

Information systems and online learning

Trends in Public Higher Education launched by Minister Pandor

Sharon Farrell

Former Assistant Director: Communications



Minister of Education, Naledi Pandor, addresses guests at the launch of the Trends in Higher Education Report

With the launch of the second major report of the National Learners' Records Database (NLRD) on 15 June 2007, SAQA continues to be recognised as the key national source of information for human resource development in policy, infrastructure and planning.

Referring to data on the number of graduates from *Trends in Public Higher Education in South Africa 1995 to 2004* at the Agricultural Research Council conference centre in Pretoria, the Minister of Education, Naledi Pandor, noted that in 1995 there were 542 398 graduates in the available pool. Ten years later, in 2004, that pool of graduates had grown to 1,18 million. Whereas in 1995 only one in four in the pool was a black graduate, in 2004 two in four were black graduates. "That statistic is a clear measure of the success of our policies in widening access to higher education," reported the Minister. "Yet the depth of the historical legacy of apartheid damage and distortion is evident in

the simple fact that the majority of black graduates are in the social sciences and not in the engineering sciences and technology."



Mr Samuel Isaacs, SAQA EO, and Prof Shirley Walters, SAQA Chairperson, listen intently to Minister Pandor's address

In the fields of study, the largest growth was in Business and Management Sciences, while the lowest growth was in Health Sciences, and in Engineering Sciences and Technology. "This is a clear reflection on where young people want to be and where institutions of higher education are positioning themselves," commented Minister Pandor. She went on to add that the interconnections between education and labour demand and supply, or the labour market, are complex. While the appetite of the South African labour market for better-skilled workers is well known, the figures indicate that, in the post-apartheid era, the education system has significantly altered the educational profile of those individuals who are entering the labour force. "They also tell us that we need more matriculants if we are to increase the number of graduates in the available pool," concluded the Minister, "and we really need to push the issue of the quality of education."

The Minister thanked SAQA for its hard work in the production of this new edition of *Trends in Public Higher Education in South Africa 1995 to 2004*.

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The NLRD Directorate is pictured with Minister Pandor after the launch of the Trends in Higher Education Report. From left to right, Maritha Coertze, Mamotse Mangwane, Annatjie Greyvenstein, Cleopatra Radebe, Portia Manaiwa, Carina Oelofsen, Nonhlanhla Dlamini, Chameney Engelbrecht, Minister Naledi Pandor, Percy Mashaba, Veronica Vuma, Ngwako Matloga, Lucky Sibanyoni, Lazarus Sekopa, Molatelo Tloubatla and Yvonne Shapiro (Director).

“The test for us is going to be how we respond to the data,” she concluded.

Background

The NLRD is maintained and developed by SAQA in support of the transformation of the national education and training system. The database will eventually contain a complete record of the formal learning achievements of all South Africans. Currently the NLRD contains information on 20 million learning achievements of 7.5 million students, and maintains a register of approximately 8 000 qualifications and 10 000 unit standards.

In 2004, the first publication based on an analysis of relevant NLRD data, *Trends in Public Higher Education in South Africa 1992 to 2001*, was produced. It highlighted the fact that between 1992 and 2001, an increasing number of qualifications had been awarded to black (African, Indian, and Coloured) people and to women and that the total number of people in South Africa with qualifications from public higher education institutions had almost doubled.

The current publication, *Trends in Public Higher Education in South Africa 1995 to 2004*, highlights qualifications by qualification type, NQF level, population group, gender, and field of study for the period 1995-2004.

Minister Pandor summed up the purpose of collecting the educational information on the NLRD:

“First, it informs governmental research and decision-making in terms of the labour market and education and training. The Database can tell us, for example,” she noted, “how many doctors or engineers are available in South Africa.”

“Second, the collection of all this information into a database enables individual learners to verify their own achievements or to request their verification by potential/current employers and/or employment agencies.

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Dr Adi Paterson, SAQA Board member, also spoke at the launch of the Trends in Higher Education Report

“And, third, it provides unemployed graduates with a portal through which they can access and disseminate their own achievements in a regulated manner,” the Minister said.

Copies of *Trends in Public Higher Education in South Africa 1995 to 2004* are available from SAQA in book form for R3 200.00 and on CD for R1 300.00. An order form is available on the SAQA website, www.saqqa.org.za, or contact Yvonne Shapiro at 012 431 5050.

“We really need to push the issue of the quality of education.”

Convergence of communications, computers and good governance at SAQA

Sharon Farrell

Former Assistant Director: Communications

The proliferation of new information and communication technology (ICT) in the 21st century imparts added value to the processes and relationships that characterise good governance. The rapid development, deployment and proliferation of this technology also heralds new opportunities for growth and development in SAQA. However, the application of ICT can also be risky and is, therefore, not without attendant problems. Chris Lambert, IT Director, left SAQA in April 2007 and has been replaced by Dr Herman Ohlhoff. This article pays tribute to the solid foundation that Chris laid at SAQA.

When Chris started at SAQA as IT Director in 2004, he quickly identified three main priorities in developing an ICT strategy for the organisation.

Power supply

The first of these was to stabilise the power supply. The importance of power distribution to a network was brought clearly into focus for many organisations by the countrywide power failures in 2006. In the world of IT, nothing proves a system component's importance more than the failure of that particular component. At SAQA, disaster has been averted by the installation of a dual uninterruptible power supply (UPS) for each of the 13 SAQA servers. In the event of a power failure, these provide a half-hour back-up period, which provides sufficient time for users to log off without loss of data, and for a graceful shutdown to take place.

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From left to right: Dr Herman Ohlhoff, Sarah Monyaki, Molatela Mbooa, Nkosie Mahlangu, Dianne Creighton, Florance Mundalamo, Chris Lambert

Stable platform

His second priority was to build a stable platform on which to base further development. "We could have opted for the latest technology, a decision which carries its own risks. Instead we decided on a way forward that tempered innovation with good governance. In this way, we knew that SAQA would be a good steward of taxpayer's money," said Chris Lambert. The best way to do this was to install storage area network (SAN) technology. Simply speaking, a SAN is a storage network of several hard drives managed by an intelligent device. This maximises the efficient use of all available storage space and, most importantly, means that if a drive crashes, SAQA's data will not be lost. The other hard drives in the storage network essentially rebuild the information through a series of algorithms. "Extra levels of redundancy ensure that if one path fails, another takes over," explained Chris. In the event of a physical disruption to a network component, data is immediately and non-disruptively rerouted to an alternate path so that services remain uninterrupted. To further protect the system from a catastrophic systems compromise, the data on the hard drives is backed up to the Z drive, backed up to disk, and backed up to the tape drive.

Infrastructure management system

SAQA may be a small organisation in terms of number of staff, but in IT terms it is a complex environment. There are 12 applications, running on different operating systems, which need to talk to one another. Chris Lambert's third and final priority was to implement the Altiris infrastructure management system.

Two major advantages of this are:

- Patch management – Altiris checks via the Internet to see if there are any relevant software patches, downloads them and installs them to the relevant users.
- Centralised console – A dashboard provides alerts if there are problems on the servers or with the network, and identifies flows and problems. This automates operations, improves system availability and reduces overall infrastructure costs.

Virtual reality

Another achievement has been the implementation of server virtualisation. Virtualisation now allows SAQA to run multiple operating systems concurrently on a single physical server, providing for much more effective utilisation of the underlying hardware. Each operating system is contained within a single virtual machine image, which can be moved from one server to another, run alongside other images on the server, or placed in storage to support testing or backup and restore procedures. Virtualisation also supports load sharing or balancing, so that SAQA can, for example, increase the capacity of the financial server and add new temporary users at the end of the financial year.

Virtualisation enables IT to meet the goals of both reducing cost and risk by maximising resource utilisation. Although technology changes approximately every 18 months, hardware is too costly to replace at such frequent intervals. SAQA's policy is to work on a three-year rolling plan, although it also tries to optimise this and stretch it further where this does not compromise the quality of the system. "We are only now getting rid of servers that were

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here when I arrived at SAQA,” explains Chris. “We will be buying one more server and then we will have achieved full redundancy in this financial year.”



Florance Mundalamo and Molatela Moboa, SAQA's two IT learners (January to September 2007)

Software integration

Chris also leaves behind a legacy of integrated software at SAQA. “We haven’t changed applications, but we have put a development strategy in place and architected what we really needed, such as the financial management system and the customer relationship management system,” said Chris. “All these applications also need to link to one another.” An electronic integrated briefing note system has been implemented. In the pipeline, too, is a purchase order system, and IT is continuously refining and making the system more efficient.

Community Gateway

The Community Gateway is SAQA’s Intranet portal, the single access to all corporate information and services. A consistent look and feel makes it easier for staff to recognise where they are and where they can go when navigating the large information space. Also, by integrating services and presenting personalised snippets on the initial screen, the Gateway reduces the need to move around and provides a more efficient environment for job performance. For example, important announcements can easily be made.

Chris is proud to announce that the architecture is now in place to take all this further, as integration with IBM® Lotus Domino Document Manager (formerly Domino.Doc) will allow staff to access anything on the portal, even when off site. Domino Document Manager provides a security-rich and collaborative document management system for SAQA that provides an audit trail and allows version control to be implemented. The Gateway also has a specific area for authority members to access any documents that they may need electronically.

CEEQ

ICT is invaluable for rendering services to the public. At the Centre for the Evaluation of Educational Qualifications (CEEQ), applicants’ data is now captured in more detail, which allows the centre to track people with scarce skills and provide relevant information. Eventually this data will be linked to the National Learners’ Records Database (NLRD). “The public interface has been improved,” notes Chris. “When the system is implemented, applicants will be able to log on anywhere in the world and track the progress of their applications. If they provide a South African cellphone number, any change in application status will be sent to them by SMS. An SMS will also be sent to remind applicants if they have not provided necessary documents.”

Printing, copying, faxing

To increase efficiency, reduce costs and optimise interaction among staff, the Board and partners, SAQA needs to extract every possible advantage from technology – especially in its communication activities. SAQA’s integrated system manages output from an efficiency aspect – it controls toner, paper and the use of machines, and identifies which machines are overused or underused.

Telephony

Chris also instigated the change from the previous standard electronic Private Automatic Branch eXchange (PABX) to Voice over Internet Protocol (VoIP) and Internet Protocol (IP) telephony in the interests of cost savings, improved performance, increased flexibility and better management control. VoIP is the transmission

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of voice conversations over an IP based data network, while IP Telephony is the collective set of software-based voice applications that transport voice via VoIP. This, for example, gives the SAQA chairperson an extension from SAQA in her office in Cape Town. CEEQ is already using IP telephony, which allows the use of call-centre technology such as the queuing system, while the main SAQA reception phone system has been automated.

Governance

The IT Directorate is very conscious of the need for good governance. The Disaster Recovery Management plan has been redrafted, and an off-site contingency plan is due to be implemented. The security and electronic communications policies were expanded and enhanced. SAQA also complies with IT Infrastructure Library (ITIL®) best practice for handling incident management, problem management, change management and configuration management.

ITIL is essentially a series of documents that are used to aid the implementation of a framework for IT Service Management. This customisable framework outlines an extensive set of management procedures that are intended to support businesses in achieving both high financial quality and value in IT operations. It is also aligned with the international standard, ISO 20000, and brings SAQA in line with best practice worldwide.

Open source software

Following Cabinet approval of the policy and strategy to implement Free and Open Source Software (FOSS) in government, SAQA will also migrate to FOSS unless proprietary software is demonstrated to be significantly superior. "We promote FOSS not only because we want to use high quality software and the latest technology, but because FOSS will lower administration costs and enhance local information technology skills," said Chris.



Nkosie Mahlangu working on Fred, the newest server.

When Chris Lambert announced that he would be leaving SAQA in April, he was joined as director of IT at the start of 2007 by Dr Herman Ohlhoff. This has ensured a smooth handover of functions and the IT Directorate continues to be a model of good governance and technological superiority.

"We could have opted for the latest technology, a decision which carries its own risks. Instead we decided on a way forward that tempered innovation with good governance. In this way, we knew that SAQA would be a good steward of taxpayer's money."

NQF Support Link – a tool to help you navigate the NQF landscape

Ntsiki Gumbe

Deputy Director: Information Services

The NQF Support Link, developed by SAQA and delivered by eDegree, provides a range of practical, dynamic and proven in-depth NQF implementation resources to enable all education and training stakeholders to be effective implementation leaders in NQF best practice. It is intended to strengthen leadership in education and training providers, organisations and institutions by making the best use of the opportunities provided by the NQF and the National Skills Development Strategy (NSDS).

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Time for reporting back at the workshop held on 19 and 20 June 2007

The NQF Support Link consists of learning resources and tools that aid in implementing the NQF, which, in turn, assures the quality of the outcomes of education and training. These tools are customised to suit specific organisational needs, thus enhancing the competence of those managing education and training programmes. The NQF Support Link speaks to a range of contexts and institutions dealing with the delivery of education and training at different levels within the NQF framework.

As the publisher of the NQF Support Link, and in ensuring delivery of the programme modules, eDegree has run a series of workshops on Module 1, in which the principal outcomes have been to introduce the key NQF concepts, structures and functions to learners and to guide them towards contextualising the NQF in their own environments. Learners who attended recent workshops in June and July were from a range of private training providers, SAPPI, SAQA, and Unisa.

Learners reported that the workshops were most informative about the NQF and have helped them with the development of learning materials and short courses. Feedback included comment on the excellence in the quality of the learning material

and its relevance in the training and education landscape in South Africa. The overwhelming response of learners has been that the NQF Support Link is of great value, most informative and a highly constructive learning experience.

Learners are booking for workshops on Module 3 (The NQF and Learning Programmes), Module 4 (The NQF and Assessment) and Module 5 (The NQF and Learnerships). In addition, a new module on RPL is currently under development and is due for release later this year.



Learners concentrate at the workshop held on 25 and 26 July 2007

For more information, please contact Ntsiki Gumbe at ntsiki@saqa.org.za

“Learners reported that the workshops were most informative about the NQF and have helped them with the development of learning materials and short courses.”

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New features of the searchable databases of qualifications and unit standards

Carina Oelofsen

NLRD Data Quality Coordinator

The searchable databases of qualifications and unit standards are the main medium through which the National Learners' Records Database (NLRD) supplies information on qualifications and unit standards. Our internal and external clients regularly give us feedback that enables us to enhance these databases. The NLRD system itself also continuously improves as we add more features or refine existing ones. We are, therefore, continuously updating the functionality of the searchable databases to ensure a more efficient, user-friendly service to our clients.

The latest features include the following:

Qualifications using each unit standard

At the end of each unit standard's detailed report, a table shows all of the qualifications that use that unit standard. For example, at the end (below the unit standard notes) of the detailed report of Unit Standard ID 243306, the qualification to which it is linked (in this case, Qualification ID 58011) is displayed (Figure 1).

UNIT STANDARD NOTES
Supplementary information

Chipping refers to the following process:

- Plucking of strings using plectrum to activate the string, to establish string tension. All the strings must tremble at equal tension across the whole back-frame.
- The appropriate tool for this process is the tuning hammer/lever.
- The process of chipping is achieved by plucking the strings chromatically from the middle to the left and then from the middle to the right.
- The pitch of the sound is determined by the length, thickness and weight of the strings.

QUALIFICATIONS UTILISING THIS UNIT STANDARD:

	ID	QUALIFICATION TITLE	LEVEL	STATUS	END DATE
Core	58011	National Certificate: Acoustic Piano Back-framing	Level 3	Registered	2010-03-12

Figure 1

The advantage of this feature is that users can immediately see in which qualification(s) a unit standard is used.

Learning programmes linked to qualifications

Where applicable, at the end of each qualification's detailed report, a table shows all of the learning programmes linked to that qualification. For example, at the end of the detail of Qualification ID 23375 (the generic Bachelor of Arts), the learning programmes linked to this qualification are displayed (Figure 2).

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LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION:

LP ID	Learning Programme Title	Provider	NQF Level	Min Credits
11367	Bachelor: Theology	St John Vianney Seminary	Level 6	360
9317	Bachelor of Theology	University of the Free State	Level 6	512
12113	Bachelor of Theology	University of Pretoria	Level 6	644
7367	Bachelor of Theology	University of Stellenbosch	Level 6	504
7727	Bachelor of Theology	University of Western Cape	Level 7	480
36086	Bachelor of Theology (Level 6)	South African Theological Seminary	Level 6	360
24495	Bachelor of Theology	Hebron Theological College	Level 6	120
49575	Bachelor of Theology	AFM Theological College (Auckland Park Theological Seminary)	Level 6	408
50168	Bachelor of Theology	St Joseph's Theological Institute	Level 7	605
50354	Bachelor: Theology	Baptist Theological College of Southern Africa (The)	Level 6	480

Figure 2

The table includes details like the learning programme title, provider, NQF level, and minimum credits of the learning programme. The main advantage of this feature is that, since all the learning programmes recorded against the generic qualification are displayed, the user does not need to search for every single one.

Links from tables

Wherever qualification IDs or unit standard IDs appear in tables, these are now links to the detailed reports of these qualifications and unit standards. For example, clicking on the elective 243329 in the table of unit standards that appears at the end of the detail of a unit standards-based qualification will open up the relevant unit standard (Figure 3).

UNIT STANDARDS

ID	UNIT STANDARD TITLE	LEVEL	CREDITS
122022	Analyse leadership and related theories in a work context	Level 5	8
122023	Analyse the role that emotional intelligence plays in leadership	Level 5	8
253202	Command a flight operation on a large aircraft	Level 6	25
253203	Command a flight operation in emergency/critical situations on a large aircraft	Level 6	25
122024	Manage HR, LRP and data communication specific to aviation	Level 4	4
122025	Manage an aircraft with reference to radio alt	Level 6	10
253204	Perform aircrew-related flight operations at an airfield	Level 6	5
122026	Perform instrument flight procedures	Level 6	10
253205	Perform pre- and post-flight procedures and administration	Level 6	11
122027	Identify and deal with dangerous goods	Level 5	11
253206	Analyse and apply safety principles to aviation	Level 6	9
122028	Analyse the effects of engine failure	Level 6	4
253207	Analyse the business and technical aspects of large aircraft components and emergency equipment	Level 6	17
253208	Formulate the additional components required for conversion to a large aircraft	Level 6	10
122029	Demonstrate understanding of advanced aircraft navigation	Level 6	15
122030	Demonstrate understanding of advanced aircraft instrumentation	Level 6	10
122031	Demonstrate understanding of advanced aircraft systems	Level 6	8
243329	Perform flight time operations	Level 5	3

SAQA

SAQA is the national authority for the South African Qualifications Authority. It is responsible for the development, registration, assessment, accreditation and certification of qualifications and unit standards.

UNIT STANDARD 243329

Perform flight time operations

Level 5

3 Credits

SAQA ID: 243329

Unit Standard Title: Perform flight time operations

SAQA ID: 243329

Level: 5

Credits: 3

Part of: 243329, following structure: 243329/1, 243329/2, 243329/3, 243329/4, 243329/5, 243329/6, 243329/7, 243329/8, 243329/9, 243329/10, 243329/11, 243329/12, 243329/13, 243329/14, 243329/15, 243329/16, 243329/17, 243329/18, 243329/19, 243329/20, 243329/21, 243329/22, 243329/23, 243329/24, 243329/25, 243329/26, 243329/27, 243329/28, 243329/29, 243329/30, 243329/31, 243329/32, 243329/33, 243329/34, 243329/35, 243329/36, 243329/37, 243329/38, 243329/39, 243329/40, 243329/41, 243329/42, 243329/43, 243329/44, 243329/45, 243329/46, 243329/47, 243329/48, 243329/49, 243329/50, 243329/51, 243329/52, 243329/53, 243329/54, 243329/55, 243329/56, 243329/57, 243329/58, 243329/59, 243329/60, 243329/61, 243329/62, 243329/63, 243329/64, 243329/65, 243329/66, 243329/67, 243329/68, 243329/69, 243329/70, 243329/71, 243329/72, 243329/73, 243329/74, 243329/75, 243329/76, 243329/77, 243329/78, 243329/79, 243329/80, 243329/81, 243329/82, 243329/83, 243329/84, 243329/85, 243329/86, 243329/87, 243329/88, 243329/89, 243329/90, 243329/91, 243329/92, 243329/93, 243329/94, 243329/95, 243329/96, 243329/97, 243329/98, 243329/99, 243329/100

Figure 3

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The database of Qualifications using each Unit Standard (see Figure 1) is also a good example of where this link is used. The main advantage of this feature is that it speeds up the search process, because the user can quickly access the required record and does not need to go back to the initial search page.

Word Search function

The Word Search function allows users to search for words that may appear anywhere in the *content* of Qualifications and Unit Standards.

For example, searching for the word 'apple*' using the Word Search field (Figure 4) will return all the Qualifications (or Unit Standards) that contain words like 'apple', 'applesauce' or 'applet'. (A detailed 'How to' section is available in the Word Search hyperlink.)

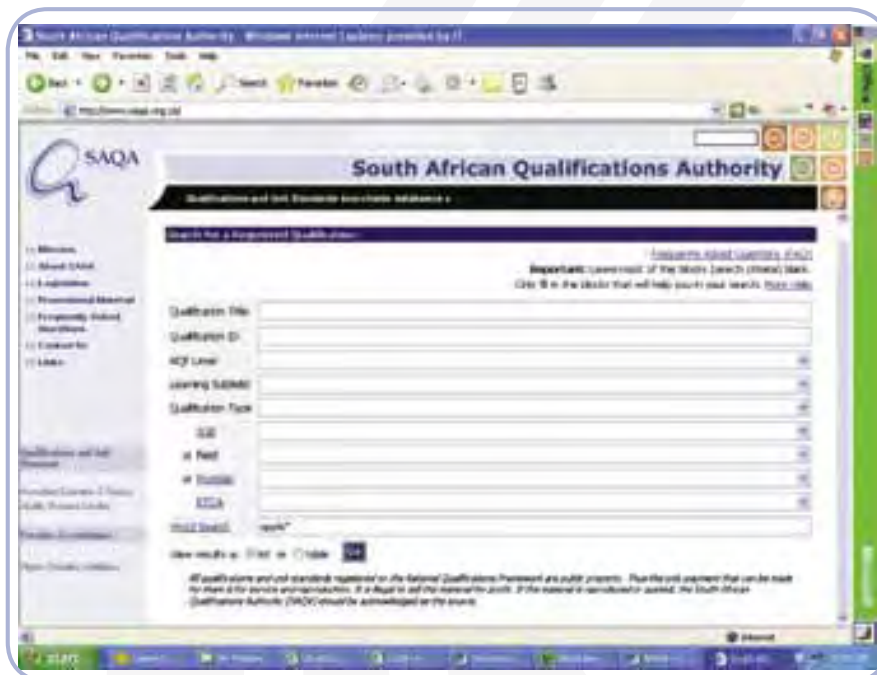


Figure 4

The advantage of this feature is that users can search for the occurrence of a specific word (or words) that might not necessarily appear in the title, but may appear in the content, for example, in the Purpose or Outcomes of a Qualification or a Unit Standard.

Alerts

Users who have subscribed to the SAQA Alerts are alerted every time a new feature is added. The NLRD Directorate continues to aim at creating and maintaining a useful environment that our clients can use any time, anywhere.

“The NLRD Directorate continues to aim at creating and maintaining a useful environment that our clients can use any time, anywhere.”