> Realists regard programmes as rather sophisticated social interactions set amidst a complex social reality. Science deals with intricacy by using an analytic framework to break down systems into their key components and processes. Realist evaluation stresses four key linked concepts for explaining and understanding programmes: 'mechanism', 'context', 'outcome pattern', and 'context-mechanism-outcome pattern configuration'.

From this it can be deduced that the Realist Approach provides a suitable analytical framework to monitor the changes brought about by the interventions ("measures") introduced. A brief overview of the key linked concepts helps explain this:

- **Context** (not to be confused with its literal meaning that often is associated with "locality") refers to the prevailing circumstances, conditions and situation experienced by the population that is targeted by the interventions.

  An understanding of the context therefore helps in explaining to what extent an intervention will work under prevailing conditions, or under which conditions a measure will produce the best outcomes.

  In terms of the ICT-Ed intervention, several components of *context* will help explain the differences in behaviour change *from* one school to another, and *within* the three schools (the learning laboratory of change or LLC).

- **Mechanism** refers to the actual actions and reactions triggered by the introduction of the intervention.

  The provision of tablets to learners invokes responses in them (i.e. learners act in response), which are explained as mechanisms (which could be positive or negative). For example, they could begin (even without any teaching) to play games or send messages, or even access interesting information stored on the device.

- The mechanisms or actions lead to **outcome patterns** that could match the desired intentions articulated in the programme theory (such as, "children will be able to access and use digital information").

  Pawson and Tilley explain that "outcome-patterns comprise the intended and unintended consequences of programmes, resulting from the activation of different mechanisms in different contexts".

- **Context-mechanism outcome pattern configurations**

  It is further explained that realist evaluation is about "theory testing and refinement. Context-mechanism outcome pattern configurations (CMOCs) comprise models indicating how programmes activate mechanisms amongst whom and in what conditions, to bring about alterations in behavioural or event or state regularities."

Although the foregoing is a rather simplified explanation, it serves to illustrate the possibilities that the realist approach presents to explain changes that an intervention invokes in the target population, and answers the question "what is going on in an intervention programme?" The method is attractive because it allows for the use of both qualitative and quantitative data, and lends itself to the use of a variety of methods (i.e. mixed methods). Given the scope of enquiry required for the LLC, the realist approach therefore presents a reasonable way forward.

5.2 THEORY OF CHANGE

Because the specific focus of the ILE project is the transformation of teaching and learning as the first step in *system transformation*, the reconfiguration of roles at school level takes centre stage. However, transformation and change take place at different levels and within different contexts. **Table 1** (see above) points to the theory of change with reference to the roles of the various stakeholders.

At the school level, the key changes expected include the following:

- A significant reduction in barriers to learning amongst learners in the project schools, thus allowing them to focus more on learning

- A caring and supportive school environment enabling all children to participate in learning

- Greater participation of learners in their own learning (i.e. taking responsibility for their own learning) using the additional resources made available to them

- A change in the role of the teacher from being a "transmitter of knowledge" to one who carefully plans, organizes and manages learning events, using a variety of relevant resources

- The lecture method of teaching replaced by the teacher responding to learners who present their solutions to carefully-planned tasks and problems that were set by the teacher

- The use of a variety of teaching and assessment approaches that respond to the diverse learning needs of learners with different abilities, learning styles and cognitive levels

- The use of technology as one of the many tools to access resources, and as a resource in itself

6 Programme theory

For the purposes of the MN1, a simple programme theory is presented as the first step.

> **IF** learners experiencing barriers to learning are identified and given access to appropriate support by trained teachers and appropriate structures within and outside the school,
> **THEN** they are more likely to attend school regularly, be more attentive in class and benefit from learning activities.

AND IF teachers have a thorough understanding of the subject content that they teach and are trained in learner-centred approaches to teach using a variety of resources that take into account the diverse learning needs of learners under their care,

THEN learners will be encouraged to take greater responsibility for their learning by engaging in carefully selected tasks using the relevant resources made available to them.

AND IF schools are equipped with appropriate interactive technology with the necessary digital content,

THEN learners and teachers will have access to technology-based teaching and learning resources.

AND IF teachers are adequately trained in using the technology to plan and present lessons using learner-centred approaches that encourage learners to use the technology to explore concepts, find relevant information and participate effectively in lessons,

THEN learners will have greater opportunities to access relevant resources and engage in self-learning activities.

AND IF teachers participate actively in and share their experiences at teacher professional development learning committees,

THEN they will reflect on their own practice, benefit from shared experiences, and gain confidence in their own content knowledge and innovative teaching skills.

AND IF learners and teachers are supported in establishing classrooms as innovative learning environments through classroom visits by master teachers,

THEN learners will improve their education achievement.

However, closer to when the ICT-Ed strand is implemented, this programme theory will need to be reworked in greater detail, in order to articulate the official programme theory in terms of the *context-mechanisms-outcomes patterns-configuration* (or CMOC). This is a major task, because all the intervention components will need to be included as configurations in CMOC terms. Three key components of the ICT-Ed intervention will be subjects of detailed scrutiny: i.e. (i) the teachers' classroom practice; (ii) teacher professional development (professional learning communities); (iii) learner participation in their own learning, with particular reference to technology-based teaching and learning.

This theory of change is expanded upon in in **Appendix 2**, where the desired outcomes and mechanisms to realize the "theory" are illustrated.

6.1   EVALUATING THE EFFECTIVENESS OF THE INTERVENTIONS

In addition to conducting in-depth M&E using the realist approach described above, the ILE project also presents the opportunity to conduct a comparison of results in two other comparable groups of schools, with the three LLC schools as the intervention group. For this purpose, a few key indicators will be used to compare the impact of the interventions, and include school attendance and drop out and learner performance (ANA results).

The nature of each group is briefly described below.

GROUP 1 (INTERVENTION GROUP)

This will comprise the three LLC schools, which will have the barriers to learning programme, and the transformation of teaching and learning intervention from the ICT-Ed component.

GROUP 2 (COMPARISON GROUP A)

This will comprise three schools, which will be similar to the intervention group in terms of locality, learner enrolment and profile, grades offered and learner performance in Grade 6. However, while these schools will have the ICT in Education component, they will not have the barriers to learning intervention.

GROUP 3 (COMPARISON GROUP B)

This will comprise three schools, which will be similar to the intervention group in terms of locality, learner enrolment and profile, grades offered and learner performance in Grade 6. However, these schools will be chosen from outside of the ILE intervention group of schools, and will not be involved in either the barriers to learning intervention or the transformation of teaching and learning programme (ICT-Ed).

The schools in the two comparison groups (i.e. Groups 2 and 3) have yet to be identified because schools to participate in the ICT-Ed project are still to be finalized.

To ensure that the results of the groups are comparable, the following will be done:

- Conduct advocacy meetings with the selected schools to obtain approval for the research, and agreement on the indicators and data to be collected
- Collect baseline data from the schools identified
- Collect data on an ongoing basis, using the indicators
- Hold reflection and reporting meetings to discuss findings
- Convene final sharing meeting to discuss the results and plan for future action

7   Risk Factors

As with any complex intervention programme, several risk factors are present that are likely to threaten the delay and/or derail smooth implementation of the programme. The following table summarizes the key factors likely to affect the interventions designed to transform teaching and learning.

TABLE 6: KEY RISK FACTORS AFFECTING INTERVENTION

Poor teacher attendance at training sessions	Full complement of teachers not being trained, leading to uneven programme delivery and results	Reschedule training times and logistics	Teachers travelling in lift clubs or by public transport often have to leave training sessions early or miss their lifts. Teacher apathy can be an issue.
Delays in technology installations	Delay in programme implementation	Re-sequence training activities to ensure basic training in content and teaching skills continue until technology is installed	Funding arrangements for high cost technology installations often take time.
Poor buy-in from stake-holders	Poor attendance at events and non-completion of activities, leading to delays and non-achievement of credible results	Need to have ongoing advocacy and consultation with stake-holders, ensuring that processes are participatory If necessary, redo advocacy to show value and relevance to the beneficiaries and stakeholders.	The initial advocacy and clear information dis-semination sessions are essential for getting meaningful partici-pation: this therefore needs to be done well.
Industrial action by teacher unions	Halts implemen-tation and leads to delays achievement of results	Re-scheduling of activities Focusing on the key and essential activities	These are unpredictable and may lead to weeks or months of delays because schools are inaccessible. When they do resume, they use out-of-school time for catch-up programmes.

8   Conclusion

This monitoring note attempts to present a clearer picture of the LLC. The proposed realist approach in monitoring the LLC has been selected because of the complex nature of the project and the need to explain outcome patterns, many of them expected to be quite unpredictable.

In the table on the mechanisms and outcome patterns (see **Appendix 2**), reference is only made to the "positive". However, negative mechanisms and outcome patterns are also possible. It is important therefore, that an approach is selected that can go further than just saying whether a programme works or not. There is a need to explain both predicted and unexpected outcomes in a rational way. The realistic approach adopted also accommodates different research methods and approaches. In the ILE project, it is therefore possible to use the three schools where intensive M&E is done as the "experimental" group, while using a selection of schools of similar characteristics that will not have the interventions as the "control" group, so that the effect of

the interventions can be compared. Key indicators (such as learner attendance, learner performance, and learner participation) will be used as the basis for the comparison.

References

Department of Basic Education [DBE] (2010) *Curriculum and Assessment Policy Statements (CAPS)*. Pretoria: DBE.

Department of Education [DoE] (2004) *White Paper on e-Education: Transforming Learning and Teaching through ICT*. Pretoria: DoE.

Ford M & Botha A (2010) *A Pragmatic Framework for Integrating ICT into Education in South Africa*. Pretoria: CSIR.

Mouton J (2012) M Phil Module 1: University of Stellenbosch.

OECD (2009) *Teaching Practices, Teachers' Beliefs and Attitudes in Creating Effective Teaching and Learning Environments: First Results from TALIS*.

Pawson R & Tilley N (1997) *Realistic Evaluation*. London: Sage.

Appendices

Appendix 1: The Project Steering Committee terms of reference

Appendix 2: Outcomes and mechanisms.

Appendix 1: The Project Steering Committee terms of reference

COMPOSITION

The PSC is made up of members from:

- The Department of Education, Umlazi District
  - ➢ representation from the relevant directorates in the Provincial Office (e.g. IE, Teacher Development, Curriculum GET)
  - ➢ Circuit managers from the circuits of the participant schools
  - ➢ Representative of the principals of participating schools
  - ➢ Representative of the SGB of the participating schools
- Representative of the Investment Partner (Tshikululu Social Investment)
- Representatives of the implementing partner organisations (PMDP, CIE and MIET Africa)
- Representative of people with disabilities from the participant school communities
- Teacher Union representatives

PROPOSED ROLES AND FUNCTIONS

The PSC is primarily responsible for the strategic oversight of the project planning, implementation, monitoring and evaluation (M & E) of, and reporting on the project, ensuring that all terms and conditions relating to the project agreement are adhered to. More specifically the PSC will

- Oversee the project implementation;
- Lead the advocacy for the project within the different units within the District;
- Ensure that relevant units within the DoE support project implementation through close monitoring of activities at school, district and community level;
- Work towards integration of the project activities into the different units' action plans (for sustainability). In this regard the PSC will lead the development of a sustainability plan for the project beyond the currently funded programmes;
- Resolve challenges that may emerge in the course of project implementation
- Support the M&E activities of the project

REPORTING

- The PSC will report to District Manager and the Management Committee through the chairperson at least once a quarter;
- At PSC meetings, reporting on project implementation will be led by the district representatives of the different units assisted and supported by project implementing partners;

MEETINGS

- The PSC will meet once per quarter;
- The meetings of the PSC will be chaired by the District Manager or her/his designated representative responsible for the project

Appendix 2: Outcomes and mechanisms

Intervention / Measure	Predicted outcome	Effect / mechanisms	Possible outcome patterns	How changes are observed
Training of teachers to screen, identify and refer learners for support Establishment of structures and a network of support for learners with barriers	Improved and caring school environment and system to deal with barriers to learning	Teachers screen learners for barriers to learning using appropriate tools; Teachers develop individual support plans for learners experiencing barriers and develop strategies to address barriers	Learners with barriers being assessed timeously and accessing support Learners' attendance improves and show greater interest commitment to learning	ILST records of vulnerable children.
Training of teachers in subject content and teaching skills, using technology where available	Raised level of confidence of teachers in their knowledge and skills	Teachers use techniques learnt to prepare innovative learner-centred lessons Teachers explore more challenging content for lessons	Learner participation in lessons increase Greater interest shown by learners in their lessons Learners encouraged to explore additional sources to enhance their understanding Improved test scores	Classroom observations Test scores
Infrastructure estab-lishment of appropriate technology	Improved access to technology based resources	Learners play games Learners use tablets to read stories Teachers plan lessons incorporating technology	Increased use of technology for teaching and learning Improved test scores	Electronic tracking of technology use Test scores
Training of teachers in technology use	Enhanced capacity and confidence in using technology to plan and deliver lessons	Teachers use technology to access teaching and learning resources Use technology to track learner progress Teachers use computers to play games Teachers use technology to do private	Improved content knowledge of teachers Improved coverage of the curriculum in the classroom Greater learner participation in their lessons	Teacher assessments Classroom observations Monitoring of learner books

Intervention / Measure	Predicted outcome	Effect / mechanisms	Possible outcome patterns	How changes are observed
		work or view undesirable materials		
Establishment of and teacher participation in professional learning communities	Increased exposure to diverse and best practices; sense of belonging to a professional community	Teachers meet and share their experiences and methods Use networking to organize smart ways of lessening their teaching burden	Improved sharing of learning and experiences leading to improved classroom practice Learners benefit from improved teaching resources and teaching skills	Teacher attendance at meetings and workshops Number of networks established Number of teachers participating in professional learning communities
Classroom based support by master teachers	Improved access to guidance and support from a specialist	Teachers identify areas of weakness and learning gaps and seek support Teachers use the support person as mentor	Improved teaching skills Improved curriculum delivery Improved learner performance	Test scores Master teacher reports Electronic tracking of curriculum