

## Chapter 5

### Findings and discussion of results

#### How do systemic structures respond to e-education policy to influence teaching and learning?

##### 5.1 Introduction

In the previous chapter I reported teachers' narratives of how they responded and experienced the implementation of the e-education policy in their classroom practice. In this chapter I present and illustrate the results that emanated from the data collected at various systemic levels, beginning with the school and its institutional practice. In setting boundaries around the school I report on the principal as a gatekeeper to the implementation of the e-education policy. I then backtrack through the system, reporting on two important systemic structures beyond the school's boundary, namely the district office and the provincial education department. At district level I report on the experiences of the head of the e-learning unit namely the chief education specialist (CES). At provincial level, I report on the experiences of two officials in the e-learning directorate, the deputy chief education specialist (DCES) and the chief education specialist (CES). In this regard my inquiry was guided by Elmore's (1980) backward mapping approach (refer to Chapter 3) which focuses on two specific themes, namely; the ability of each unit within the system to affect the behaviour of teachers who are the target of the implementation of the e-education policy, and the resources required by each unit within the system to have that effect.

##### 5.2 Drawing boundaries around schools

###### 5.2.1 Ability of the school to change the behaviour of teachers to implement policy

The theme drawing boundaries around the school focuses mainly on the experiences of the principal as unit of analysis. The focus is on the various institutional practices relating to the manner in which participating principals manage their schools. I report on the rationale of the school for using ICT for administrative purposes, institutional

practice in the use of ICT, the school’s policy relating to the use of ICT, monitoring and evaluation of ICT use in classroom practice and the provisioning of resources for the school for teaching and learning.

### 5.2.1.1 ICT school practice and leadership

*“You see somewhere you got to force it down otherwise you know what, it becomes a toy you play with it for a month, and then it’s shelved.”*

<i>Inclusion Criteria</i>	Ethos and climate of school; School culture; School policies; School leadership; School governing body support; School administrative functions; ICT curriculum integration. School collaborative practice.
<i>Exclusion Criteria</i>	Teachers’ administrative practices; Systemic support; Socio-economic factors; District administrative processes.

In most schools the implementation of ane-education policy began with the primary need to change the administrative functioning of the school in a quest for school efficiency and effectiveness. The school practice seemed to support teachers using ICT for administrative purposes in their curriculum planning, preparation of work, lesson planning and assessment recording (See 4.3.7). Depending on the level of administrative support required by the principal, particular teachers were often tasked with additional ICT administrative duty such as updating of the database of the school, placing resource orders for district ratification, procurement of teaching and learning materials, presentation of school budget, conducting annual surveys using customised databases or creating poll registers for school governing body elections.

At the former model C school the principal described the curriculum software support that teachers in his school obtained from the ICT resource centre of the school. Teachers are encouraged to use the ICT curriculum learning support to supplement their teaching and assessment practice. The school made a significant investment to acquire ICT curriculum content to support the use of ICT by teachers in their teaching practice. The former model C principal explained the software curriculum support to teachers.

*Everything is curriculum based, ja, ja. And then of course there’s the basic development programs of design and making question papers.*

*P 8: School B - Principal.txt - 8:75 (114:117)*

In the well resourced independent school, management also seemed to give teachers required support without prescribing the use of ICT. However, the use of ICT seemingly contributes to the annual performance management appraisal of teachers. In this manner the school was arguably applied its performance management policy to subtly coerce teachers to use ICT in their teaching practice. The principal of the school tactfully related the school's support of teachers in this regard.

*The school has also made it [ICT] available for the teachers whether they use it or not is their prerogative... Yes, it plays a role when they have to write the personal development programme at the end of the year.*

*P 9: School C - Deputy Principal.txt - 9:8 (59:61)*

The principal of the inner city school seemingly also incorporated the use of ICT as a criterion for assessing teacher professional performance namely, the integrated quality management system (IQMS). Both inner city school and the independent school exercised control by instituting a policy requirement that ICT is incorporated into the daily practice of teachers. On enquiring how these schools ensured that their policy is being implemented by teachers, the public school appeared to follow-through in terms of monitoring the implementation of ICT in the classroom practice of the teacher.

Two schools in this study namely, the former model C school and the independent school identified their internal policy as a means of driving the implementation of ICT into the daily practice of teachers. The excerpts below illustrate that the two principals concurred with each other with regard to ICT curriculum integration policy.

*Ja, so you must change your inside system as well so they [teachers] must realize that I won't fit into the system if I cannot operate this [ICT]... So the only thing that can keep it going is to create the need for that and also to have a policy that enforces the continuous use in the classes, ja.*

*P 8: School B - Principal.txt - 8:84 (199:200)*

*The ICT programme is broad but that was one of the key goals. It has been incorporated into the curriculum and it's not optional.*

*P 9: School C - Deputy Principal.txt - 9:8 (59:61)*

Both the independent school and the inner city school acknowledged that the huge (one of the largest budget allocations) financial commitment of the schools to have ICT resources should yield a return on investment, namely improved teaching and learning. The former model C principal explained his notion on achieving a ‘return on investment’:

*You see that's money driven, when you invest a lot of money into something you want a return. Our return is academic excellence. So with our class visits, with our IQMS, with our academic visits to classes we want to see those lessons, we paying for. Ja, no definitely, purely a financial decision. You see somewhere you got to force it down otherwise you know what it becomes a toy you play with it for a month, and then its shelved. So the only thing that can keep it going is to create the need for that and also to have a policy that enforces the continuous use in the classes, ja.*  
*P 8: School B - Principal.txt - 8:116 (427:430) 8:115 (418:423)*

The leadership of principals in this sample of schools demonstrated their ability to change the behaviour of teachers through various initiatives. These initiatives, school policy, school administrative demands and appropriate channels of communication played out in the institutional practice of the school and thus paved the way for teachers to become exposed to intentions of the school's e-education policy. The principal of the inner city school explicated the ICT policy demands placed on teachers in respect of completion and submission of learner assessments.

*With your policy you also got a hold on what's happening in the classroom [holds his hand in a fist position – representing policy], if the policy says marks must be e-mailed, assessments must be done in the computer centre and things like that...I just say I take no marks anymore unless you e-mail it to me. Your assessment comes via e-mail or I don't see it. I don't sign it off... Then I say right take your time, you have the whole weekend, do it and e-mail it. I check it, I approve it, I e-mail it back. Easy, because when you start using you start understanding it, and the more you use it, the more easier it becomes.*  
*P 8: School B - Principal.txt - 8:86(200:208): 8:104 (346:348)*

The principal of the independent school illustrated that the need for effective communication was the main driver to use ICT in the administration of the school. In

his response he explained how the use of ICT in the administrative functioning of the school facilitated teacher access to policy documents and official resources.

*As I said, it's a great communication tool if you are purely using it for work e.g. checking email after class is so easy and instant. You don't have to wait long for response. It has revolutionised the workplace from management point of view...Staff wise, communication is the primary reason we've had to put a computer on every table for each teacher and everyone can access a number of documents. In senior prep we've included all the school policies ranging from sports to academics to social and government policy so all those documentation is available.*  
*P 9: School C - Deputy Principal.txt - 9:39 (190:19); 9:1 (31:35)*

All participating schools used ICT as an administrative tool to a greater or lesser extent, but principally as a means to store and retrieve learner data. The two principals in this sample of public schools expanded on their administrative use of ICT. Most of the ICT administrative processes seemed to be school initiated and some are as a result of compliance with the relevant district or provincial requirement. The principals of the inner city school and independent school tended to lead by example in the manner in which they administered their schools (see above excerpts). Firstly, these principals were apparently active users of ICT in their daily practice (see above excerpts). Secondly, principals created an opportunity for access to appropriate technology in order to enhance school administrative processes.

Though the principal at the township school was not proficient in the use of computers or ICT, he nevertheless seemed to have transformed the administration system of the school to be ICT compliant. The technology teacher at the same school expressed his approval of the progress his principal had made in transforming the administrative system of the school.

*I really appreciate that his [Principal] head is screwed on, our admin of the school is 100 [100% ICT] and all that.*  
*P 1: School A - Teacher 1.txt - 1:51 (324:326)*

The principal at the former model C school cited one instance of how the use of ICT for administrative purposes has reduced his reliance on a paper-based approach.

*And you know what as a principal, the day you need a copy of this, you can't find it. You know it's somewhere, you just can't find it. Or suddenly the quintile money allocation, you know that you've had it, but it's gone. Now it's easy to get it. That's what we want to do now is scan those documents in and save it.*  
P 8: School B - Principal.txt - 8:191 (1107:1113).

Principals at the participating schools appeared to take different approaches towards the motivation of teachers to use ICT in their daily practice. In both public schools the principals seemed to encourage teachers to use ICT in their daily practice by attempting to reduce the burden of bureaucracy, paperwork and time. The principal of an inner city school narrated his concern of the paper load that burdens teachers, and offered ICT support as a means to assist teachers.

*We trying to do away with this paperwork. We got a big server so we can save a lot, all our documentation... That's time consuming, because the biggest thing with the teachers is time to find those things, to take it back to use it in the class again. That's why we are trying to make the process a bit shorter for them.*  
P 8: School B - Principal.txt - 8:77 (128:129)

At well resourced schools it is acceptable practice that various secretaries are employed to assist support and facilitate teacher's administrative duties. In this study the poorly resourced township school principal explained how the employment of a teacher-assistant led to the reduction of the administrative duties of teachers.

*May I just mention that we do have what we call teacher-assistant which is aimed at alleviating the paper load for our educators. There is a young girl who is helping out people at the foundation stage. In addition, we have issued every teacher with a memory stick*  
P 7: School A - Principal.txt - 7:15 (122:128)

### 5.2.1.2 Transforming schools – Creating an ethos of a shared vision

*“So we brought in young, energetic new dimension, new generation teachers into each grade... So we planned, that was a political game as well.”*

<i>Inclusion Criteria</i>	School employment strategies; Teacher induction and support; School based teacher training initiatives.
<i>Exclusion Criteria</i>	Department teacher In-service training initiatives; Teacher self-study initiatives; School clusters

All schools in this study seem to convey a similar message in their attempt to change the teacher corps at schools to reflect the ethos of the school. Principals appeared to hold the view that a change in the teaching staff to include ICT envisioned teachers would gradually lead to ICT being used for teaching and learning. In the township school, the principal and governing body made attempts to change the mind-set of teachers to accept ICT as a tool for teaching and learning. The principal elucidated his idea for motivating teachers.

As I usually tell the educators that none of us has a primus stove [oil-burning stove] in the kitchen so why do you want to use the blackboard. Think about it, you want a microwave. Don't work hard, work smart.  
School A: Principal.txt

At the independent school, teachers were supported with technology resources and encouraged to gradually adopt ICT in their teaching practice.

Yes, we encourage it. I don't think the policy that says we must use it but it does make learning more exciting and improves learners' attention. There is a section in policy that deals with use of information technology in your classes and teachers can use that as base to ask for ... a projector or whatever may be the case.  
School C: Principal.txt

However, at the inner city school the principal seemed to apply a more aggressive approach, by gradually trying to change the teaching staff with younger generation ICT competent teachers. He indicated that this strategy was aimed to gradually employ teachers that would change the ICT ethos of the school. The school governing body also created teaching post for each of the seven grades at the school, and filled these posts with 'younger generation teachers'. The principal of this inner city school described his staffing strategy and the support he gave to teachers.



*I think the big advantage was that our governing body said they were going to create a third class in each grade and they will appoint nine governing body teachers. So we brought in young, energetic new dimension, new generation teachers into each grade. So that helped us in a grade where there are three teachers, one is a young generation teacher. The old teacher is still there but, she is out-voted by the other two now. So we planned, that was a political game as well. To appoint teachers that have the skill, we've appointed a new teacher now. An excellent interview. We actually phoned on the intercom phone his principal and his deputy, ag HOD. Great references. fantastic guy, his been in our school for now four weeks, he has not presented one lesson. He says you guys are in a different world, I want to go back where I come from, I cannot work like this. We said hey, that's why you here because you are good, we will empower you with this, because it new for you. We will help you, because with your skills and with this...*

*P 8: School B - Principal.txt - 8:166 (849:855); (299:304)*

The same inner city school principal explained the recruitment drive of the school and the initiation of an intensive induction programme to support newly appointed teachers to use ICT in their teaching practice.

*Internally we have boffins here like Miss Bo, Vanie, VanZyl, ja those guys train them, ja whose got problems. We have an induction programme for new teachers, yes it takes us about three months the induction programme, to say this is how we do it.*

*P 8: School B - Principal.txt - 8:153 (784:789)*

School principals in this study seemed to realise the need to develop the capacity of their teachers from within their institutions to support ICT transformation at schools. In this regard, the independent school and the well resourced former model C school relied on their own resources to develop teachers in the use of ICT. Both schools identified the need and the importance of forging ahead and not to wait for external support (district) to develop their teachers. The principal of the independent school related his story on how his school developed capacity and supported teachers in ICT.

*Initially, they looked into teachers training and it was compulsory; this was for you to use it, we encourage it. That was one way of the measures we used to ensure that the teachers are proficient and make efficient use of computers in their classes.*

*P9: School C- Principal.txt.*



*(continued)*

*They also extended the computer rooms available in the school... A few years ago, we started with computer teacher but he couldn't cope entirely by himself with the integrating and networking of the school. He was sent to a training course at University of Pretoria.*

*P9: School C- Principal.txt.*

At the former model C school the deputy principal was recently employed by the school particularly for his ICT skills, and was responsible for teacher support in integrating ICT into the curriculum. This school also employed a full time technical assistant to support teachers with ICT technical issues. The principal of the school elaborated on the opportunities for support and training that the school management and teachers were exposed to.

*That's why we enjoy the KAD programme because once every three months, my whole management goes for management training... We create opportunities here, otherwise it comes from nowhere. We send our teachers quite often to seminars, courses things like that.*

*P 8: School B - Principal.txt - 8:152 (783:784)*

Contrary to other schools in this study, the township principal appeared to be dependent on district support for the training of teachers. The principal indicated that the professional development needs of teachers (for example ICT teacher training) are noted in the school improvement plan (SIP), which he expected the district office to follow through on providing training for teachers. The principal of the township school described how without appropriate teacher training the laptops that the school had acquired for teacher use, may lose their value.

*Let me mention why it's important to have these ICT equipment in your premises but having it in a township school is a challenge due to theft. The other challenge is- how many teachers would know how to use a laptop if we gave each one of them a laptop? So we have to come up with programmes to develop them, train them and stimulate them because chances are they will give the laptops to their children. Therefore, the challenge is training and development... That would be noted and presented to those who are supposed to hear it- the district must pick it up from there.*

*P6: School A- Principal.txt*

## 5.2.2 Resources required by schools to affect the behaviour of teachers to implement policy

In this sub-theme I report mostly on the narratives of the principals as they relate their experiences about issues that impede their ability to foster the use of ICT in their schools. I report on principals' concerns relating to the universal issue of lack of physical ICT resources, the need for ICT-curriculum based content resources, specific pedagogical training for their teachers, the need for policy guidelines, the challenge to recruit ICT competent teachers and changing mindsets of teachers.

### 5.2.2.1 ICT curriculum resources

*“I got the interactive whiteboard, we got the projector, we’ve got the lap-top, we’ve got the demo lesson now where’s the content?”*

<i>Inclusion Criteria</i>	ICT-curriculum integrated content. ICT curriculum based teaching and learning resources.
<i>Exclusion Criteria</i>	National curriculum policy; ICT attainment standards.

The initial response to resources required by the school, led most school principals including the principal of the affluent school to suggest that physical ICT resources were necessary for the successful implementation of the school-based e-education policy. The principal of the independent school responded to the need for ICT physical resources for teachers.

*I think most teachers would like to use the best piece equipment in their classroom, that is a given, but the problem it is expensive. We’d like to replace the old projectors with the newer ones because they pick up the internet. We have also identified a number of learning areas that would benefit from having a projector in the classroom. In terms of resources, that would make all the difference.*

*P 9: School C - Principal.txt - 8:122 (475:483)*

On deeper interrogation, school principals indicated other compelling issues that are necessary for curriculum delivery using ICT. The principal of the former model C school identified a need for appropriate ICT based curriculum content. Such content is

crucial for curriculum delivery and the support of teachers in the use of ICT in their classrooms (see next excerpt).

This principal of the former model C school seemed concerned about the lack of curriculum content that is available to schools to integrate ICT. He had through school means acquired ICT curriculum content for some learning areas from a private company specialising in educational software. He gave a detailed explanation of the hurdles he experienced in obtaining suitable ICT curriculum based content. He also described his frustration at the constant changing of the national curriculum policy.

*KAD [private company] said they will provide that [curriculum content], but they not coming to the table. So that they go to Britain and get those British things and they bring them in. And now we they trying to change it, but those things are patented and all that, and you can't just do that. That is one of the questions we have. The schools that took the math package with them, now three years later they say where's the lessons?...I got the interactive whiteboard, we got the projector, we've got the laptop, we've got the demo lesson now where's the content? Where's the content? So I think there's a big fuel in the development of the content? Once we can stabilize the curriculum, and know what the curriculum would be. I see in the newspapers now, in the primary school, they want to cut down to 4 or 5 learning areas...  
P 8: School B - Principal.txt - 8:122 (475:483);*

The same principal explained that because schools are desperate for relevant ICT curriculum-based content, principals and teachers seemed indiscriminate in their method of approach to access curriculum based material. He also expressed the desire for locally developed ICT curriculum content. In this regard, the principal apparently felt that the Department of Education should create an ICT curriculum development unit to develop such content, which could be packaged for school curriculum support.

*We try to make them all educational based. I think the problem at the moment is to find content...Ja, "The great escape", but we want to know, we want to know content, content, there's no content. The guysbuy any program that they can get their hands on, and it all in pounds and dollars and this and that. But I think a lot of the content can be developed here in our country. If there's people that geared for it Ja, ja. If the education department opens a section and say we are doing content for e-learning and they put the people there, and they equip them and everything, they can provide that. You get your lesson on a CD.  
P 8: School B - Principal.txt - 8:205 (1199:1203). (468:470)*

In contrast with the argument put forward by the principal of the inner city school above, the principal of the independent school seemed to suggest that schools and teachers in particular should change their mindsets and not be ‘curriculum bound’. He related his point of view:

*There are so many people who are curriculum bound especially this time of the year because they feel as though they don't have the time to teach. That is where a new mind shift needs to happen*  
P 9: School C - Deputy Principal.txt - 9:42 (216:219)

Teachers as classroom practitioners supported the principals’ view in respect of the need for appropriate ICT based curriculum content. An inner city school teacher suggested that software and web-resources should be given to schools by the district office, in the same way in which textbooks are evaluated and recommended by the district.

*And then offering us and say you know how to work a computer, here's the education software you can, give a list of educational software you [District] evaluated and say these are the one's we went through and we think these are the one's that are excellent... Ja, just like the way they do with textbooks. Or give a list of open source websites that's accessible to the teachers, that they actually went through and say we've put our stamp of approval on it.*  
P 4: School B - Teacher 2.txt - 4:141 (1089:1091) (1093:1096)

### 5.2.2.2 The need for ICT competent teachers and capacity building

***“Teachers have resigned they left. They just said you know what I'm not in for this... And there must be training, because a lot of our people are not trained, our people come from disadvantaged areas where this does not exist.”***

<i>Inclusion Criteria</i>	ICT teacher competence, knowledge, skills and expertise in the use of ICT. Teacher ICT professional and academic qualifications. Pre-service training; School-based capacity building initiatives for in-service teachers.
<i>Exclusion Criteria</i>	Learning areas competencies; Teachers as self learners; Teacher's self initiated study. District, province and national training initiatives

A resource required by all schools that emerged from the voices of teachers and school principals is the dire need for ICT competent teachers that are entering the teaching profession. Both principals of the public schools indicated that new recruits that are skilled or qualified in ICT are in short supply. School principals seemed to be hard pressed to identify new teacher recruits that are ICT competent or at least have the will to use ICT in their teaching practice. The principal of an inner city school expressed the issues at play in trying to recruit teachers that are ICT competent.

*Ja you know challenges like to convince people[teachers] that it's important, that there's a need for that. Challenge is to find well equipped people...you might have this but the skills are not there, or the passion is not there. Then it's [computers] locked in the safe, I mean it won't be used...ja, you know what, over the last three years, we really started with this. Teachers have resigned they left. They just said you know what I'm not in for this.*

*P8: Principal School B*

Fundamental to the need for competent teachers is the issue of ICT teacher training for in-service and pre-service teachers. The voices from all participants in this study appeared to concur with the notion that higher education teacher training is not developing ICT competent teachers. The township principal explained his idea of producing ICT skilled teachers at higher education institutions.

*I think so and I think that when it gets to the training of educators, one should introduce somewhere in the course whether as a minor or a major to introduce it a requirement for teaching before they graduate from varsity.*

*P7: School A- Principal.txt*

An Afrikaans teacher studying towards a postgraduate degree and employed at the independent school mainly to provide technical and pedagogical support to other teachers in the use of ICT, voiced his opinion with respect to pre-service teacher training at a higher education institution.

*I've got a concern that students coming from Tukkies [meaning University of Pretoria], that they are just oblivious to the technology in the classroom, and I believe that is the breeding ground where it should really start at university level. So that when a student comes in they should actually be the drivers...but the teachers going into the schools are not geared [very emphatic] to do those things yet.*

*P 5: School C - Teacher 1.txt - 5:70 (586:591)*

All school principals in this study recognised the need for teacher training, particularly in the pedagogical use of ICT. In-service teachers seemed to have surpassed the ICT literacy stage and they now desired specialised training in pedagogical methods, time management to balance the integration of ICT with curriculum delivery and advanced ICT skills. The technology teacher in the township school expressed his excitement to learn how to use ICT more effectively in his teaching practice.

*Yes, all I'm doing on excel is my recording [meaning administrative task] But it would be good to see how we can incorporate excel in teaching, because I know that many people love excel...[excited] oh, oh I can see it. It opens a big door for teachers.*

*School A: Teacher 1.txt.*

Participating principals appeared to require teachers to become more skilled in the manner in which they employed ICT in their daily teaching and learning practice. The former model C school principal narrated his vision of an ICT skilled teacher emerging from university study.

*This is a tool and everything around it is a tool, they [teachers] must just use it, that's why training is very important. I would say over the next 3-4 years I would expect that we appoint coming from the university or anywhere, that walks into my class and I say there's the network point there's the laptop, there's it, thank you very much can I just quickly transfer my lesson to my laptop [illustrates the process using his cell phone and the laptop]. That's how I see it. If the HOD says where's your prep, I just say can I transfer it quickly, where's your laptop, blue tooth on alright there's my prep...*

*School B- Principal.txt*

The voices of the principals in this study revealed various degrees of reliance on systemic support for teacher training. In the case of the township school their need for support seemed to be one of desperation. The principal explained that though teachers should take responsibility for their own development, he expected the department of education to facilitate the training of teachers.



*And also for the teachers already in the working environment, they [District] should come up with interesting course or seminar or workshop to add to their teaching credit. I don't think the department has been focusing in that... Obviously the responsibility starts with us; it's about where we want to go... the teachers will raise objections. So try and help yourself out first and it's also the responsibility of the authority [Department of Education] for example... We are all teachers and we all need support.*

*School A: Principal.txt*

On the other hand, the inner city school and the independent school are apparently self reliant and less optimistic of support from district. Both of these schools seemed to provide in-house opportunity for teacher training. The former model C school principal elaborated on the training opportunities the school offered for new teacher recruits.

*We create opportunities here, otherwise it comes from nowhere. We send our teachers quite often to seminars, courses things like that. Internally we have boffins here like Miss Bo, Vanie, Van Zyl, ja those guys train them, ja whose got problems. We have an induction programme for new teachers, yes it takes us about three moths the induction programme, to say this is how we do it. Forget about where you come from 'this is how we do it', 'this is why we want it' and this is 'how we want it'. We make an effort, it's time consuming, it takes a lot of time.*

*School B: Principa.txt*

The principal of an independent school explained the need for training for all teachers in his school. The school has developed one teacher to champion the process of ICT integration into the curriculum by supporting teachers as and when they need support. Although the main task of this teacher is ICT support, this placed excessive strain on this teacher.

*At the moment, some of our staff would benefit from a training programme because there is only one person available and as much as he is willing to help, it becomes too much for one person... Certainly, there is need for teachers training...*

*P8: School C: Principal.txt*



A public school principal described the dire need for adequately skilled teachers. Although he is a principal of a well resourced inner city school, he seemed to realise the need for ICT training of all teachers, particularly those that are from disadvantaged communities.

*And there must be training, because a lot of our people are not trained, our people come from disadvantaged areas where this [ICT] does not exist. And even if you deliver this today there, it will not work because the guys are not skilled... You need to empower the guys and equip the guys to get them to use these things, because the more they use it the easier it becomes. And the easier it becomes the more you start experimenting with it, the more you experiment with it the more you discover which makes it much more easier.*

P:7 School B . Principal.txt

The township school principal explained the limitations he experienced in training teachers in the use of ICT. He described the Integrated Quality Management System (IQMS) process through which training needs of teachers was determined. The IQMS assessment instrument was used to record each teacher’s professional development needs, which were noted in the school improvement plan (SIP). The limited budget of the school would be used where possible for the professional development of some teachers, but not necessarily for ICT training. He expected the district office to react to the composite needs of the school as indicated in the school improvement plan and to provide training to teachers. He elaborated,

*You’ll assist with immediate support. Once again, I’ll refer to our budget; we do have a tab for development of educators. That would be noted and presented to those who are supposed to hear it- the district must pick it up from there.*

School A: Principal.txt

### 5.2.2.3 The need for ICT policy and policy guidelines

***“Look we’ve got that White paper, but something more better and more...that explains it better and more structured”***

<i>Inclusion Criteria</i>	Systemic policy support (department of education, provincial and district policy). Official circulars, memoranda and guidelines.
<i>Exclusion Criteria</i>	School’s policies and institutional support.

All three schools in the sample, through the voices of teachers and principals, appeared to desire ICT policy guidelines that are tangible. They did not seem to perceive the national e-education policy as a workable document. Even though teachers in all three schools were aware of the e-education policy and principals were unaware of the policy's existence, there appeared to be an outcry for more simplified policy guidelines for schools. A teacher of the former model C school expressed the sentiments of all schools with respect to the need for policy guidelines and support from district, province and national.

*Interviewer: When you and the principal spoke to me earlier you said 'there is so much that we can do but we do not know what must we do'*

*Teacher 1: Maybe set up a better syllabus, may have meetings. Say to all the teachers in the computer rooms we have a cluster meeting for you. Do this...Do This ... get ideas exchange ideas...That must come from the department. Look we've got that White paper, but something more better and more...that explains it better and more structured.*

*P 3: School B - Teacher 1.txt - 3:57 (702:715)*

Another teacher at the former model C school indicated a lack of guidelines from district. This teacher expressed a dire need for ICT integration policy guidelines that would enable her to teach effectively. She gave vent to her feelings of frustration.

*There needs to be a link. We don't know what they want, we making up as we go along. We using our own stuff... They don't give guidelines, I don't think it fair. I don't think many teachers, I don't think it's fair*

*P 4: School B - Teacher 2.txt - 4:135 (1075:1078); (1082:1084)*

Schools are seemingly on their own with respect to developing their ICT policy. All of the schools were at different levels of progress with the development of their own ICT policy: The independent school had a copy of their policy and immediately e-mailed it to me (See Appendix E5). The policy document however, is generic and effectively spells out acceptable behaviour for learners in the use of ICT. The document does not relate to issues of teaching and learning. The former model C school indicated that they are developing an ICT policy and "it's in the process of development and changing all the time", while the township school did not have an

ICT policy as reflected by the principal's plea 'we are heading towards that [ICT school policy] and may I request you to assist us please.'

In the narratives of the principals of all schools in this study, they implied their knowledge or lack of knowledge of the national e-education policy. None of the participating principals referred to the e-education policy in our discussions, either implicitly or explicitly, as a source document for their planning. The principal of the model C school seemed to be "waiting" for appropriate policy from the national department of education. He explained his anticipation of an e-education policy and district response to his inquiry.

*Interviewer: are there any provincial, national or district policy that you can turn to, to give you guidance for the school itself?*

*Principal; No, no. I often spoke to the IDSO, the lady who phoned me just now. But the answer we get lately is that you must do is right for your school. And do what's best for your learners. I think once the Gauteng-on-line computers are installed and are operational, there will be a policy from the top coming down for that.*

*P 8: School B - Principal.txt - 8:105 (355:362)*

The principal of an independent school suggested that though the e-education policy may exist, he had no knowledge of it. He acknowledged that there may be gaps in the implementation of the e-education policy which the independent school had ignored and forged ahead.

*It's [e-education policy] probably available out there but we are unaware. I know that when I was in a government school, I'd get those documents and I'd end up just filing them away. Nowadays, we are so reliant on IT that I'm not sure if I have seen the white paper policy document {laughing}. However, there are missing gaps since inception and maybe in independent schools we can forge ahead with what the government has prescribed as a periphery. We get more leeway in terms of what is best for the learners.*

*P 9: School C - Deputy Principal.txt - 9:28 (150:154)*

The principal of the inner city school expressed his concern that the district office remained at a distance in term of policy support. He elucidated the lack of policy guidelines, directives and support that are expected from a district office.

*Ja, I think the time is right now for the district to play a bigger role. To come forward and say guys we are implementing Gauteng-on-line centres in your schools, we are starting this Math, Math Literacy, we are starting this and this, this is the bigger picture. This is where we are now this is where we want to go, and this is how we are going to get there. Some of you guys are almost there; some of you guys haven't started. This is what we are going to do. There's no big picture, that's the way to go, because it's [ICT] there already, they are not using it.*

*P 8: School B - Principal.txt - 8:195 (1149:1155)*

The same principal described his frustration at not being able to access sufficient help in setting up the school computer laboratory (provincially funded). He put across his uneasiness with not knowing whether he is proceeding correctly in creating an e-learning school, but at the same time acknowledged by district for his ICT progress.

*When the Gauteng-on-line came here we could not find a person that could advise us. The what? The where? The how? What must we do with that? What is it used for? Nobody can tell us... We get a lot of support, in a way of 'we like what we see', 'we like what you do' [Pause] And we get the blessing of what we do and how we do, but nothing else, there is nothing [qualifies his opinion], I don't think there is anything [reaffirms].*

*P 8: School B - Principal.txt - 8:183 (1053:1059)*

### **5.3 Beyond the boundary of the school**

#### **5.3.1 The ability of district and province to affect the behaviour of teachers to implement policy**

In this sub-theme I focus on the capacity of the systemic structures of the district and provincial education departments to influence the behaviour of teachers towards implementation of the e-education policy.

##### **5.3.1.1 District and province ICT administrative directives**

*"That's why the course was here, they [district] don't take paperwork anymore... They say from now on you will be doing it like that."*

<i>Inclusion Criteria</i>	District's ICT administrative processes; District's ICT administrative training and support.
<i>Exclusion Criteria</i>	School's administrative initiatives and processes.

This sub-category is defined by administrative directives taken by systemic levels to persuade schools to adhere to policy requirements. The district has indirectly changed the behaviour of teachers in relation to the implementation of the e-education policy by enforcing schools to adhere to ICT enabled administrative processes. At most public schools teachers are apparently tasked with this administration responsibility and are often clustered for software ICT training by the district office. In other administrative functions schools are obliged to complete the annual survey, which is a comprehensive electronic database of the school's teaching and non-teaching staff, learner population, building audit, physical resources and an inventory of ICT equipment.

The district also enforced the use of a district supplied software package in schools for learner data, curriculum planning, financial control and school time-table planning. The township school principal described the purpose of this program, for which teachers or secretaries receive appropriate training.

We are linked to this SAMS programme which in a nutshell refers to the recording of information of learners. It is in some way linked to that ...[internet], it's a data capturing programme as well as the annual survey that we are doing via .... Our financial system is also in the system and we use Pastel programme.

P 7: School A - Principal.txt - 7:8 (73:76) (78:82)

The principal of the former model C school described the district's administrative demand that the procurement of learning support material is done electronically. He explained the use of his school as a centre for school cluster training in the use of the prescribed software for procurement of teaching and learning material.

*That's why the course was here, they [district] don't take paperwork anymore. They've got a format it's on the computer, you've got to complete it and e-mail it.*

P 8: School B - Principal.txt - 8:190 (1093:1097)

*(continued)*

*They don't want papers anymore. That's why they had all the media centre teachers, and all the teachers working with textbooks and the retrieval of books and the ordering of books. They say from now on you will be doing it like that.  
P 8: School B - Principal.txt - 8:190 (1093:1097)*

The technology teacher at the township school was tasked with the procurement of teaching and learning support materials. He narrated how he coped with this administrative duty while having to teach at the same time.

*Let me come back to the LTSM [learning-teaching support material] part. I am currently busy with placing book orders for the entire school so I have ample time to do this because I do my things on the computer. I can make copies of my notes and give it to my learners to continue as I am busy working with the internet. We don't have a lot of admin help so we have to do it, yourself.*

### **5.3.2 Resources required by district and province to affect the behaviour of teachers to implement policy**

In this sub-theme I focus on resources that the district and provincial education department may find necessary in bringing about change in the behaviour of teachers in the implementation of the e-education policy. The following sub-categories were evident from the coding of data, and these are the need for policy guidelines and channels of communication, guidelines for ICT curriculum integration and ICT assessment levels, district capacity and competence to monitor and evaluate implementation of e-education policy, the need for a shared vision and unified strategy, the need for ICT willing schools and ICT teacher training.

#### **5.3.2.1 The need for ICT policy, policy guidelines and effective channels of communication**

*“The e-education policy is actually is the bible...just preaching the documents that we adopted from the department [National]”, “I don't blame those teachers if they haven't seen it [e-education policy], these policy documents.”*

<i>Inclusion Criteria</i>	Provincial and national ICT policy guidelines; Systemic channels of communicating the e-education policy.
<i>Exclusion Criteria</i>	School ICT policy; School or teacher's personal interest or access to the e-education policy; Schools channel of communication of the e-education policy to parents; cluster and cascade collaboration

- **Adopting the e-education policy**

The provincial department of education and the district office seemed to speak with one voice in their attempt to explicate the lack of their own e-education policy initiatives. Both systemic levels did not appear to have developed their own ICT education policy or policy guidelines that could be used to portray and simplify the mandate of the e-education policy to schools. The district office chief e-learning specialist responded to the issue of a district ICT policy as follows:

*Interviewer: Does district have its own ICT policy?*

*District Official: [very long pause] Eh...not necessarily. We just preaching the documents that we adopted from the department.*

*Interviewer: Which documents would that be?*

*District Official: The e-Education policy, obviously. Which is our bible, you know what ever we develop even in our operational plans. That's is where we take our , our, all our operational objectives.*

P10: District.txt

At both district and provincialsystemic levels the education department officials reported that they have “adopted” and “aligned” their directorates to the national e-education policy. The e-learning directorate at provincial level appeared to be fully conversant with the process of creating mandated policy. Despite this, the provincial e-learning directorate apparently did not have an e-education policy that drives the national e-education agenda, nor did it have policy to guide districts’ e-learning directorates.

The same can be said about the district office, in that district has also adopted the national e-education policy and relied on this document as is evident from her words “the e-education policy is actually is the bible”.The chief education specialist (CES) offered an explanation for the e-learning directorate’s apparent policy deficiency.





*CES: Before you [laughs] In developing our policy, ok we take the national we match the provincial document you know, because that's the province, we having the premiers office, still coming with their own vision, coming with their own strategy, to make sure we align the provincial aims or objectives and goals with those of National's, and then we mix the two and come up with our own policy. So that's the process that has been started, that's the policy that's going to ensure it's our policy, and...*

*Interviewer: How far is that process in place at the moment? In developing your own policy?*

*Interviewer: [silence]... Is it in the process, is it reaching finalization, is it in the process? Is it in the pipeline?*

*CES: How? We always sit at the ground stage. Already we have one circular that is approved.*

*P12: Province.txt*

While district and province find their feet in establishing their own e-education policy, these systemic structures seemed to act merely as a conduit for the national e-education policy. School teachers, however expressed a dire need for clear policy guidelines in order to implement the e-education policy (See 5.2.2.4). Teachers appeared to seek more tangible policy guidelines and not simply an imposition of the national e-education policy. Ironically, provincial and district officials expected schools to have their own ICT or e-learning policy, but schools apparently did not have district or provincial policies to guide them. Schools on the other hand, seemingly did not mention or refer to any of the provincial circulars or district memos nor did they reference the national e-education policy in their official school e-learning policy document (see Addendum E).

At district level, the e-learning specialist suggested that the objectives and mission statement of the e-learning directorate (refer to Addendum E7) that were used at seminars should be clearly understood by schools. However, schools are looking to district for making the e-education policy clearer for them to understand and implement. In this regard neither the district office nor the provincial e-learning directorate appeared to have produced any policy guidelines to schools that simplified or elucidated the expectations of the national e-education policy. Schools seemed to be on their own to integrate the national curriculum policy with the e-education policy.

At both these systemic levels, there was an absence of policy directives to school that would guide the implementation of e-education policy in schools.

- **Communicating the e-education policy to schools**

Fundamental to the lack of adequate guiding policy was the issue of communicating the e-education policy to schools. This sub-category also focuses on the district and province's modus operandi of communicating all policies or e-education policy related circulars, guidelines or memoranda to schools. A crucial resource required by district and province was to improve the e-education policy channels of communication between province, district and school. All participating principals were seemingly unaware of the existence of e-education policy as they did not mention the policy as a resource document. Contrary to the experience of principals, systemic structures beyond the schools' boundaries (district and province) indicate that all schools apparently have the e-education policy. The provincial deputy chief e-education officer explained their dilemma with respect to communicating the e-education policy to all relevant stakeholders at school.

*DCES: Normally when we go to schools, which is a problem generally with all the other policies. You go to the school, and ask them do you have this particular policy they say no, but when you probe you find that its there, [laughs out loud], you know. And, and but our case is to have educators where, all the educators are capable I mean are aware of what we are having and they implementing all the policies.*

*P11: Province Officer.txt*

The e-learning units of both district and province identified road-shows, seminars and conferences as the means to communicate the objectives of the e-education policy and showcase e-learning best practices. The provincial e-learning official claimed that many schools are far ahead in e-learning because of their exposure to these road shows. The provincial directorate suggested that road-shows allowed them to reach their target audience and communicate the e-education policy. The deputy chief education specialist (DCES) at provincial level elaborated on his confidence in road shows as a means to communicate the e-education policy and as a means to change the behaviour of teachers towards implementing the e-education policy.

*DCES: In terms of changing that behaviour of teachers, you see one thing that I had observed, before I joined Head Office, was what CES and the other members did was to do the road shows, road show in order advocate e-learning and district officials also did the shows with the schools, but it was not a once off thing, even now currently that programme is still running, where we still advocate this and this of ICT's.*

*P:12. Province.txt*

A teacher at the inner city school described how she apparently came to know about the existence of the nationale-education policy, through her participation in an e-learning exhibition organised by the local district's e-learning unit.

*Teacher 2: Yes, the white paper isn't familiar to all educators. I heard of the white paper when I went to e-learning exhibition station.*

*P 2: School A - Teacher 2.txt - 2:53 (413:416)*

The district e-learning official claimed that communicating the e-education policy to all stakeholders was a challenge. At district level the e-learning education specialist appeared to be rethinking the road-show or conference approach as means to communicate the e-education policy. According to her, road shows, seminars and conferences are limiting methods to communicate the e-education policy as they exposed only the e-learning champion teacher at the particular school to the policy and not all teachers. According to the district official, the selected teachers that represent their schools at these e-learning seminars and conferences did not expose all stakeholders at their schools to the e-education policy. This culminated in a gap in the way the e-education policy was supposed to be communicated.

Both district and province indicated that teachers who attend the e-learning conferences and district meetings tended to take the policy documents with them when they transferred from one school to another. The district e-learning official described her negative experience of using conferences as a means to communicate the e-education policy "Because this system of clusters and big conferences, I notice it does not work, much more hands on, individual approach, even if we can do two schools a year".

*Because this system of clusters and big conferences, I notice it does not work... Why, its because only one or two delegates [who attend the conference], and when they come back [top school]. The fact they say I [other teachers] did not get to attend the conference. I said people its time to connect with the schools, so they are yet to see us... Some of them might not even be aware that we exist as a unit, you see.*

*P 12: District.txt - 2:53 (413:416)*

- **Cascades and school clusters**

With regard to using the cascade system of communicating the e-education policy, the district and provincial e-learning units also stand divided in their view of its effectiveness. The provincial e-learning directorate appeared to be convinced that their cascade system is a process that provides ample opportunity for the e-education policy directives to be mediated effectively at all levels of the system. With the cascade system seemingly in place, provincial officials indicated that the e-education policy document *is* in every school. The provincial e-learning official explained the cascade process in communicating the policy.

*DCES: ...So we workshop these policies again. Thus it is cascaded down to the schools, via the clusters ok. So our facilitators at the district level have formed clusters, and that is cascaded down to the CELTs, the school's e-learning team and that's how our policies are being mediated in the province.*

*P12: Province.txt*

Contrary to the expectation of province's strategy on the formation of formal clusters (CELTS) in districts, the district officer did not seem convinced of its effectiveness. There seemed to be a mismatch in understanding between district and province in terms of the channels of communicating the e-education policy. The district official expressed empathy with teachers already overburdened with curriculum based clusters. She expressed her concern that clusters did not function as a means to inform schools about the e-education policy. She expressed her beliefs that the cascade and cluster systems of communicating the e-education policy are processes that did not work.

*Regardless of the fact that whenever I send out a memo, I say ICT the in brackets in full what it is. But not everybody get to read that memo. That is for me...the question of clusters information doesn't filter through, the cascading model it does not work [emphatic]. It does not work you see. I don't blame those teachers they haven't seen it, regardless of the memos that have gone to the schools, or the...the...these policy documents.  
P11: District Officer.txt - 11:116 (830:835)*

The district e-learning official apparently changed her strategy of communicating the e-education policy to schools. The e-learning district official proposed working with all stakeholders at individual schools to communicate the e-education policy. The e-learning unit seemingly embarked on a whole-school training approach, training one school at a time. The district official enthusiastically explained her new communication strategy.

*So, at this point in time, what we are doing, we are visiting schools and training the whole staff, on the e-Education policy... But with e-learning everybody have got to come onboard. So what we do, we go out we bring the school to a stand-still, the SGB, the educators, the clerks,  
P10: District.txt*

In this district strategy all stakeholders seemed to be targeted and exposed to the e-education policy. The whole-school training involved a one-hour PowerPoint presentation to all stakeholders. The participants in this workshop were given a hard copy of the PowerPoint presentation (see Appendix E7) and either a handout of the e-education policy or a websites address for schools to access the document. She related how the workshop unfolded.

*Then we give them a one-hour presentation, where we give them the whole background on the document [e-education policy]. We have prepared slides for them, we make copies we hand them out, we also give them hard-copies, but the hard copies because we don't have enough, we just give them to the HOD's [head of department]. Otherwise we just give them the web-site, because it is available on-line.  
P10: District.txt*

The main goal of the district official’s new approach to communicating the e-education policy is to prepare teachers for future workshops or training. She believed that the one-hour workshop would lay the foundation for teachers to understand the broader framework of the e-education policy.

*So that whenever we invite them for training, whenever we introduce ICT, they will understand the thinking you know, where we coming from, you know. They will understand the use of ICT’s within a broader framework of the policy that has been adopted by the department.*  
P10: District.txt

### 5.3.2.2 The establishment of ICT curriculum integration guidelines and ICT attainment levels

*“We still haven’t set those standards as a unit [district], not even as a department [province]”*

<i>Inclusion Criteria</i>	ICT curriculum integration guidelines and district support; ICT attainment levels
<i>Exclusion Criteria</i>	Teacher ICT qualifications

Participating schools seemed to be integrating ICT into the curriculum through their own interpretation and understanding. At all three schools in this study the observed lessons were indicative of teachers using ICT to teach the curriculum (See Appendix F1-F6, classroom observation video clips). Schools are trying to make sense of how to integrate ICT into the curriculum. Without any guiding policy on how to integrate ICT into the curriculum, schools are exploring this through teachers’ own initiatives.

Most schools and teachers have acquired their own ICT software and resources that are curriculum based and are learning through their own experiences of how to integrate ICT. The principal of the former model C school explains that the national curriculum policy is open to his interpretation and thus the opportunity to integrate ICT. He expressed his enthusiasm for ICT to be integrated in the core curriculum policy.

*Interviewer: The new NCS policy, would you say the NCS has catered for ICT integration?*

*Principal: No...it is, it is, its how you going to use it. I think it leans it more than ever before, that you can use it... No its not spelled out, its not there. But I think the way we do it and how we use it, when I think back now definitely more than ever before. Ja, the previous things were all referred back to a specific text book, its open now...It leads it more definitely, more than the old curriculum, or even when we first started with OBE, it was chaos, nobody knows what to do. Everybody just tries their own thing... I think it would be lovely for in a policy document for a learning area, at the end of each topic or there's 4or 5 websites where you can find more information on this or that. That will be fantastic, because that's what the teachers need..*

*P7: School B – Principal.txt*

District and provincial e-learning directorates did not appear to have guidelines to support teachers' attempts to integrate ICT into their teaching and learning. The lack of ICT curriculum integration policy or guidelines did not seem to capture the attention of systemic structures. The provincial e-learning directorate appeared to focus on ICT resources (software) and management issues (time-tabling). The DCES of the e-learning unit responded to ICT curriculum integration guidelines as follows:

*Interviewer: How does the province plan to encourage teachers to integrate ICT into the curriculum?*

*DCES: Well we've given out the draft document that we've got. We have made sure that each and every school they allocate a time table, they allocate a period on the time table where all learners will have access to that, but over and above we also got support structures in terms of our CELTS structures, our cluster e-learning team our clusters andour provincial e-learning officials they assist, they visit schools there thereafter again we say we also need to provide schools with some ICT resources, get curriculum program, that's another aspect which we can solve and make no mistake with that and we have already made our plan to support the e- teacher initiative project. So definitely*

*P11: District.txt*

All schools in this study have also developed their own ICT attainment levels (see Addendum G) appropriate for each phase in the school. Both district and provincial departments seemingly did not have established guidelines for ICT attainment levels. The district and provincial e-learning officials appeared to be seeking guidance to set ICT attainment levels. The district e-learning official explained that ICT



attainment standards have not been determined by the district office nor have they been developed by the provincial e-learning directorate.

*Interviewer: Does your unit have student attainment standards in terms of ICT? In other words do you have what you expect schools to teach their children?*

*District Official: Ja, not as yet. But I see that we are not going to be complete until we are able to do that, you know. We still haven't set those standards as a unit, not even as a department [provincial].*

*P11: District.txt*

The provincial e-learning chief education officer corroborated the utterances of the district officer in respect of ICT attainment levels for schools. The e-learning directorate seems to be searching for a solution for this deficiency, with the expectation that relevant research could provide a solution.

*Interviewer: Does this unit or directorate have student attainment levels in terms of ICT?*

*CES: You see at the moment, we are seeking research in this regard, we need a research, you know to guide us for some of the questions you are asking, so hopefully when we get a report we can implement it*

*P11: Province.txt*

### 5.3.2.3 The need for systemic competence and capacity in e-learning directorates

*“I’m beginning to study, you know. Yes, because people want to know, that you know your stuff...They need to know I’m an ICT co-ordinator who is knowledgeable...unfortunately we are a very small unit, hey...and I’ve only got three facilitators”*

<i>Inclusion Criteria</i>	District capacity to realise policy goals; District and province ICT qualifications, knowledge and skills; ICT Pedagogic know-how; District and provinces perceptions of ICT competence; Ability of the e-learning units at both district and provincial level to support schools; manpower resources and their capacity to engage in supporting schools; School perceptions of district and provincial E-learning officials competence;
<i>Exclusion Criteria</i>	Teacher’s capacity to realise policy; District and provincial’s perceptions of teachers ICT competency; Institutional support; Inter and Intra school collaborations to realise policy.

In this sub-category I focus on two complementary aspects of systemic competence and capacity. In the first instance I present various participants' views on the district's ICT professional competence and the support (or lack of support) that these systemic units offer to schools. Second I focus on human resource constraints (capacity) confronting district and province in respect of their support to schools.

- **District competence**

The voice of a district officer suggested that she needed to be acknowledged as a well resourced ICT person. The district official indicated that she had begun to further her studies in order to gain recognition from schools as an expert in the field of e-learning and in this way have her competence recognised by the schools. She made several utterances of the same words, apparently as a plight to be acknowledged as someone 'who knows what she is doing', her verbal protest seemingly being in response to the reaction she got from principals of schools. She also felt that there was a need for her to demonstrate through her current studies that she is an authority in the field of e-learning. The district official pointed out that the vision and mission statements (See Appendix E7) of the e-learning unit was of her own design and represented her motive to drive the e-education policy implementation process personally.

*District Official: I think first of all they need to look up to me as somebody who knows what she doing.*

*Interviewer: And how would that happen?*

*District Official: I'm beginning to study, you know [laughs]. Yes, because people what to know, that you know your stuff. When you are giving a workshop they want to know it's worthwhile...So, first of all people have got to know that you know what you doing. You know where you are trying to get them to. Make your objective and your vision very clear...we got our own slogan 'E-Learning Unit: creating smart schools'.*

*Interviewer: that is particular to your unit?*

*District Official: To me, you know. That is what I want to see happen. That is what is driving me. So, I think it is very important for people to know they are led by somebody who know what she seems to do. That's why I am very quick say I'm busy with my honours [laughs],*

*P:11. District.txt*

At both the district and provincial levels, the voices of the department of education's officials were in contrast to the experiences of teachers in classrooms and the

perceptions of principals. The district and provincial officials were adamant that they possessed the necessary competence to support schools, whilst schools were not confident that they could obtain help from these systemic units. A teacher at an independent school echoed the sentiment of all participant teachers in this study. He expressed the view that district officials apparently lack competence and capacity to support schools.

*No I would not. I would not, because if I see what is happening in government schools, we are way beyond that. And I don't think they have, this is a personal opinion, that they have the knowledge, expertise or the resources to be able to do it the way it should be done.*

*P 5: School C - Teacher 1.txt - 5:66 (558:563)*

Schools did not mention the district office or the provincial education department as a potential source of obtaining advice or capacity building support. In the report of the district e-learning specialist, she narrated her concern that district officials experienced situations in which schools and teachers in particular were above the ICT competence level of the district officials.

*District Officer: And than it's a little embarrassing for the facilitators sometimes when they go to schools, and they find that teachers are far ahead.*

*P10: District.txt*

In the excerpt that follows the provincial education department official seemed confident that district officials had the necessary competence to support schools. She raised her concern that the district e-learning unit did have the competence but not adequate human resource capacity to manage and support all schools.

*CES: It is not being fair on the district; we have people who are...that have expertise at the district level who will be able to assist them and so on and I have already indicated that we are having this problem of capacity, a person to share himself with so many schools. Hence we have the other strategies of clustering schools to promote collaboration, working and ja, ja, ja.*

*P11: Province.txt*

- **District capacity**

The e-learning chief education specialist at district office and the province e-learning directorate indicated that their lack of capacity to support schools stemmed from the limited human resources that were characteristic of their unit. Both district and provincial officials suggested that their ability to effect the e-learning policy was constrained by the fact that the e-learning units were manned by too few officials in relation to the number of schools that they had to service. Schools seemingly also acknowledged the inability of the district office to service all schools. The district official narrated her concern of the lack of adequate personnel in her unit.

*District Official: Unfortunately we are a very small unit, hey. We are only four people, myself who is the co-ordinator and who does the management work. And I've only got three facilitators. The strategies that I've adopted, first and foremost I believe that schools have to be informed about the policy [implying the e-Education policy], so that what ever action that we take [pause] you know, the schools will understand it within the broader framework of the department's thinking.  
P10: District.txt*

At provincial level the e-learning directorate officials indicated that their e-learning directorate was a newly established unit without sufficient staff to administer the implementation of the e-education policy in all schools. The deputy chief education officer articulated his concern:

*But I think it's also to do what the CES has said in terms of human resource, that we are running short of human resource. If you look at our district officials at most they have three e-learning officials and if you look the ratio of the e-learning official and the school and you check that against the number of school days that we've got, it's by chance that you can visit one school twice in a year, hence they looking to other schools for support.  
P11: Province.txt*

The provincial e-learning team recognise their human resource limitation. In order to overcome their inability to support schools the e-learning directorate at provincial level suggests the need to establish two separate, yet cohesive units within the

directorate that will facilitate different aspects of the e-learning policy mandate. Both, CES and DCES identified a need for the establishment of an e-learning policy development unit that would focus on policy development, and an e-learning policy implementation unit that would support, monitor and evaluate policy implementation. The e-learning official explains how the restructuring of the e-learning unit would promote better functioning.

*CES: Um... one, we [are] having a problem with the human resources. At the moment we are having one unit, at some point we thinking we need at least a minimum of two units ok, we should have the people who a focusing on policy, development of policy and all that ok. We should be having people who are looking at support of educators, because you know, sometimes, the team we have to have to develop policy, conference, support teachers, the two clash...human resources is one...  
P12: Province.txt*

According to the e-learning directorate the lack of human resource severely impacted on their ability to oversee the implementation of the e-education policy. At provincial level the education specialist also indicated that the e-learning directorate is a newly established unit and they have yet to monitor the implementation of the e-education policy. The provincial unit seemed unable to visit all schools and thus suggested that it was the district's responsibility to monitor and evaluate all schools in their district. The chief education officer elaborates on the problems she experiences with regard to monitoring the implementation of the e-education policy at schools.

*CES: Monitor implementation? Ahmm, The provincial thing that's discussed in our office, we having the district visits you know. And we have a formal meeting like this, trying to check properly of the processes of mediating the policies or implementation processes, we don't stop there. We go further to see schools and visit them to see how far you've gone. Offcourse if we do that for many schools we will not be able to finish. We having a set of schools which we visit, with the district, to see how far they've gone. So the expectation is there, the districts are doing their visits to schools too, to say after we have indicated what is suppose to be done and how its suppose to be done, and actually checked and monitored the implementation, they do the same.  
P12: Province.txt*

### 5.3.2.4 The need for a shared vision and unified strategy between e-learning and curriculum directorates at district and provincial levels

*“Compulsory is not the language that I would like to use. I would rather say it’s [e-education policy] a guideline.”, “Now they show you an aspect of the curriculum that you have never even heard of, they show you high tech stuff that you can’t even understand”, “We don’t have a specific budget we rely on other directorates, you have to go and beg”*

<i>Inclusion Criteria</i>	Coherent understanding and a common shared vision between the unit for curriculum development and the e-learning unit at both district and provincial systemic levels; systemic cohesion in implementing the e-education policy; District and provincial e-learning financial constraints.
<i>Exclusion Criteria</i>	The ICT policy and curriculum integration strategies of schools; School budget and infrastructure.

A prominent feature that emerged from the findings is the lack of a shared vision between the provincial education department, the district office and schools as to the extent to which the national e-education policy is to be implemented as authorised or mandated policy. The provincial e-learning official explains her understanding of the e-education policy. She seemed uncertain whether the e-education policy is an imposed policy that must be implemented at all systemic levels or whether the national e-education policy is merely a guideline.

*Interviewer: Is the policy compulsory, is it a guideline? What is your perception on implementing the national policy?*

*District Official: [long pause]Ja, compulsory is not the language that I would like to use. I would rather say it’s a guideline. And we’ve got to find a way of, you know, making it or making the teachers finding sense in using it, making more sense in using it. It’s my responsibility, as a co-ordinator, to make sure that schools buy in to it, I wouldn’t say compulsory as such.*

*P:10 District.txt*

At district level the e-learning chief official also suggested that the national e-education policy was not compulsory for implementation but rather served as a guideline to schools for implementation. She expressed her concern that schools and teachers must make sense of the document in order to implement the policy as a guideline.



*Interviewer: Is it [e-education policy]suppose to be implemented in schools? CES: It's a policy document so it no way usually [laughs hysterically], we are suppose to be implementing it, but at the same time we can say we having guideline document from national. And we also developing guidelines at provincial level for school to implement whatever you want in that document.*  
P:12 Province.txt

At school level, most schools in this study are seemingly implementing the e-education policy without realising that they are doing so. They seem to lack policy support and guidelines as to how to go about implementing the e-education policy. These schools are following their own professional understanding and interpretation of how ICT is to be gainfully employed within the school context. A principal of the former model C school explains his efforts to obtain policy support and expresses his expectation that policy will eventually follow from the systemic levels.

*Interviewer: are there any provincial, national or district policy that you can turn to, to give you guidance for the school itself?*  
*Principal: No, no. I often spike to Jorinha, the lady who phoned me just now. Because she's very knowledgeable and she really helps us a lot [referring to the district IDSO assigned to this school]. But the answer we get lately is that you must do is right for your school. And do what's best for your learners. I think once the Gauteng-on-line computers are installed and are operational, there will be a policy from the top coming down for that.*  
P7:School B Principal.txt

One of the main findings with regard to district and province, point to the disjuncture between the curriculum implementation and e-learning unit at both district and provincial levels. The unit for curriculum is staffed by experts in curriculum and the unit for e-learning comprises of specialists in e-learning. These units (e-learning and curriculum directorates) exist as separate system support entities and consequently there is a mismatch of intentions. At school level the teacher is expected to integrate ICT into his or her teaching and learning practice in delivering the curriculum. However the district curriculum officials inspect teachers on curriculum-based issues associated with the implementation of the national curriculum policy, whilst the e-



learning unit is supposed to provide support to schools in terms of the e-education policy. Hence, the officials from the curriculum unit focus exclusively on curriculum issues and do not seem to have competence in e-learning. The district e-learning official narrates the dilemma she experiences emanating from this division of purpose between the two units.

*District Official: As far as I am concerned we actually not supposed to be a separate directorate from curriculum. Because now I'm burning my own candle there, they are burning their own candle there...we tried to involve curriculum but it's not working, but we tried it out. But if we were in the same directorate, whenever anything from curriculum goes out, my wish is that it would be all integrated...So that's what we are doing it separately now.*

*P11: District.txt*

On the other hand the officials from the e-learning unit did not engage with curriculum delivery issues. This problem arises because they cannot address the use of ICT in teaching and learning without infringing on the curriculum unit. The district e-learning seemed to be focused on establishing schools e-learning infrastructure, though they are aware that the e-education policy goes beyond mere infrastructure issues.

Although the provincial e-learning chief education specialist expects that teachers not to view ICT as an 'add on' but rather an integral part of the curriculum for teaching and learning, the same lack of correspondence is playing out between the systemic curriculum unit and the e-learning unit. Furthermore the voices of the e-learning officials at district and provincial levels suggested that they would be able to exercise greater influence on schools if the e-learning unit were an integral part of the curriculum unit. The provincial chief e-learning specialist explains their strategy to resolve this dilemma.

*CES: One other angle that we emphasizing on is the collaboration with curriculum people so that educators should realize that e-learning is not an add-on you know, its part of the curriculum, ok*

*P11: Province.txt*

*(continued)*

*CES: So we training our curriculum facilitators so that when they go out to the schools to support educators they see it as one thing [with emphasis], you know. And when they go and do a lesson plan and see the type of resources they are could use in their classrooms, some of ICTs should be part of that, and that should be one thing and not e-learning on that side and curriculum on this side so we training our curriculum facilitators to integrate it.*

*P11: Province.txt*

Another major problem faced by the e-learning directorates at both system levels was the imposed budgetary constraints. At both the district and provincial levels the e-learning units operate only on an administrative budget. Since these units do not have their own monetary allocations as a resource to disburse to schools, they find their ability to function effectively constrained. The culmination of this lack of resource means that they are limited to support in ICT infrastructure or resources. The problem is exacerbated by the fact that government schools are also prevented from channelling their curriculum support budgets to include e-learning resources. The district e-learning specialist explains the limitations they experience in guiding schools to acquire appropriate ICT resources.

*District Official: The problem at this point in time in Gauteng, I think it's a problem that other provinces had, we don't have an allocation [meaning budget] for ICT like we have for LTSM, and this is something that I've always queried because for LTSM you've got your ILP allocation, you've got your Dinaledi allocation, you've got your kick-up allocation, I mean I remember there was a time that they[schools] were so flooded with that money, that they even approached me and said we are drowning under books[textbooks], we want to spend the money on ICT's. And I wrote a letter to the province and they respond to us 'No'*

*P12: District.txt*

The district e-learning official describes the initiatives and various attempts she had undertaken to support schools. She narrates her frustration at not being able to convince higher systemic authorities that ICT is an integral part of curriculum resources.



*District Official: Yes, it was ring fenced[term used to indicate that money cannot be used for any other purpose except what it was budgeted/intended for] and as far as they were concerned resources, curriculum resources don't include ICT. Even with that I have a problem, because if you read the Dinaledi policy and the Kidza policy, there is now where, where the policy says ICTs are excluded. It's actually broad, it says this allocation is to support, or to, to resource schools your know in terms of LTSM etc, you know whatever it is to support curriculum delivery. Yes, it was ring fenced[term used to indicate that money cannot be used for any other purpose except what it was budgeted/intended for] and as far as they were concerned resources, curriculum resources don't include ICT. Even with that I have a problem, because if you read the Dinaledi policy and the Kidza policy, there is now where, where the policy says ICTs are excluded. It's actually broad, it says this allocation is to support, or to, to resource schools your know in terms of LTSM etc, you know whatever it is to support curriculum delivery*

*P10: District.txt*

At both district and provincial level the e-learning specialists give vent to their frustration of not being able to adequately support schools. Their apparent financial constraints seemed to prevent them from effectively functioning as an e-learning unit to support school and teacher's needs. In the narrative of the province's e-learning specialist, she describes the e-learning unit's need for financial resources and financial independence to be able to support schools.

*CES: Another thing is, I am not sure whether I should say it is the issue of the budget. We don't have a specific budget of so many Rands for e-learning to buy equipment or even for training educators, we rely on other directorates to supply us with the budget so that we can do what we are suppose to be doing. Which is kind of strange because you have to go and beg and when the people say yes the we can run and do what we suppose to be doing. ...There's no budget that is particularly ring-fenced for e-learning.*

*P12: Province.txt*

### 5.3.2.5 The need for “ICT willing schools” - promoting school collaboration

*“Because our people never really believed that they could run their schools as world class institutions...hence we are advocating the use of cluster meetings to take place so they can support each other”*

<i>Inclusion Criteria</i>	School culture, climates and ethos; schools as change agents; schools as dynamic institutions, schools as socio-cultural institutions and communities of change; District and province’s school collaboration and partnerships initiatives. Cluster e-learning teams (CELTS), District school twinning initiatives.
<i>Exclusion Criteria</i>	Teacher professionalism; teachers competencies; teacher capacities; Schools’ initiatives for collaboration and partnerships. Teacher’s collaborative initiatives. School socio-cultural links and affiliations.

One particular resource that district apparently required is what the district official calls “willing schools”. The district chief education specialist indicates that the culture of hand-outs and excessive support has actually created schools that can neither stand on their own nor sustain themselves.

*Let us get schools onboard as equal partners. Let us not just make them into receivers of ...its not good for their souls. They have to be brought as partners, we would rather have 50 schools participating but let it be 50 willing schools*  
P10: District.txt

The challenge that the district currently encountered was that of changing the socio-cultural mind-sets of schools to develop themselves into e-schools.

*I always say to them guys it’s unfair to let our kids [referring to township children] wake up at half past four in the morning and be on a bus by five to access those things 40km way from where they live. When you can transform the very institutions that we’ve got in the townships.*  
P10: District.txt

In attempting to change the mind-sets of these communities of practice at townships schools, the challenge was more pronounced with schools that did not use the financial opportunity to rise above their socio-cultural conditions. The district officer apportioned this to what she believed to be a “cultural issue” that plagues township

schools. She was adamant that many schools were not empowered to take control and use ICT opportunities to improve their own teaching-learning environment. In her opinion this culminated in constant support to township schools and has led to their inability to develop as progressive institutions of learning. She narrates her plight in trying to get township schools to change their socio-cultural approach to ICT.

*And for me they don't have reasons to justify that, because in terms of allocations, look how the department has structured the quintiles. The poorer the community the more money we pump into it. I mean we've got a school in Mamelodi that gets up to R2 million in allocations, but when you walk in there you don't see it. I, I think that's a cultural thing. ...Then you've got to wake them up a bit. So I think it's, I don't know if it's the correct word 'cultural barriers', you know...they just need a bit of encouragement and a push here and there, because our people never really believed that they could run their schools as world class institutions.*

*P10: District.txt*

In an attempt to get “willing schools” onboard, district and provincial officials rely on ICT enabled schools to collaborate and support other schools. The nature of the support is apparently not defined and it would seem that schools determine their own levels of partnership, but in so doing could promote the implementation of the e-education policy. This principle seems to be well entrenched at provincial level, and is evident from the voices of the e-learning education specialist. School collaboration and partnership appears to be strongly advocated at both systemic levels. The provincial officials use the term ‘twinning’ to represent collaboration between two schools. One of the e-learning officials at provincial level narrates how ‘twinning’ is a uniquely provincial e-learning initiative.

*DCES: ...But it is also one of the programs that we also advocating in the e-learning directorate, to say in terms of supporting our schools lets encourage our schools to twin with one another. Let those who have let them assist with those who are struggling, so it's also one of our programs.*

*P11: Province.txt.*

The township school in this sample collaborates with an independent school for technical support and curriculum planning. This township school is also ‘twinned’

with another public school for ICT literacy support. The principal of this same township school elucidates further partnerships that were forged through the use of ICT. The schools involved in this collaboration were not from the same suburb and were separated geographically by some 40km, yet collaboration resulted in the sharing of skills, expertise and resources. The principal explains the collaborative experience.

*Thereafter, the department came up with this idea of collaboration. We sent 50% of the teachers to a college in lotus garden once a week for basic computer literacy lessons. While we were there, the relationship between the two schools grew.*

*P6: School A - Principal.txt - 7:2 (48:51)*

The former model C school principal explicates how his school is used as a model for e-learning schools. His school's achievements appear to be mentioned at district meetings, and this exposes his school to visits from other schools often out of district boundaries.

*Ja, because he heard, at one of their district meetings, my IDSO said that you know what, Constantia primary and Apex Primary and Watervalley primary, our schools are doing this. So the guys came to visit us. So they use us much more as a benchmark, and because of that, ja you got our blessing and just carry on and do.*

*P8: School B – Principal.txt*

According to the two provincial e-learning specialists, the formation of school e-learning cluster teams called CELT's (Cluster E-Learning Teams) is a provincial and national initiative to support schools in the implementation of the e-education policy. The two provincial education officers were seemingly convinced that the formation of CELT's is a provincial capacity that could promote collaboration between schools as they negotiate the national e-education policy. At the provincial e-learning directorate the chief education specialist appears to be convinced of the effectiveness of school clusters (CELTS) as a structure for schools to support schools effectively.

*CES: Ja, this is so true. Hence we are advocating the use of CELTS clusters, so the cluster meetings needs to take place so they can support each other, and it can be directed as what needs to be done. Hence we have the other strategies of clustering schools to promote collaboration, working.*

*P12: Province - Focus Group.txt - 12:48 (416:422)*



The notion of school cluster support systems seems to take on a variety of nuance. Although no district clusters exist for ICT, all teachers in this study seem to value the idea of cluster meetings as a forum for sharing knowledge, ideas, skills and pedagogic experiences. A teacher at the independent school shares his experience of working in teacher cluster support groups “in the cluster meetings they [teachers] can learn about these things. Use those opportunities to do practical on learning to use the ICT’s]. Another teacher at the former model C school also expresses his interest in the idea of forming ICT cluster groups within the district. This teacher gives his rationale for establishing ICT cluster groups “maybe set up a better syllabus, have meetings. Say to all the teachers in the computer rooms we have a cluster meeting for you. Do this...Do this ... get ideas exchange ideas”.

However, contrary to the provinces’ CELT structures and wishes of teachers for cluster formations, the district officer is not convinced of the efficacy of establishing ICT cluster teams. She believes that teachers are already over burdened with other curriculum based clusters and ICT clusters will not work. However, she explains that collaborating with the curriculum designated clusters will be more effective.

*No I really wouldn't like to form clusters,because I feel this is too much on the schools and allthat, and all that. I would rather see ourselves workingtogether with curriculum within their cluster meetings.Like who does languages, he always invites us. What I do Iinvite curriculum software come and demonstrate what youhave, that is what I am doing so far, but I am not thinkingof separate ICT classes...Because this system of clusters, I notice it does not work, much more hands on, individualapproach, even if we can do two schools a year, better then....*

*P11: District.txt*

### 5.3.2.6 The need for ICT teacher training

***“We firmly believe that training alone is not just going to be proficiency, we believe in support, support, support.”***

<i>Inclusion Criteria</i>	District and province’s perceptions of the need for teacher training in e-learning; professional development of teachers.
<i>Exclusion Criteria</i>	Teacher and principals perceptions of training in ICT or e-learning; schools initiatives for teacher capacity building in ICT. Teacher self study



Teacher training is a required resource that runs as a common thread through all spheres of the system. The voices of school teachers, principals, district and provincial officials are in unison with regard to this resource. A resource required by both district and province and an aspect in dire need at schools is the issue of teacher training. Schools have evidently indicated their need for training often through the school improvement plan (SIP) and both district and province are acutely aware of this need. However, district and provincial office do not seem to be in touch with the nature of training required for schools. All schools in the sample have instituted a two-stream approach to the use of ICT in their schools. School principals and teachers realise that ICT literacy is a necessary competence for teachers and learners, and ICT integration into the curriculum is a consequence of ICT literacy. School teachers now require training in the pedagogical use of ICT in their teaching practice and not merely ICT literacy training. Province on the other hand believes that schools are not aware of this difference. The district official explains her plan to train teachers from disadvantaged communities.

*District Official: Yes, for example the white paper speaks of getting the learners ICT capable by 2013. So even with the strategies that we develop, we make sure that we meet that ambition of the department by getting everybody ICT capable by 2013. And you already know of the programmes [in-service training programmes for teachers from two disadvantaged communities] that I am trying to get off the ground with UP [University of Pretoria] in an effort to try and make the 2013 objective.*

*P:11 District.txt*

The provincial e-learning specialist narrates their strategy of training teachers through the teacher development unit. The specialist seems to suggest that training alone will not yield proficient teachers, that there should also be relevant and ongoing support.

*CES: Uhm...to change the behaviour [laughs] it will take a quite a long time, ok. But with things that we have planned and with that strategy we will workshop the educators and already we've had discussion with teacher development directorate, these are the programmes we'd like to train our teachers on, so we going to train them on that. We firmly believe that training alone is not just going to be proficiency, we believe in support, support, support, ok. So hopefully our district officials are going to support the educators in the implementation of again.*

*P:12. Province.txt*

At the former model C school the mathematics teacher suggests that district office is unaware of teachers' level of ICT skills. Her desire is for more advanced ICT skills training to take place in order to enhance her teaching and learning practice.

*But I do think there's a certain amount of under-estimation, I think they [District] underestimate what there is and what teachers can do already. And they thinking more along the line of getting teachers trained on word.*  
*School B: Teacher 2.txt*

## 5.4

## Summary

In this chapter, I presented the results from the interviews with the principals of all three schools, the district e-learning leader and the two e-learning officials from the provincial e-learning directorate.

The main categories that were explored in the interviews were how systemic structures responded to their capacity to change the behaviour of teachers to implement the e-education policy and what resources these systemic units (school, district and province) required to have the desired effect. The main themes that emerged suggest that principals of schools are creating every opportunity within their means to foster the implementation of the e-education policy. The schools however lack (among other); ICT policy implementation guidelines, ICT competent teachers, relevant curriculum content to integrate ICT; training opportunity to develop teachers' ICT pedagogical skills and district as a source of e-education policy support.

At district and provincial levels the issues that inhibit policy implementation are more pronounced and these include the lack of; ICT policy implementation initiatives, proper guidelines to schools for the implementation of the e-education policy, competence of the curriculum directorate, cohesion between curriculum and e-learning directorate, fiscal independence, understanding of teachers' real needs as compared to perceived needs, willing schools, effective channels of communication, common understanding of systemic support structures in respect of school clusters,

ICT curriculum attainment levels, pedagogical focus on ICT, policy implementation monitoring and evaluation mechanisms to name but a few.

## **5.5 Literature reflection**

### **5.5.1 Introduction**

In this section I situate the results of the findings within the context of international debates and empirical studies. I report on evidence that is supported by the literature but also report on new insights that emerged from this study. I synthesized the results of this study to encompass ICT policy transforming schools as institutions of teaching and learning, and ICT policy transforming the systemic structures of district and province.

### **5.5.2 Echoing existing knowledge on ICT policy transformation, teaching and learning**

#### **5.5.2.1 ICT policy transforming schools**

The manner in which ICT policy in transformed schools unfolded in numerous ways: beliefs and vision of principals; leadership of the principals; school capacity and teacher development initiatives; support and collaborative networks; management of teaching; ICT curriculum content and the recruitment of skilled and competent teachers.

#### **Beliefs and vision of principals**

The beliefs and vision of principals are central to ICT implementation in schools (Fullan, 1992; Spillane et al., 2002). All principals in this study had a similar understanding of the significant role of ICT in their schools and were unwavering in their commitment to promote its use. Principals in this study were visionaries in their understanding of ICT for teaching and learning, but also of the vocational (Hawkrige, 1990) role of ICT. School leadership was pivotal for ICT on education reform to take place. Although schools in this study did not have a coherent whole school ICT policy, teachers were guided by institutional goals, shared vision and

aspirations of principals. All three participant schools were managed by principals that identified with the need to use ICT across the entire spectrum of the school's activities. Similar findings emerged from the literature in which Fullan (2002) found that the visionary role of the principal should be those of support and development as well as an agent of change. Phillips (1986), Condie et al. (2002), (Becker, 2000) and Stevenson (2004) found that the use of computers will only flourish within schools that encourage it through the leadership of the principal.

### **Leadership of the principal**

Elmore (2005), Fullan (1992), Leithwood and Montgomery (1982), Yuen et al. (2003) and Yee (2000) suggest that the leadership of the principal is key to successful ICT implementation in schools. School leadership was a crucial factor for the infusion of ICT into the school's teaching, learning and administrative environment. According to Fullan (1992) organizational challenges, opportunities, responsibilities, and leadership strategies must be considered well before ICT implementation in schools. In the two public schools in this sample, principals did not have the opportunity to respond to these issues of strategic planning (computers were placed in classrooms as a need to become competitive with emerging trends). Both public schools had to make significant structural adjustments and changes to their existing buildings to accommodate ICT laboratories. At the private school, however, it seems that organizational strategies were in place before computers were placed in classrooms, as the school's physical structure was designed and planned to accommodate computer and research centres. All participant schools were progressive in using ICT for teaching and learning and administrative purposes and seemed to enhance their level of functioning. In my study principals enthusiastically pursued ICT to transform the administrative capabilities of their schools. Similarly in the literature O'Dwyer, Russell and Bebell (2004, p. 4) also found that "Teachers are influenced by the level of structure of the system in which they work". This was consistent with findings in my study, in which teachers were gradually coaxed to change the way they worked and used ICT for non-instructional professional needs.

Kozma (2005), Rumsvik (2006) and Andrews (1999) argue that principals are pivotal to structuring the school environment to support learning. In schools where a shared

vision for teaching and learning exist between teachers, principals, learners and community there is a focus on moving the school forward and not a focus on “figuring out what policymakers want them to do and then doing it – or not” (Kozma, 2005, p. 141). In my study autonomy and local decisions (although constrained by a rigid National Curriculum policy) had not deterred principals from pushing the ICT integration agenda forward in their schools.

### **School capacity and development of teachers**

Principals are at the heart of school capacity and the development of teachers’ knowledge and skills are institutional practices that would lead to sustainable education reform (Fullan, 2000). According to Schiller (2002), the successful implementation of ICT as an educational innovation is not only about equipment or software but also about influencing and empowering teachers. The need to acquire teachers that are competent and skilled in the use of ICT is a common thread that runs through the literature (Grey et al., 2006). Principals were challenged to find suitably qualified or skilled teachers. Findings from my study echo those found in the literature.

### **Support and collaboration**

In all three schools in this study, the institutional culture and practice was one of support and collaboration. Principals argued that teachers required support in view of improving teaching and learning in their schools. At school level collaboration took place through teachers’ own initiatives to learn and network (see 4.3.4) and not in response to externally developed policy. Teachers in these schools were encouraged by principals to share knowledge and collaborate with each other. Principals in this study were focussed on influencing, empowering and supporting teachers, though this played out differently according to the socio-cultural context at each school. At the independent school the principal was also actively involved in developing teachers’ skills in the use of ICT. The former model C school provided in-house capacity buildings and school management was exposed to a monthly ICT training camp. This finding concurs with the literature in terms of intra-school support and collaboration in which “islands of innovations” formed (Bracewell et al., 2007; Hadjithoma & Karagiorgi, 2009, p. 84). In the township school, the professional development of

teachers in ICT was mainly left to the teacher's own initiative, congruously with Wilson and Berne's (1999) findings in a case study of schools, in which teachers were responsible for their own professional development.

### **Management of teaching**

Another similarity, echoing literature, was the distinction made between 'traditional' management of teaching and 'flexible' management of teaching in schools. Kozma (2005, p.141) describes traditional schools as those that are hierarchically structured with teachers' classroom practice 'tightly controlled by inspectors and principals'. Furthermore he explains that teachers are often accountable for teaching a specific lesson in a specific way and on a specific day. Within the institutional practice of the three schools in this study, the findings are consistent with Kozma's (2005) definition of traditional schools. In this study, public schools as institutions of learning and teaching are clearly defined by the norms and standards policy document (Department of Education, 1998) that regulates subjects into well defined time controlled categories. School principals are not at liberty to exercise planning discretion on how to allocate the teaching-learning time of official curriculum subjects. Notional subject time is clearly established by national policy, and schools are obliged to adhere to these regulations. Schools (particularly government schools) are structured around the management of teaching and could not be restructured to cater for flexible learner grouping or changing of the school scheduled to accommodate more time for learner projects, teacher planning and collaboration as suggested by Darling-Hammond (1997).

### **ICT curriculum content**

ICT curriculum resources refer to ICT curriculum content and software that support teaching and learning. The development of curriculum content for ICT-supported teaching and learning is a policy area of concern in the literature (Ng, Miao & Lee, 2009). Findings in my study concur with the literature review in that government had introduced ICT into schools without the corresponding curriculum content to support teachers. Within the South African context the e-education policy (Department of Education, 2004) makes several pertinent references to ICT-curriculum integration. However, the National Curriculum policy (Department of Education, 2002, p. 28)

makes very little reference to the use of ICT resources in support of learning. A screening of the attainment targets revealed that ICT competencies were not included in an explicit way in the formal curriculum but generically as “the learner is able to apply technological processes and skills ethically and responsibly using appropriate information and communication technologies”. This mismatch between what teachers are expected to do with ICT in their classroom and curriculum demands is consistent with findings in the literature (Gulbahar & Guven, 2008; Cuban, 2001).

Haddad (2003) argues that the introduction of computers in schools without the accompanying curriculum related ICT-enhanced content creates a problem for integrating ICT into teaching and learning practice. Pelgrum and Plomp (1993) suggest that software curriculum development is a macro responsibility. Haddad (2003) supports the notion that curriculum development is an obligation of policymakers and integral to the teaching-learning process. Furthermore, policymakers have a choice to develop or acquire curriculum content software. However, a principal in my study expressed the dire need for appropriate local ICT-based curriculum content. Similarly, Unwin (2005) and Haddad (2003) also found the need for the development of local content as opposed to the acquisition of curriculum content that is not ideally suited to local context. Teachers in my study also acknowledged that the curriculum needs to cater for local context and to prepare learners for life outside of school.

### **Recruitment of skilled and competent teachers**

The need to recruit teachers that are competent and skilled in the use of ICT is a common challenge that plagued all principals in this study. Similarly, findings from the literature (Gray et al., 2006) found that principals were concerned that the lack of specialised teachers for ICT will negatively impact on the range of activities offered by the schools, and the effective implementation of the curriculum. Further findings from the literature (Gray et al., 2006; Gulbahar & Guven, 2008) indicate that a majority of principals anticipated an increase in teacher shortages over time, particularly in subjects such as sciences, mathematics, technology and design and ICT. Their claim is consistent with the findings in my study, in which principals were challenged to find suitably qualified or skilled teachers.



### 5.5.2.2 ICT policy transforming districts and provinces

The transformation of district and provincial e-learning directorates will be discussed in the light of the emerging findings in my study and situated in literature in the field. The results from my study identified the following findings: issues of a shared vision and unified strategy between directorates, channels of communication, ICT curriculum integration and attainment levels, systemic competence and capacity in the e-learning directorates, “ICT willing schools” and school collaboration and ICT teacher training.

#### **Shared vision and unified strategy**

A finding in the literature similar to that of my study was the lack of a shared vision and unified strategy between the different directorates (curriculum directorate and the e-learning directorate) at both provincial and district level. Younie (2006) found that a multi-agency of initiatives on ICT existed in the UK education systemic structures. This multi agency culminated in the lack of communication and cooperation between the various agencies, also culminating in the retarding of planning and implementation of policy initiatives. Similarly within the context of my study, although minimal agency and the lack of collaboration between different directorates within district and provincial education departments were evident, the e-learning and curriculum directorate pursued the same national curriculum policy agenda but in different ways. The result was that the e-learning directorate staff often worked in isolation from other directorates.

#### **Channels of communication**

Channels of communicating the e-education policy to principals and teachers have a direct bearing on what transpires in classroom practice. O’Dwyer et al. (2004) found that district decisions influenced classroom practice. Similarly in my study the passive decisions taken by the district directorate in terms of their silence, absence and non-support also influenced classroom practice.

### **ICT curriculum integration and attainment levels**

The international trend particularly in developed and developing countries is the design of appropriate curricula that reflect ICT integration and ICT assessment standards in the activities that define teaching and learning. According to Fluck (2001), the preparation of a curriculum framework for the use of ICT in schools is a long and costly process for government. However, he maintains that such a framework is one factor that will move schools towards real change in implementing ICT in teaching and learning. Fluck (2001) also promotes the notion of key ICT competency skills to cater for the government's vocational (Hawkridge, 1990) need for economic growth and international competitiveness. Condie et al.(2007) found that teachers were using ICT schemes designed by government, to integrate ICT in the curriculum.

Internationally, many developed and developing countries restructured their national curriculum to incorporate ICT into the design (Chan, 2002; Lim, 2007). Various systemic structures take responsibility for this task, depending on whether a centralised or decentralised system is favoured. In the range of countries in the literature, responsibility for education is distributed in different degrees between central government and local government tiers (Plomp et al., 2009). Within the South African context central government designs the curriculum through the national department of education, while decentralised provinces are tasked with implementation (Blignaut & Howie, 2009). Post 1994 South Africa has witnessed rapid and successive curriculum change. However, these curriculum changes have not seized the opportunity to include ICT as a standalone subject (Howie & Blignaut, 2009) neither for a vocational rationale, nor as a pedagogic one (Hawkridge, 1990) by integrating ICT in all subjects across the curriculum. Thus the e-education policy (which places emphasis on these rationales) and the national curriculum policy continue to be two non-coherent and isolated policies, each making its own demand on teachers.

In the United Kingdom, the National Curriculum also went through revisions with the introduction of ICT. However teachers implementing this policy change acknowledged that the broad aims of the curriculum policy were not easily interpreted

by teachers and thus were not implemented in their classroom practice (Fluck, 2001). This phenomenon also played out in the findings of my research study, with a participant teacher requiring simplified policy and guidelines that he could interpret as indicated by the former model C teacher as follows “look we’ve got that White paper, but something more better and more...that explains it better and more structured”. In the UK experience, Fluck (2001) notes that a reasonable uptake of the policy was achieved through a comprehensive series of guides that linked the broad ICT aims to conventional subject areas. Within the South African context, the absence of specific guidelines from all relevant systemic structures was still evident, leaving schools to decide for themselves. Becker (2000) also found that curriculum overload was a contributing factor to the lack of use of ICT in the practice of teachers, because teachers felt that the use of ICT inhibited their curriculum delivery, as was evident with a teacher in this study.

In many countries there is a divergence of philosophy and practice in the manner in which ICT is integrated into the curriculum, or exists as a standalone subject in the national curriculum. But there are concerted attempts by governments to include ICT in the curriculum offering in one way or another. This is significantly different from the South African context in which ICT is relegated from the policy focus of curriculum planners. The international trend reflects concerns of governments to build frameworks and strategies to promote the educational use of ICT (Kearns & Grant, 2002). Lessons in ICT policy implementation indicate how the Flemish government has responded effectively to Hawkrigde’s (1990) rationales for introducing ICT in education. The Flemish government policy includes non-compulsory ICT attainment targets for primary schools, formulated as ICT competencies (Tondeur, van Braak & Valcke, 2006). Their rationale for not defining a new school subject for ICT in the primary school was that ICT has relevance for all subject areas. In this regard ICT competencies are cross-curricular attainment targets, with central ICT competencies to influence the learning process. Within the context of my study national, province and districts have not taken the lead to determine ICT-curriculum integration guidelines nor ICT attainment standards.

Sherry's (1998) study indicates how a district was involved in supporting schools to provide curriculum implementation guidelines. Districts through project leaders were involved in developing schools' home web-pages that had links to learner activities and to curriculum resources that could be shared by teachers. As part of this district's activities, curriculum based resources were made available for teachers, like a classification scheme for internet-related resources, district-wide curriculum related ideas, activities, lesson plans and resources that could be accessed by teachers via the Internet. Similar to Sherry's (1998) study, teachers in my study 'expected' the same type of support from their local districts. Teachers in this study were well aware of the potential of collaborative effort and support they can give each other. However, they needed impetus from district office to coordinate this process. A teacher at the township school describes his vision regarding the district offer of support "I mean the department should be accessible, the department should pool teachers like us, if you can give us a simple classroom and say listen on the computer develop lessons".

### **Systemic competence and capacity**

In my study systemic competence and capacity in the e-learning directorates was twofold in nature, namely human capital and administrative agents. Cohen and Barnes (1993a, 1993b) claim that policy intended to change the teaching practice of teachers, as in the case of the e-education policy, requires learning by actors who are charged with implementation of the policy. Spillane and Thompson (1997) suggest that 'learning' in turn requires that those who make or administer policy implementation perceive their roles to be teaching rather than as mere regulators of policy. Spillane and Thompson's (1997) view of district capacity from a teaching and learning perspective is contrary to the way in which district officials in my study viewed their role in policy implementation. Karagiorgi (2005) found that districts did not view themselves as systemic structures that create opportunities for teachers to learn. Similarly in my study districts viewed their administrative purpose as the transmission of policy (Hamann & Lane, 2004). At both province and district levels the e-education policy focus seemed to have been applied to enhancing the ICT administrative prowess of schools. Schools were required to convert their administrative systems to adhere to particular districts demands. In this regard district appropriately responded by providing the necessary support in the supply of

administrative software, as well as train and skill teachers in the use of ICT for a host of administrative functions.

How and what teachers learn (new curriculum, new teaching methods, policy or skills) depends significantly on the capability of district leaders and teachers' knowledge, beliefs and experiences (Spillane & Thompson, 1997, p. 186). In my study, districts did not seem to have the capacity to support schools as teachers tried to make sense of how to integrate ICT into their pedagogical practice. Spillane and Thompson (1997, p. 199) construe district capacity to support policy as the ability to learn the "substantive ideas at the heart of the new reforms and to help teachers and others within the district to learn these ideas". Furthermore, they define district capacity as consisting of human capital (knowledge and skills), social capital (having social links within and beyond the district, trust to support open communication) and financial resources (allocation of staff, time and materials). These constructs of capacity aptly describe the issues facing district and province's e-learning systemic units in my study. Provincial e-learning leaders claim that districts officials had relevant human capital to support schools with respect to knowledge and skills, while school principals and teachers were otherwise convinced. This is similar to Karagiorgi's (2005) study suggesting that when district officials visited schools they were unable to solve teachers' problems. The district e-learning teams in my study also did not seem to have capacity for social capital, seemed to lack social links *within* the district and trust to support open communication with schools.

Contrary to Karagiorgi's (2005) finding, in my study the e-learning directorates at district and provincial levels had not made themselves 'visible' to schools. Spillane and Thomson (1997) found in their study that districts identified and capitalised on teacher-leaders, who were committed and knowledgeable about the new policy to drive the new policy. In my study participant teachers also recognised the value that a pool of individual ICT experts, with well developed understandings of the e-education policy, would bring to ICT integration in their classroom practice. Systemic e-learning units namely, province and district indicate that their capacity to implement the e-education policy in all schools was severely constrained by the lack of capacity within each unit (Farell & Isaac, 2007; Ng, Miao & Lee, 2009)

*“We go further to see schools and visit them to see how far you’ve gone. Off course if we do that for many schools we will not be able to finish. We are having a set of schools which we visit, with the district, to see how far they’ve gone. At district level, I cannot talk about district” (Province e-learning CES).*

In like vein a teacher expressed that teachers do not have confidence or trust in the local district’s e-learning unit as a competent resource to address their ICT implementation concerns, “And I don’t think they [district] have the knowledge, expertise and the resources to be able to do it the way it should be done”.

Similar findings also emerged in Ofsted’s (2001, p. 13) study of local education authorities. Local districts did not have the essential understanding of their schools’ ICT needs. In the UK situation (Ofsted, 2001) it was unusual to find district officials with a good overview of current ICT developments in their schools or sufficient understanding of whole-school issues relating to ICT. Local districts lacked support and guidance for schools’ ICT development planning. This finding reflects the same experiences of principals and teachers in my study with respect to district’s apparent lack of support, visibility and guidance to schools (Spillane et al., 2002).

### **ICT willing schools**

The need for “ICT willing schools” emerged as a prominent finding in my study. Harris’ (2002) argues that school willingness is intrinsically linked to senior management and classroom teachers’ desire to attempt new approaches. These schools were aware that some approaches would not succeed, but acknowledged that reluctance to try new teaching practices would not promote school progress. Harris (2002) also found that schools took a risk to promote the use of ICT, by providing appropriate ICT resources to allow all learners to achieve their potential. However, in my study the district leader’s perception and experience of school willingness to change was contrary to Harris’s (2002) findings and contrary to the findings in respect of participating schools in this study. In my study, all participating schools were willing to explore and venture into introducing ICT into teachers’ daily practice.

Uniquely different from findings in the literature (Spillane& Thomson, 1997) are the experiences of the district e-learning official. Her experience relates to particular

schools in her district that were reluctant to venture into ICT integration and attempt new teaching and learning practices. She expresses her concern that the lack of willingness occurs particularly in township schools and believes that it is a socio-cultural issue “I think that’s a cultural thing. ...Then you’ve got to wake them up a bit. So I think it’s, I don’t know if it’s the correct word ‘cultural barriers...because our people [township schools] never really believed that they could run their schools as world class institutions”. Furthermore, she also found that these schools lacked the will to be innovative, forward-looking and were often disinterested in sustaining district initiatives. The district e-learning official’s perception was that schools had been turned into institutions that were constantly receiving hand-outs and hence deprived of self empowerment opportunity. She explains her dilemma “let us not just make them into receivers of ...it’s not good for their souls. They have to be brought as partners we would rather have 50 schools participating but let it be 50 willing schools”. According to Spillane and Thomson (1997) schools’ reaction to opportunities presented by district depends primarily on teachers’ beliefs and experiences which influence their willingness to change, but it also depends on the capability of district leaders to create a learning environment in which schools develop local capacity through collaboration and access to new information about teaching instruction,.

### **School collaboration**

In my study developing communities of practice seems to take on different nuances at district and provincial levels. District and province seem to have different ideas about the need for collaboration and what it entails. Although province favoured formal teacher cluster meetings and cascade systems as a way to promote the e-education policy among teachers, district did not see the merit of such an exercise. This finding is contrary to the literature in which international trends seem to be promoting peer collaboration at district level as an effective means to develop teacher competences and pedagogy in the use of ICT (Hadjithoma & Karagiorgi, 2009). Granger, Morbey, Lotherington, Owston and Wideman (2002) illustrated that other forms of learning that are less formal such as internet learning, learning from friends and family and particularly peer collaboration were much more useful to teachers and more likely to



translate into the transfer of skills to classroom practice. These forms of informal learning were particularly evident from the experiences of teachers in my study.

Granger et al. (2002) also indicate that the importance of collaboration ‘cannot be over-estimated’, as teachers need each other for a variety of professional purposes such as peer teaching and learning, planning and ICT technical problem solving. Findings from my study revealed that while district and province do not share a common philosophy of school clusters as a means of promoting school and teacher collaboration, school teachers were practicing collaboration in an informal way. If districts and province neglect to capitalise on this essential form of teacher learning, the chances are that the implementation of the e-education policy will be further retarded.

### **ICT teacher training**

Evidence from this study identified teacher training as an essential component to ICT policy implementation. The need for teacher training surfaced at all systemic levels namely province, district, school principal and teachers. Although the district and provincial education departments are acutely aware of this need, very little has been done to move teacher ICT training beyond school level intervention. Significantly different from the literature was that most developed countries have moved beyond basic ICT skills and were progressing to diversify their ICT teacher training programmes (Waite, 2004). Lessons from studies (Ofsted, 2002, p. 3; Kirkwood, van der Kuyl, Parton & Grant, 2000) addressed teacher training challenges, like grading courses according to teacher competence levels, cost in terms of teacher personal time and expense, duration and time of training, relevance to classroom practice, face-to-face training as opposed to distance learning and teachers’ feelings of inadequacy, stress, and frustration. Stevenson (2004) and Galanouli et al. (2004) found that professional development programmes helped teachers to integrate ICT practice. The lack of teacher training initiatives was clearly evident in my study. However teachers in my study acknowledged the need for specific training and the lack of district response to their needs.

### **5.5.3 New insights**

In this study the findings elicited several new insights in policy transforming schools, and district and province education e-learning directorates. School level transformation took the following forms: ICT leadership and institutional practice, ICT curriculum resources and the school's need for policy guidelines. At district and provincial levels new insights revealed the need for shared vision and a unified strategy within directorates, communicating policy, establishing ICT curriculum integration guidelines and ICT assessment standards. New insights were not only in terms of the teachers appropriating policy, but in the South African context these insights pushed the boundaries back in terms of existing debates in the field of study.

#### **5.5.3.1 ICT policy transforming schools**

It is important to note that the e-education policy existed as an “invisible policy” and did not directly transform schools. Principals were unaware of the existence of the e-education policy. Teachers on the other hand, acknowledged that they were aware of a ‘policy out there’ but they were ignorant of the policy mandates. However, ICT policy transformation did occur within the institution. New insights in terms of ICT leadership and institutional practice that emerged were twofold in nature. Firstly, these were in terms of school collaboration and networks. Secondly, these were in the management of the teaching of ICT.

#### **School collaboration and networks**

In this study principals and teachers formed collaborations and networks with successful and forward looking schools to keep abreast of changes and challenges in the use of ICT in teaching and learning. Mutual support was another motivating factor for ICT collaborations and networking between schools. Collaboration between schools took on various nuances in this study. Schools formed links with other schools that shared the same vision and aligned themselves with other schools of similar socio-cultural contexts. Schools also formed collaborative links with other disadvantaged schools and thereby exercised a social responsibility. This significant aspect of school-school collaboration was not evident in the literature.

### **Management of the teaching of ICT**

Andrews (1999) also found that some schools lacked self awareness, vision, and leadership and did not know when or how to respond to change, while others accorded low priority to ICT use in education. The lack of leadership was not evident in the schools in my study. Principals had a visionary outlook that was inspired by a belief system and set of attitudes that seemed to motivate change in their schools. They were willing to take risks and to go against the grain in the interest of teaching and learning. In the absence of provincial and district directives and support, these principals were proactive and enthusiastic in empowering and building the capacity of teachers to implement ICT in their teaching practice. In contrast, the international experience illustrates that principals found managing ICT infrastructure easier than managing teachers' use of ICT (Dale et al., 2004). Principals also felt that the implementation of ICT was an area of concern which they were not trained to manage (Harrison et al., 2002). Karagiorgi (2005) and Pedersen et al. (2006) concur with the ImpaCT2 (Harrison et al., 2002) study that most principals felt they lacked the experience and expertise to control the new technology in school. According to Veen (1993) and Pelgrum (1993), principals' poor attitudes or lack of insight and understanding retarded ICT integration in their schools.

New insights that emerged in terms of ICT curriculum resources for the transformation of schools focussed on curriculum content, recruitment and capacity building of teachers and schools' need for policy and policy guidelines.

### **Curriculum content**

Significantly different from the literature is that in my study, school principals (although constrained by curriculum delivery demands) found means and methods to integrate ICT into their curriculum without any policy guidelines. Kozma (2005) suggests that districts, schools and teachers should have some freedom within the curriculum policy to adjust instructional goals to cater for local context, socio-cultural needs and learners' interest. In this regard the principal of the former model C school acknowledged that he interpreted the National Curriculum to be open to ICT integration.

### **Recruitment and capacity building**

There is seemingly a dearth of literature on the particular recruitment strategies of principals and school governing bodies. Of the limited studies conducted in this area, findings indicate that the absence of policy support did not sustain the innovative practices of principals (Thompson, Nixon & Comber, 2006). In this study a principal actively pursued a strategy to appoint ICT competent teachers that affiliated to the vision of the school. In my study the principal of the former model C school made a concerted effort to gradually change the mindset of the teaching cohort in his school to reflect a staff that shared his vision for ICT implementation. He strategically appointed an ICT competent teacher at each grade level to effectively change the mind sets of other teachers in favour of ICT use. He also appointed a teacher whose main focus was on ICT integration into the curriculum. Another strategy he employed was to develop teachers by creating opportunities within the context of the school.

As a curriculum implementation resource schools expressed the need for policy and policy guidelines. In the South African context, National Curriculum policy and the e-education policy are two significant policies that do not seem 'to talk to each other'. Consequently, participating schools in this study seemed to be operating in a vacuum, applying the National Curriculum policy but oblivious in the mandated e-education policy. In the absence of national e-education guiding policy principals of schools were developing their own policy for ICT implementation. Although all schools in this study had no whole school ICT policy, the ICT policy of the school seemed to have devolved into specific learning areas and in the ICT attainment standards of the school. Such devolution of policy to specific learning areas or subjects facilitated subject specific contextualization of learners' learning.

### **Schools' need for policy and policy guidelines**

In contrast, findings from the literature indicate that schools do not operate in isolation of government mandates. In the UK, schools had ICT policy but often only in response to satisfying impending school inspection, and were rarely indicative of the influence of ICT on teaching and learning (Andrews, 1999). Andrews (1999) claimed in these cases the institutional practice had not yet developed (or not thoroughly enough) a solid policy to cope with ICT in their classrooms and beyond, at

present and in the future. In my study all schools evidently did not have well defined written policy intentions that embraced all aspects of teaching, learning and curriculum integration. However, school principals were well in tune with the view of the potential of ICT as a tool for teaching and learning, embraced ICT in practice and had a vision of the future of ICT in their schools.

The literature argues that for effective transformation to roll out at school there needs to be a common and coherent understanding of policy at all levels of the education system (Hopkins & Levin, 2000; Kozma, 2008). Furthermore, each of the different directorates needs to be in sync with the others and each has its unique responsibilities in the system to ensure effective implementation of the policy on the classroom floor. This process is emphasized in the literature and is vital for the effective uptake of policy in the classroom. School change in terms of ICT in education practices at schools was coordinated with the larger system (Sergiovanni, 1994; Talbert & McLaughlin, 1993). According to Kozma (2005, p. 142) school, district, province and national policy should be in “sync, coordinated by an overarching set of goals or vision”. Cohen and Hill (2000) and Elmore (1995) indicated that coherent and coordinated policies that are targeted at all components of the system tend to reinforce and enhance improvement. In my study the schools were isolated from the larger system, which culminated in the lack of consistency and policy focus at different levels of the system. Yet schools formulated and implemented their own school based e-learning policy.

### **5.5.3.2 Transforming province and district directorates**

New insights that emerged regarding transformation of district and provincial e-learning directorates elicited the following: creating shared vision and a unified strategy within directorates; channelling the e-education policy; establishing ICT curriculum integration guidelines and ICT assessment standards.

#### **Creating a shared vision and a unified strategy**

In my study there is an apparent lack of a shared vision of the e-education policy and a lack of a unified strategy at different levels in the education system. Government

ICT policy on education was not viewed by province and district e-learning directorates as an authorised (Levinson et al., 2009) prescriptive mandate for implementation. The district official responded to her interpretation of the national e-education policy as follows, “compulsory is not the language that I would like to use. I would rather say it’s a guideline”. Similarly, she did not believe that the policy should be imposed on schools. An explanation of this finding may be corroborated by a similar study (Ofsted, 2001), which found that local education authorities (districts), may lack the professional expertise to inform decision making, culminating in districts inadequate consultation and support of schools. According to Elmore and McLaughlin (1988) district administrators’ reaction to policy and strategies creates conditions for teachers’ willingness and ability to appropriate policy. Districts act as ‘processors’ to policy demands, develop implementation strategies and allocate resources while principals act as facilitators of policy. Spillane and Thompson (1997) view local capacity as teacher’s capacity to teach in new ways, and district’s capacity to support these changes. They also contend that local education authorities (districts) are charged with making policy which is as important as administering policy implementation.

### **Channels of communicating the e-education policy**

Significantly different findings in my study indicate that district and province seemed to act merely as channels of communicating the national e-education policy, without administering policy implementation. In my study district’s own interpretation of the e-education policy and policy initiatives were absent. Districts, in this study seemed to perform an administrative function of transmitting national policy, and in all cases schools in my study had not received policy. In all three schools in this study, principals were oblivious of the existence of the e-education policy. Consequently principals’ ignorance of national policy meant that they could not facilitate national mandates. Schools in my study, particularly teachers, required policy support from the systemic structures to guide their teaching practice.

Within the context of my study the issue of district’s challenges to communicate the e-education policy was not focussed on the interpretation or misinterpretation of the policy intentions by teachers, but on the lack of means to transmit the policy

document to those for whom it was intended. The literature is silent in this regard, so I am tempted to suggest that this lack of communicating the national e-education policy to stakeholders was unique to the local context of my study. In my study district officials accepted and acknowledged that school principals and teachers may be unaware of the e-education policy document, but school principals were also unaware of the existence of the specialised e-learning directorate which was established to administer the implementation the e-education policy and support schools. The literature on communicating policy differs significantly from the issues at play in the context of my study. Most literature that focuses on communicating policy identifies the challenges that policymakers face in crafting a system to communicate the mandates of policy exactly as they intended. Research on communicating policy focuses on attempting to express the main underlying principles of the text of policy accurately to the actor at the point of implementing policy (Spillane, Reiser & Reimer, 2002). Thus according to Brown and Campione (1996) communicating the rationale for the policy to local actors situated at the point of policy implementation is crucial to the success of policy implementation. They contend that some practices of policy may be the result of actors missing the genuine intent of the policy. In this regard it is a common understanding that teachers are often unaware of the specifics of policy (Kozma, 2003a). The overarching assumption arising from the above discussion is that policy *will* be communicated to the teacher, but it is the interpretation of the policy intent that is of concern.

### **ICT curriculum integration guidelines and ICT assessment standards**

Contrary to the literature, findings in my study indicate that the South African national curriculum framework does little to advance the integration of ICT into the curriculum (Blignaut & Howie, 2009; Department of Education, 2002). In this regard all schools in this study attempted to integrate ICT into their curriculum delivery practices and develop ICT assessment standards, mostly through the effort of teachers. Schools and teachers in my study were apparently unacknowledged by district for their innovativeness, as district was out of touch with schools' endeavours to integrate ICT. Furthermore, school teachers were experimenting with ICT in their classrooms and were uncertain whether or not they were exercising pedagogically sound practices in their attempt to integrate ICT in their teaching-learning repertoire. A teacher at



theformer model C school says “there needs to be a link. We don’t know what they want, we making up as we go along. We using our own stuff... They don’t give guidelines”

#### **5.5.4 Conclusion**

School transformation regarding the appropriation of ICT policy in education in a South African context leaned significantly towards principals as change agents. In my study vision, beliefs, attitudes and leadership were fundamental for the implementation of an e-education policy. The absence of the national e-education policy and the lack of curriculum resources did not deter principals from fulfilling their leadership role. The leadership of principals was twofold namely, pressurising teachers to implement the school formulated policy on the one hand while providing continued support to do so on the other hand. Significantly the absence of district support and guidance catalyzed, school principals to form school-school collaborative networks that served as a source of continued support, motivation and inspiration.