APPENDIX SEVEN
Teachers and Information and Communication Technologies

In this appendix we reflect on educational opportunities for teachers to use and learn about information technologies in South Africa, first by outlining an historical overview of teacher education provision and then by reflecting on some current initiatives that have teachers as their target audience. The case studies for this appendix were compiled in 1998 for SAIDE and as such some of the detail regarding the current status of project may no longer be accurate. Nevertheless the case studies do point to common lesson in technology use (as articulated in chapter four of this report) and this appendix offers a snapshot of the state of play of teachers and information and communication technologies in the country.

AN HISTORICAL VIEW OF TEACHER EDUCATION PROVISION

KEY FINDINGS FROM THE NATIONAL TEACHER EDUCATION AUDIT

A sense of the extent to which educators[1] have been trained and supported in use of emerging technologies is obtained from findings of the National Teacher Education Audit of 1995. In this report, teacher education in South Africa was described as fragmented and uncoordinated and having a negative impact the quality of teaching and learning. A lack of integration with teacher education programmes meant that the schism between theory and practice was accentuated. Furthermore, report suggested that educational media other than print were under-used, and print resources were emphasized as a mechanism for presentation of courses. With reference to the use of various technologies and media, the report suggested that:

- When print was used, it was used unimaginatively.
- Many texts were little more than typed notes, and there was very little evidence of instructional design - which incorporated creative and educationally sound use of text, graphics and fonts.
- Course materials were designed within an overtly pedagogical design framework, which seldom allowed learners to use the print resources as a mechanism for reflection, critical thinking, and further learning.[2]

Subsequently, the national Department of Education has embarked on conceptualizing and coordinating (with provincial departments) the process of transformation, not only of schooling, but also of teacher education provision. Within this broad process, there appears to be a conceptual transformation of teacher education provision within and in line with broader

[1] The term 'educators' is used to refer to a generic category of educational professionals and workers, of which teachers are one part. Other educators include teacher-trainers, district level facilitators, educational programme managers, among others.

[2] SAIDE. (1996). *Teacher Education offer at a Distance in South Africa. Summary of the Report for the National Audit by the South Africa Institute for Distance Education*. Johannesburg: SAIDE. p.3.

educational transformation processes taking place. We briefly describe some of these issues before presenting a critical view at examples of initiatives aimed at using ICTs for teaching training and teaching training in the use of ICTs.

TRANSFORMATION THROUGH OUTCOMES-BASED EDUCATION

The transformation process has been driven by a conceptualization of education as a lifelong process, with provision modelled along outcomes-based approaches to teaching and learning. This framework is to be followed by all educational institutions and in all phases, such as foundation, intermediate, senior, further education or higher education phases. Outcomes-based education (OBE) is the foundation on which any curriculum development, teaching, or learning initiative will be based.

The shift towards OBE implies that traditional chalk and talk approaches to educational provision will be replaced by learning facilitated by the teacher through self-directed and experiential learning, where the learner is encouraged to be more active in his/her own learning experience. This approach is characterized by problem solving, teamwork, self-management, analysis, evaluation, effective communication, application of science and technology, and demonstration of an understanding of the world as a set of related systems. Lubisi *et al* have argued that these outcomes are working principles, and as such they should direct teaching, training and education practices, and the development of learning programmes and materials.[3]

A close analysis of critical outcomes reveals that OBE requires resource-based learning. According to Welch, resource-based learning is aimed at raising the quality and standard of all teaching initiatives.[4] She argues that resource-based learning allows more flexibility as it does not rely on a 'talking teacher' standing in front of a classroom of learners. Flexibility in teaching and learning processes, and assessment strategies that are appropriate for the particular learning outcomes, are required within educational provision.[5] An inference can therefore be made that resource-based learning refers *inter alia* to the integration of media and technology in teaching and learning activities, and that it can be used to support the implementation of OBE at the different phases of learning

The critical outcomes in OBE inform the methodology of teaching and learning as well as the selection and use of the educational media and technology. The paradigm shift in education, necessitated by OBE and the integration of education, training and development, also impacts on the manner in which media and technology will be applied to raise the quality of education and concomitant eradication of past imbalances in education.

IMPLICATIONS FOR TEACHER EDUCATION PROVISION

Professional development of teachers and transformation of teacher education provision is an important concern for a wide range of educational stakeholders. We provide a brief

[3] Lubisi, C., Wedekind, V., Parker, B., and Gultig, J. (editors). (1997). *Understanding Outcomes-based Education. Knowledge, Curriculum & Assessment in South Africa. A Reader*. Johannesburg: SAIDE. p.11.
[4] Welch, T. (1998). Making the move to resource-based learning. In SAIDE. (1998). *Open Learning through Distance Education. Newsletter of the South African Institute for Distance Education. Volume 4*, No. 1, 1st Quarter 1998. p.8.
[5] Welch T. *op cit.* p.9.

discussion of some of the implications that these changes will have for teacher education provision, particularly those that use ICTs and/or develop teachers' competence in ICT use. Generally, recent policy processes have articulated the following generic principles for educational provision:

- Commitment to providing access to quality education, and a right to basic education as enshrined in the Bill of Rights;
- Commitment to developing the full potential of South Africa's people for their active participation in all processes of a democratic society and their contribution to the economic growth and development of the country;
- Redressing imbalances of the past through the implementation of new teaching and learning strategies for the effective and flexible delivery of services within various learning contexts and through the equitable distribution of technological and other resources;
- Implementing learner-centred and outcomes-based approaches to education and training in order to achieve quality learning based on recognized national standards;
- Enabling all people to value, have access to, and succeed in lifelong education and training;
- Developing a problem-solving and creative environment in which new technologies are harnessed to produce knowledge, products, and services; and
- Integrating technology into the strategies intended to reach these goals so as to advance South Africa's ability to harness new technologies in its growth and development.[6]

Recent policy work on teacher education systems, particularly the 1997 provincial Teacher Policy Support Project (TPSP) and Presidential Education Initiative (PEI), have attempted to re-assert the centrality of in-service education and training (INSET) in teacher development activities and to support the institutionalization of INSET activities. These processes mark a long overdue shift towards teacher education systems as a continuum of PRESET and INSET provision. They are intended to support integrated teacher education systems, establish lifelong learning as a norm for teacher education, and reconstruct teacher education systems in line with global changes in work and society. These policy processes demand radical transformation of the content, form, and delivery of in-service education in South Africa.

Outcomes-based curriculum and open lifelong learning are central to transforming teacher education provision, and the National Qualifications Framework (NQF) has important implications for provision of teacher education. The focus on outcomes and competence shifts the locus of quality assurance from curriculum input to assessment of learner competence. In turn, competence is defined mainly in terms of demonstrating how content assists in the life and work of teachers, and can include, for example, attitudes, knowledge and particular educational skills, rather than simply familiarity with content. The intention is not to perpetuate mechanical performance. Within this new approach to teacher education provision, greater emphasis is placed on competence, rather than performance. Teacher education provision is expected to support teachers' attainment of competence and transforming roles and responsibilities of teachers within the new educational system. Six

[6] Department of Education. (1996). *Technology-Enhanced Learning in South Africa: A Discussion Document*. Pretoria: Department of Education. p.11.

contextual roles have been identified that all teachers within the schooling system, are required to develop. These are:

- Mediator of learning;
- Designer of learning programmes, and materials;
- Leader, administrator, and manager;
- Scholar, researcher, and lifelong learner;
- Community, citizen, and 'pastoral' role; and
- Learning area/subject/discipline/phase specialist.

The model for professional development conceptualized in these policies envisages the teacher as a reflective practitioner: a professional who is an accomplished and confident performer, but whose performance is continuously open to analysis and critical evaluation. A professional teacher, besides being an accomplished practitioner, recognizes a wider political, social, and human context, and has a strong commitment to promoting human rights, and environmental awareness, and to overcoming barriers to learning. The roles integrate the occupational, academic, and professional requirements of a teacher. The policy's emphasis on purpose, roles, and applied competence indicates a commitment to bridging the old dichotomy between theory and practice or academic and occupational dimensions. This is a radical shift from the values and practices of traditional teacher education systems in South Africa.

Policy directives for professional development have a number of implications for provision.[7] Providers of courses, programmes, and resources intended to support the professional development of teachers need to ensure that various critical considerations are included in instructional and programme design processes, as well as the delivery process. These considerations include:

- Principles of lifelong learning should be clearly articulated within the instructional and programme design process, as this is critical to ensuring that provision does not reinforce the false divide between PRESET and INSET provision.
- Instructional and programme conceptualization and design should begin with and then also incorporate strategies for developing generic teacher competency and roles, as defined in the policy documentation.
- Teachers must be defined and treated as intellectuals who can make informed decisions about their professional development needs, and thus design principles need to avoid passivity and cascade models of delivery.
- Issues of empowerment are critical, as professional development opportunities should allow teachers to take responsibility for their own learning.
- As much as possible, professional development should be school-based, as the primary site of learning is the teaching environment and context in which the teacher works on a daily basis.
- Programme and instructional design processes should include opportunities and activities within the course, programme or resource that ensure that teachers reflect critically on what they do as a practitioner.
- Professional isolation should be combated wherever possible, and strategies and activities should allow teachers to form professional links, networks and supportive relationships with other teachers.

[7] See for example teachers' comments outlined in SAIDE. (1998). *The Shoma Education Foundation in Soshanguve: Evaluation of a Pilot Project.* Johannesburg: SAIDE.

Within this framework, we offer a description of some South African initiatives aimed at professional development of teachers in and through ICT use.

Media and technology are increasingly appearing as themes or issues in certain professional development initiatives, which broadly aim at improving the quality of teaching in South Africa. It is possible, however, to identify certain trends within this process. For example, one is the existence of a provision model that emphasizes training teachers to *technical competence* in use of overhead projectors, videocassette recorders, and personal computers (including use of the mouse). Another trend is a provision model that focuses on training teachers in *integrating* media and technology into classroom activities. We have briefly reviewed a number of initiatives within a multi-tiered framework. The framework is summarized in the following table:

Tier	Element	Description
1	'Generic Educator' Development	1. Mediators of learning; 2. Designers of learning programmes and materials; 3. Leaders, administrators and managers; 4. Scholars, researchers and lifelong learners; 5. Community, citizen and 'pastoral' roles; and 6. Learning area/subject/discipline/phase specialists.
2	Focus and INSET/PRESET Continuum	7. The focus of the initiative. 8. The extent to which it is a generic professional development model or maintains the false schism between INSET and PRESET.
3	Scope of Professional Development	9. Is informed by principles of lifelong learning that are clearly articulated within the instructional and programme design process. 10. Conceptualises and treats teachers as intellectuals who can make informed decisions about their professional development needs, (i.e. does the design principles avoid passivity and cascade models of delivery?). 11. Includes opportunities for empowerment and allows teachers to take responsibility for their own learning. 12. Is school-based, because the school is the primary site of learning is the teaching environment and context in which the teacher works on a daily basis. 13. Has in its programme and instructional design opportunities and activities that allow teachers reflect critically on what they do as practitioners. 14. Has attempted to combat professional isolation, and has strategies and activities that allow teachers to form professional links, networks and supportive relationships with other teachers and educators.

In the next section of this appendix, we present a brief description of initiatives offered by various institutions, organizations and companies, and highlight the extent to which each initiative meets the criteria specified in the above analytical framework table.

SOME EXAMPLES OF CURRENT INITIATIVES

Below, we describe some examples of current initiatives being undertaken in South Africa (some of which include international partners) by a range of educational stakeholders. We have categorized these initiatives into crude groups (although many involve multiple stakeholders) including:

- Higher education and further education providers, which includes distance education and contact institutions;
- Schools;
- Provincial departments of education including district offices and teachers' centres;
- Non-governmental organizations; and
- The corporate sector.

HIGHER EDUCATION AND FURTHER EDUCATION PROVIDERS

Within this category of formal educational institutional courses and programmes, there is some indication that media and technology education is used for PRESET activities, some INSET activities, and general educational initiatives. There still appears to be some separation of the courses in the use of the media and technology, although some others have moved away from the traditional format and have produced innovative and practical courses that emphasize their integration in classroom activities.

University of Pretoria's Department of Education

The University of Pretoria's (UP's) Department of Education began its initiative in 1997. The institution decided to use media and technology for teacher training, specifically in the rural area of Siyabushwa, Mpumalanga.

Video and Satellite

UP hosted a workshop on teaching practice where the education students recorded Siyabushwa teachers' classroom teaching on videocassette. Videocassette recordings of their teaching were played back to teachers, discussed and reflected on. Interactive television was also used. Teachers gathered at a community centre that was connected to UP via satellite, and the technology was used as a bridge between these two distantly located sites. This technological bridge allowed teachers to receive training in Curriculum 2005, Outcomes-based Education and professional development.

Computer Mediated Communication

It is envisaged that in the future, the community centre will be provided with thirty computers with e-mail facilities. The intention is that this technology will enhance opportunities for developing collegiality among teachers and will also encourage teachers to use the university as a resource for networking.

Commentary on UP's Initiative

UP's Department of Education is an interesting initiative that brings together education faculty students and staff and teachers from a rural community in Mpumalanga. Within the programme design, there is opportunity for teachers to mediate their own learning and teaching praxis through use of ICTs. The use of ICTs is important in the process of allowing teachers to reflect on their classroom teaching practices, and to participate in collaborative

learning processes. The model used is interesting because it has real potential to bridge the false schism between PRESET and INSET initiatives, and further to develop links and relationships with other educators at UP, as well as with other teachers in the community.

University of the Western Cape (UWC) Biology Department

UWC's Biology Department started the Bio-Ed Internet Project in 1996. The Project aims to make the knowledge base of the Botany Department accessible to teachers and students.

The Internet

UWC's Biology Department has used the Internet as the vehicle through which to make its knowledge base accessible. It has set up chat rooms and discussion groups, but unfortunately these are not yet being used. Consequently teachers do not make much use of the Bio Ed resource. The lack of availability of technology in schools and of any technical support for teachers, were given as the main reasons for lack of teacher involvement in the project.

Commentary on UWC's Initiative

UWC's initiative is not specifically a professional development initiative but rather part of an information dissemination process, which has implications - indirectly - for Biology teachers. Although the initiative in some ways attempts to provide resources for Biology teachers who are collecting and sharing information with one another, it has not provided any support to ensure that teachers who are not online are provided with support and training to get online. We have included this here to point on the importance of support - not just access - in initiatives that attempt to support professional development of educators.

Cape Technikon

Information and Communication Technologies

Cape Technikon plans to implement an IT course for teachers on Saturday mornings in conjunction with the Cape Town Teachers' Centre. The course will follow a dual approach, namely, training of teachers in IT skills and training of teachers to integrate use of the technology in the classroom. The course will be presented at Cape Technikon during the first school term and teachers will complete the course at their schools during the following term. In this way, teachers will be empowered to integrate technology into their classroom processes. The type of IT training offered would be determined by teaching needs and the curriculum. It can, therefore, be deduced that the IT course will entertain teacher support programmes such as learning programme, materials design, and elements of Curriculum 2005.

Commentary on CT's Intended Initiative

Given that this course is not yet offered, it is not possible to make extensive comments about it. However, the dual focus on IT skills training for teachers and training in the integration of technologies into the classroom is significant. The intended model, which appears to use a combination of face-to-face training and classroom-based praxis, provides some opportunity for teachers to reflect critically on these processes. It is unclear, however, who will define 'teachers' needs' and how this definition will impact on the training offered.

University of the Witwatersrand's Black High School Partnership Project and Partners

The Internet

Wits' Black High School Partnership Project has recently entered into partnership with the Internet Learning Trust, the Greater Johannesburg Metropolitan Council and the Local

Education Authority of the Birmingham City Council to support an Internet link project with schools in Birmingham and South Africa.[8] The initiative was supported by a £20,000 grant from the Department for International Development. Schools in Birmingham were identified and eventually five schools were selected (Hamstead Hall, Dame Elizabeth Cadbury, Turves Green Girls, Sir Wilfred Martineau and St Albans). In Johannesburg, Interaid has been collaborating with the University of the Witwatersrand Black High School Partnership Project, which has active links with twenty secondary schools in the townships surrounding Johannesburg. The five South African schools selected were Fumana, Tembisa, Musi, Morris Isaacson and Letsibogo Girls' school.

In May 1998, John Davitt, an educational IT specialist working with Interaid, visited Johannesburg to offer various types of support to schools participating in this initiative. One of the most interesting was an intensive training course for eighteen computer coordinators from the project schools. This involved an initial two-day introductory course at Wits University in the use of PCs, accessing the Worldwide Web, using e-mail, creating web pages, and computer conferencing. This was followed by individual training sessions at each of the five schools. Various other projects have been developed, such as collating and sharing information about students' own culture based around a day in the life of a pupil in the school. This will include articles written by pupils, digital photos taken by pupils and interactive conferencing to share and compare cultures. All this material will be published on the web site for other schools in Europe to view.

Comment on Wits' Black High School Partnership
Although the primary focus of this initiative is on schools and on students interacting with one another, some support has been provided to educators. In May, eighteen computer coordinators from the project schools participated in small groups and in individual support sessions. One form of support was school-based training for these coordinators. The purpose of the support appears to be aimed at ensuring that computer coordinators at various schools can support their students' use of the Internet effectively, and also to provide some ICT training for educators themselves. The scope of this appeared to be at a school level rather than focusing on integration into the classroom. Likewise, the initiative appeared to have a management and coordination training support role for the participating educators.

PROVINCIAL DEPARTMENTS OF EDUCATION

In this section, we have focused on Teachers' Centre initiatives coordinated by the provincial department of education's district offices.

Information about nationally coordinated initiatives, such as TELI and the Standards and Protocols initiatives, have been described earlier in this document, and hence are not repeated here.

Cape Town Teachers' Centre (CTTC) and Parow Teachers' Centre (PTC)

The CTTC and PTC provide IT training for teachers working at schools near to these centres. Recently, the CTTC has offered the following workshops to develop teachers' capacities to use ICTs:

- Introduction to the Internet;

[8] See http://www.netschools.org/jobi for a description of ICQ conferencing with Soweto schools.

- Internet training, its educational use for projects;
- Internet installation workshop;
- Introduction to Web editing;
- Managing internet projects; and
- Webquests.

Print, Audio -visual and Internet Technologies

An attempt has been made to train teachers in integration of technology into the classroom environment. CTTC plans to run a joint project with Cape Technikon on this topic.[9] CTTC and PTC also provide training for teachers in the use of technologies ranging from print (such as posters, placards, and flash cards) to overhead projectors, audio and video media and related cassette recorder technologies. CTTC and PTC are regarded as a resource base for teachers, student teachers, and subject advisors. Training in the use of these media does not occur in isolation of classroom activities, but is linked to its application in facilitation of learning and in design of lesson and support materials. Furthermore, the Centres serve as a site at which teacher groups can meet, and where collegiality, sharing of ideas and mutual support is potentially established.

Commentary on CTTC and PTC's Initiatives

Both centres are not located near to disadvantaged schools, with the result that only a few teachers from such schools attend workshops. The Centres are trying to overcome this problem by visiting schools and conducting training sessions *in situ*. PTC intends establishing a media centre at a school in Atlantis, from which training in use of media for the implementation of OBE will be provided for teachers in the immediate vicinity and in surrounding rural areas. PTC is also of the opinion that wealthier schools should be used as centres to provide support for teachers from inadequately resourced schools. Two other centres, namely the Worcester and Oudtshoorn Teachers' Centres, serve the needs of rural teachers, operating roughly on the same basis as the WTTC and PTC.

An interesting and conspicuous feature of all of Teachers' Centres in the Western Cape is that males run the Centres, although mostly female educators attend workshops and seminars. The primary focus of the Centres appears to be provision of training to teachers in use of ICTs at a site distantly located from the classroom. The decision to provide training to teachers at a site closer to schools appears to be part of an effort to increase attendance at courses rather than to reconceptualize training as *in situ* or classroom-based. It is not clear from discussions with representatives from the centres whether or not particular courses with more technical elements attract different numbers of teachers.

Lenasia Teachers' Centre (LTC) District C1

Lenasia Teachers' Centre provides training for teachers in the following:

- use of the computer for admission registers,
- use of a video camera,
- a basic Internet and e-mail course,
- scanning text and graphics, and
- a Windows 95 networking course, which includes:
  - Installing network cards and drives and using names and passwords, and
  - Construction of network cables, linking PC's and terminator installations.

[9] SAIDE (1998) *The Internet, Satellite and the Professional Development of Educators: Building Appropriate Teaching and Learning Models.* SAIDE: Johannesburg. p.127.

The centre has 50 networked Windows 95 Personal Computers linked to four networked computers available for use by teachers. Of these, 32 have Internet access.[10]

Commentary on LTC's Initiative

This initiative appears to provide training for teachers in use of personal computers for a range of tasks required within a school setting. An interesting course is offered in use of computers for administrative purposes, which appears to be a generic course that school managers and teachers would find useful. Other courses such as scanning text and graphics would probably be useful for teachers wishing to prepare resources for use in the classroom. The technical course on cabling and network card installation and management appears to be quite different from the other courses in terms of focus. However, in all courses emphasis appears to be on training teachers to use ICTs, with less emphasis on supporting teachers in integrating technologies into an educational site such as the classroom. And the focus has a stronger technical than educational slant.

Soshanguve Teachers' Centre District N4

The Soshanguve Teachers' Centre was started in 1996 on the campus of the Northern Transvaal Technikon. Due to financial constraints it was closed on 5th December 1997. In July 1998, the Centre re-opened as a Teachers' Resource and Support Centre, and its first resource activity was the delivery of the Shoma Education Foundation's pilot project for Foundation Phase teachers. This initiative is discussed in detail in a later section of this chapter. Given, however, that Shoma has made 24 PCs and satellite broadcasting equipment available at the Centre, the potential does exist for additional training to be provided, although at the time of writing this appendix, there was some debate about the permanence of those resources for the Centre.

SCHOOLS' INITIATIVES

Western Cape Schools Network (WCSN)

The Internet

WCSN functions as an Internet provider for schools in the Western Cape. Its main aim is to ensure connectivity to the Internet by schools who possess computers and modems. The only educational aspect of WCSN is that the network runs a website, which has links to various education sites.[11]

Commentary on WCSN's Initiative

The assumption behind this initiative is 'have technology, will integrate' and, in various ways, many of the schools involved in this initiative have teachers with capacity to integrate these resources into their classroom teaching and learning processes. While the WCSN is not specifically designed as a professional development support resource, it is important to stress that provision of access to information on the worldwide web does not imply that effective integration automatically follows. As connectivity is extended to more schools, it appears as if support will be an additional service that teachers will require from WCSN or one of its potential partners.

[10] *ibid.* pp.60-61.
[11] *ibid.* p.134.

Soweto SchoolNet

Soweto SchoolNet currently consists of six schools connected to the Internet, while fourteen more will 'soon be connected'. [12]

The Internet

The initiative is primarily Internet based, and offers a series of Internet training workshops focused specifically on the Internet skills that are most needed by teachers and administrators. Recently, during the July holidays, a two-week course was offered to teachers to develop Internet skills. The first week of the course focused on computer literacy, as many of the teachers had not used computers before. The second week consisted of an orientation about the Internet, and included Web design and writing e-mails.

Commentary on Soweto SchoolNet

As with some other initiatives, the focus appears to be on supporting teachers so that they can support their students. An interesting aspect of this initiative was that it provided a general orientation to computer literacy and the Internet, before teachers were trained in web design and e-mail literacy. The course appears to be quite comprehensive in terms of training in ICT use, but there does not appear to be a focus on integration into the classroom site.

NON-GOVERNMENTAL ORGANIZATIONS

Mamelodi Multi-Purpose Community Centre

The Mamelodi MPCC is an organization offering a range of developmental services (including information services) to a specific community and with a degree of community involvement.[13] MPCC offers a range of services, such as:

- Information services;
- Document duplication services;
- Capacity building through training initiatives; and
- A computer centre. [14]

The MPCC was established in 1990 by community organizations in Mamelodi. One of the initiatives with which the MPCC became involved was the Adopt-a-Network initiative, run in conjunction with the CSIR and St Alban's College. The technological resources (both equipment and human) allowed St Alban's staff members, trained in the use of computer technology, to provide outreach support to MPCC.

The Internet

The Mamelodi MPCC is connected to St Alban's College through the initiative called Adopt-A-Network. The MPCC includes a Teachers' Centre, and in conjunction with its partners and Reach and Teach, 800 teachers have been trained in basic IT skills over the past five years.[15] Ron Beyers argues that the role of the Internet in teaching includes:

- 'Kick-starting' OBE, as there is 'no better technology' to allow teachers to have input into the system;
- Allowing teachers to collaborate and cooperate;

[12] From http://www.soweto.gp.school.za/training.htm
[13] National Information Technology Forum. (1998). *op cit.* p.5.
[14] National Information Technology Forum. (1998). *op cit.* p.96.
[15] SAIDE (1998) *The Internet, Satellite, and the Professional Development of Educators, op cit.* pp.79-81.

- The Internet is a vast resource for real-time and offline projects;
- Using the Internet with a class hands the responsibility of learning to students. The teacher guides rather than spoon-feeds them through the process. The Internet is one piece of technology that can enable this shift to occur. [16]

Commentary on MPCC's and Adopt-a-Network's Initiatives

Mamelodi's MPCC has 26 computers, seven printers, one fax-modem, a photocopier, and provides a range of services to the community of Mamelodi. [17] According to Beyers, teachers - among other members of the community - are trained in basic computer literacy skills although there is an intention to develop additional courses on implementation of ICTs in the classroom.[18] Users pay for courses (estimated at R100 to R200 per course) and for Internet browsing time. Attempts are being made to extend the network to thirteen high schools and 28 primary schools, although the computers made available by corporate donations will need to be upgraded before it is possible to link the schools to the MPCC.

The MPCC has four paid and two unpaid staff members responsible for the services offered to the community. In this sense, the MPCC and its partners have provided teachers with courses aimed at developing their IT skills. The need for further courses around integration of ICTs into classrooms has been acknowledged, but, given the MPCC's funding and staffing capabilities, it is unclear whether or not this will be available in the short term.

Media in Education Trust (MiET)

MiET is an NGO that aims to transform teaching and learning through provision of materials and training of educators. MiET's focus is on use of media in education, rather than media education. Since 1996, MiET has trained and supported educators in making the shift from a content-based to an outcomes-based system. Print resources (such as newspapers and magazines) are the main medium used, although MiET is offering some of its clients digital products that can then be delivered in print, fax, and e-mail or web site formats.

MiET's 'Core Teacher Development Programme' aims to:

- Empower teacher educators and teachers to master methodologies and competencies put forward in the new education policy documents;
- Institutionalise low cost, relevant and innovative teacher materials to shift learning from a passive, teacher-centred activity to an active, learner-centred process;
- Equip teachers with skills needed to make use of low cost materials such as newspapers and magazines; and
- Promote democratic values, tolerance, and race and gender equity.

This programme is run over a five-month period, with approximately two three-hour contact sessions per month. This means that face-to-face contact amounts to approximately 28 hours per course in the programme. MiET also offers classroom support by visiting teachers in their classrooms. The use of a portfolio made up of a number of practical assignments relevant to the course is one of the strategies used to ensure that teachers become resource managers. MiET also makes available to participating teachers, copies of resources it has produced,

[16] *ibid.* p.81.

[17] See information on Mamelodi Vocational Orientation and Skills Training Multi-Purpose Community Centre contained in National Information Technology Forum. (1998). Appendix 2: *Multi-Purpose Community Centre Research Report*. Johannesburg: NIFT. p.96.

[18] Beyers, R. Presentation to the TAD Consortium on Adopt-A-Network, hosted at Microsoft, Sandton, 14 October 1998.

such as newspapers and magazines, course materials, and teacher activity books. MiET has also developed a course for Foundation Phase teachers and a similar one for Intermediate Phase teachers. These have been developed in collaboration with partners, and accredited through the University of Natal (Pietermaritzburg). MiET has further developed a course, *Using Popular Media as a Classroom Resource,* in partnership with SAIDE.

Commentary on MiET's Initiatives

MiET's initiatives are primarily print-based. And although it appears to be moving towards development of digital content products for some of its clients, its work with teachers aims to focus on integration of certain media into classroom praxis. MiET, with few exceptions, is unique as an NGO provider in its focus on integration issues and the well-designed conceptualization of professional development opportunities for teachers, both in-service and pre-service. Its use of ICTs for professional development delivery however, is virtually non-existent at the moment.

CORPORATE SECTOR

Multichoice International Holding's Shoma Education Foundation

MIH's Shoma Education Foundation was established as a corporate initiative focused on supporting professional development of teachers and other educators. The first project that Shoma developed was recently tested at three sites, namely Nqutu (KwaZulu-Natal), Mitchell's Plein (Western Cape), and Soshanguve (Gauteng). Shoma specifically aims to develop resources that use satellite and Internet technologies to support professional development.

Satellite and CD-ROM/Web Technologies

Shoma's first initiative focused on use of satellite and CD-ROM/web technologies to support Foundation Phase teachers' integration of OBE and Curriculum 2005 principles in their teaching praxis. The nine-week programme included satellite video broadcasts and CD-ROM/web resources focused:

- Education Management Development;
- The Process of OBE;
- Lesson Planning;
- Teaching and Learning Strategies;
- Learning Site Management; and
- Assessment. [19]

Comment on Shoma's Pilot Initiative

SAIDE has recently completed the evaluation of the pilot project at the Soshanguve site. Two key recommendations were the need for Shoma to use Internet and other ICTs to support professional networking between teachers, and for provision of IT training to teachers before exposing them to technology-delivered content on OBE. Within the pilot project, the design and use of satellite and CD-ROM/web resources did not substantially increase teachers' collegiality and support - this was instead achieved in discussion sessions - and it was argued that greater resources need to be invested in conceptualization of the multiple technology-enhanced processes. Eleven centres are now operational.

[19] SAIDE. (1998). The Shoma Education Foundation. *op cit.*

Microsoft SA

Microsoft SA is a marketing arm of Microsoft. According to Leanne Steer, Academic Programme Manager, Microsoft SA is involved in a number of educational initiatives.[20] Its key projects are the:

- Digital Village access project; and
- Teacher Training project that provides training to teachers who have one or two PCs in their schools, and provides some guidance around integration of IT in the classroom.

CD-ROM and Internet Resources

Microsoft SA states that its key focus is provision of resources for teachers. According to Leanne, Microsoft resources are developed in Ireland and the United States of America. Microsoft resources for teachers are regarded as dual support for developing teachers' IT skills, and integrating use of Microsoft software applications in the classroom. For example, one of the Microsoft in K-12 Education series CD-ROM Classroom Training Tools provides a resource to teachers that supports their competence in using Microsoft software applications such as Word, Excel, and FrontPage, as well as information about 'shifting' from Mac to Microsoft.

Microsoft Online also provides a list of resources that are available as freeware, which teachers and students can access on various pages of the Microsoft site. For example, Leanne stated that *Codebreaker* was a resource that teachers could use to develop students' understanding of mathematical principles by using Microsoft's spreadsheet software, Excel.

A substantial part of Microsoft SA's work includes donations of personal computer equipment and software to educational initiatives that submit proposals to the Managing Director. Similarly, Microsoft consultants provide training to teachers and other educators upon request, usually following donation of computing resources to schools.

Commentary on Microsoft SA's Initiative

Like other initiatives, Microsoft is concerned with issues of access and accessibility to educational resources. In this regard it has attempted to make available to South African teachers, paths of access to K-12 Education lesson plans. It argues that this will provide teachers with some sense of what can be done (using Microsoft applications) in classrooms.

There is some indication that the CD-ROM content and design itself makes certain assumptions about teachers' ICT-use skills, attitudes and expectations. For example, in Classroom Training Tools, the 'pitch' is at an intermediate level, and not aimed at a first time user of a CD-ROM or a Personal Computer. Despite this, there is some suggestion that Microsoft SA does wish to pursue a strategy of training in ICT use and, to a lesser extent, support on integration into the classroom, through providing access to Internet and CD-ROM products. It does not however, have an integrated strategy around professional development and ICTs.

[20] Steer, L. Presentation on Microsoft SA's Educational Initiatives to TAD Consortium, Microsoft, Sandton, 14 October 1998.

CONCLUDING COMMENTS

The use of ICTs in delivery of professional development of teachers, and the training of teachers in ICT use appears to be increasing in South Africa. In this section, we offered a short description of some initiatives offered by formal educational institutions, NGOs, the corporate sector, and provincial departments of education. In general, the following trends emerged:

- A range of technologies is being used, although the Internet appears to be increasingly dominant;
- There does not appear to be significant correspondence between the initiative or course design and the policy recommendations on professional development of educators. (UP and MiET appear to be the exceptions);
- The Internet is often used as a mechanism of access but it is assumed by several initiatives that access itself implies transformation of praxis;
- Teacher centres appear to focus on training teachers in use of ICTs and to a lesser extent, integration of these resources into the classroom and teaching praxis;
- Very few initiatives are school-based and thus teachers are 'trained' at sites outside of the classroom environment;
- An overwhelming focus is on Curriculum 2005 and OBE, while other professional development needs appear to be of secondary concern, or are absent; and
- The existing use of ICTs and training provided in ICTs has not be linked to the specific outcome of using the technology to build support networks for teachers.

From this brief scan and review of some initiatives that offer training in ICT use and/or are using ICT for INSET and/or PRESET purposes, there is a sense that most are *not* conceptualised and designed in an integrated way. In appears as if several courses are predominantly focused on the technologies and less on the educational principles and practices which are teachers' daily responsibility. In general, conceptualization and design processes appear almost exclusively focused on technology and technical issues. While we acknowledge that this is an essential starting point, namely developing teachers' *technical competence* in use of ICTs, isolated and *de*-educational courses will not be effective as sustainable strategies and models for ensuring that teachers are trained as generic educators and effective practitioners.