SHOCKING FIND:
Early switch from mother tongue hampers maths and science learning
WHO WE ARE
The Human Sciences Research Council (HSRC) is South Africa’s statutory research agency dedicated to the applied social sciences. It has approximately 130 researchers, top researchers, mainly specialists, 30 interns and 130 support staff. Its revenue is now derived roughly one third from its Parliamentary grant and two thirds from earnings through tenders, commissions, and local and international foundation grants.

WHAT WE DO
The HSRC does ‘social science research that makes a difference’, concerned with all aspects of development and poverty alleviation in South Africa, the region, and in Africa. It undertakes policy-relevant, often large-scale, research for government departments at national, regional and local levels, other public entities, and local and international development agencies.

HOW WE DO IT
The HSRC has transformed itself to respond flexibly and comprehensively to users’ requirements by:

◗ radically restructuring and expanding its research capabilities aligned to major development challenges;
◗ recruiting top-quality research executives and specialists;
◗ integrating many of its projects into large-scale national ventures, conducted in collaboration with researchers in other science councils, tertiary institutions and NGOs here and abroad, and international agencies; and
◗ functioning as a ‘knowledge hub’, intended to help bridge the gap between research, policy and action, thereby increasing the impact of its research.

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NEW @ HSRC

DR IVOR CHIPKIN has been appointed as the Chief Research Specialist in the Democracy and Governance Programme. Before joining the HSRC, he worked at the University of the Witwatersrand in the Wits Institute for Social and Economic Research (WISER).

JONATHAN MAFUKIDZE has been appointed as an Assistant Researcher in the Integrated Rural and Regional Development (IRRD) Programme. Before joining the HSRC he was studying and tutoring at the University of Pretoria.

PHISTOS MASHAMAITE also joined IRRD as an Assistant Researcher. He previously worked as an intern at the Limpopo Department of Agriculture (Polokwane), performing duties related to agricultural economics.

PROFESSOR THOMAS REHLE has been appointed as a Research Director in the Social Aspects of HIV/AIDS and Health Programme and as Visiting Professor of International Health at the University of Cape Town, School of Public Health and Family Medicine. He served at Family Health International as Associate Director in the HIV/AIDS Prevention and Care Department before joining the HSRC.

PROFESSOR ALISON TODES has joined the Urban Renewal Development Unit of the Surveys, Analyses, Modelling and Mapping Programme as a Research Director. Before this, she was Professor and Programme Director for Planning in the School of Architecture, Planning and Housing at the University of KwaZulu-Natal, Durban.

R&D DATA MEET STRINGENT CRITERIA FOR OFFICIAL STATUS

South African National Research and Experimental Development (R&D) data have attained national and international recognition, according to a media release by the Department of Science and Technology (DST).

The statistician-general, Pali Lehohla of StatsSA, has declared that the data of the 2001/02 National R&D survey meet the requirements for official data in terms of the Statistics Act of 1999.

The DST contracted the HSRC to perform the R&D Survey, so the Department is the first member of the National Statistics System to have its data declared as official statistics. Statistics labelled as such must meet certain criteria, for example, they must protect the confidentiality of the respondents’ identity and the information they provide, and be relevant, accurate, reliable and timeous.

The HSRC’s Knowledge Management (KM) Programme, under the leadership of Professor Michael Kahn, conducted the survey for the department. The Centre for Science, Technology and Innovation Indicators (CESTII) is now part of KM. Kahn said he is delighted with the attainment of these milestones.

‘In conferring this status on the R&D Survey time series, StatsSA has signalled its confidence that the CESTII, located at the HSRC, will continue to accord with the criteria that govern such certification. The criteria are to conduct the surveys at regular intervals to the agreed standard. This includes careful management of respondent confidentiality.’

He said the Organisation for Economic Co-operation and Development (OECD), the Paris-based think tank where South Africa maintains observer status, has also, for the first time, recognised the South African R&D data series. From July, the OECD has included our country’s data in its authoritative publication, Main Science and Technology Indicators, which is compiled twice a year. The OECD publication includes the key R&D indicators for South Africa, starting from 1983.

HSRC RATED TOPS IN CATEGORY BY PMR MAGAZINE

The HSRC came out at the top of its category in an annual survey of state-owned enterprises (SOEs) and semi-privatised listed companies in the PMR (Professional Management Review) magazine, and second in the overall rating of all the categories assessed.

PMR conducts over 30 000 top decision-maker interviews annually in every country where it has a presence, to produce customer ratings, strengths and weaknesses. The survey is done among senior government officials at director level, senior union officials and senior management – from business associations, analysts and economists, from stockbroking firms to financial institutions in South Africa.

According to the publication, the attributes reflect trends in the most important issues pertaining to good governance and the contribution to industry in South Africa as a whole. Senior decision makers were asked to rate a predefined list of SOEs and semi-privatised listed companies overall and across a range of 16 attributes, including financial management and control; good corporate governance; sustainable business practice; risk management assessment; effective partnerships; brand building and awareness; employment equity; contribution to counter HIV/AIDS; and fulfilling their mandate as set out by the government.

In the Regulatory Bodies category, the HSRC came in first with a rating of 3.74, followed by the SA Bureau of Standards. In the overall rating, the HSRC came in just below the Development Bank of Southern Africa (DBSA), which came first in the Finance and Development category with a score of 3.93.
AWARD FOR BEST SCIENTIFIC PAPER

Tim Hart, a Senior Research Manager at the HSRC, and Roberta Burgess, an entomologist at the Agricultural Research Council’s Infruitec-Nietvoorbij, were awarded the best scientific paper at the 39th Annual Conference of the South African Society for Agricultural Extension, in Bloemfontein in May.

Their paper, *Across the Divide: The Impact of Farmer-to-Farmer Linkages in the Absence of Extension Services*, discusses the achievements of a small-holder apple farmer who, despite political and resource constraints, was able to enter into the national and international apple export market in the 1990s and has remained there ever since.

By forging and strengthening a relationship with a large-scale commercial farmer, he was able to develop the technology that allowed him to remain in the market and to adapt to consumer preferences. The paper concludes that agricultural extension and research services need to pay more attention to farmers’ own networks and their ability to innovate based on their experience and circumstances.

Roberta Burgess and Tim Hart are committee members of PROmoting Local INNOV Ations (PROLINNOV A South Africa), a national network consisting of non-government organisations, government extension services and science councils, aimed at promoting and strengthening farmer innovation and experimentation in South Africa.

SAHARA CONFERENCE IN OCTOBER IN DAKAR

The next Social Aspects of AIDS Research Alliance (SAHARA) Conference will take place from 10 to 14 October in Dakar, Senegal. SAHARA is an alliance of partners established to conduct, support and use social science research to prevent the spread of HIV/AIDS and mitigate its devastating impact on South Africa, the South African Development Community and sub-Saharan Africa.

The theme of this year’s conference is ‘Bridging the Gap between Policy, Research and Interventions’.

SAHARA is a channel to facilitate the sharing of research expertise and knowledge and to conduct multi-site and multi-country research projects. These projects are by nature exploratory, cross-sectional, comparative or intervention-based and aim to generate new social science evidence for the prevention, care and impact mitigation of HIV/AIDS.

The SAHARA Research Network Project is funded by the Department for International Development in the UK and the Canadian International Development Agency (CIDA). It is implemented by the HSRC in partnership with the Tropical Institute for Community Health in Kenya and the Université Cheikh Anta Diop of Dakar in Senegal.

What is your vision for the HSRC?

To make it both a human and social sciences research council. The human part of the HSRC is silent; we have not systematically used history, philosophy, arts, culture, language, religion and tradition to make sense of our society and the African continent. An emphasis on humanities will improve our understanding of our societies and relations between people of different socioeconomic, racial, ethnic, religious and cultural backgrounds. It will inform our analyses of events in our country and our expectations of people’s behaviour, which is critical to the choice of research questions, the interpretation of the findings, and to supporting the implementation of evidence-based research recommendations.

You are taking over at a stage when the HSRC’s research earnings have increased rapidly and now exceed the parliamentary grant. Do you anticipate that the organisation will reach saturation point in the near future?

The HSRC should raise funds commensurate with the size of the problems under investigation. But we also need to manage the growth of the organisation for sustainability. We need to focus on fewer small projects and concentrate on large-scale, multi-discipline projects that have an impact. When we take on smaller projects, the consideration should be whether they are of strategic importance. The size of the projects will determine how much money is needed.

You emphasise the need to rethink how the HSRC is ‘reaching out to Africa’. How do you foresee this happening?

We need to be careful not to be seen as a coloniser, bringing our own ideas without gaining from other Africans, who in some respects have more experience in specific areas than we do. I would rather see the primary objective of HSRC researchers being to encourage other Africans to undertake research. The secondary objective could be collaborative research, to build capacity in countries that need it.

The HSRC will create continent-wide networks to encourage Africans to jointly explore their history within their own political, social, economic and cultural milieus. If we become a hub of analysis and the exchange of ideas by establishing a programme for African visiting scholars, fellows and scientists, we stand a better chance of being recognised by NEPAD and other organisations as an African centre for excellence.

You speak about implementation-oriented research. Is there a difference between implementation research and applied research?

Implementation research is part of applied research. It describes a social programme; assesses whether it is operating according to a particular model or standard; and explains it, by generating hypotheses about why it is operating as it is. It uses a variety of research methods to understand programme design, resource envelopes, service provision and outcomes. It supports service delivery.

How do you combine being a mother and wife with being a highly rated researcher and now a CEO?

It’s not easy to balance all the roles I play. I’m fortunate to have a family that is very supportive. If I have to work at home, they give me space. But I also use my time judiciously. I write most of my scientific papers over the weekend or while flying. Being CEO is demanding on its own. While I no longer conduct primary research, I am still writing papers because the leader of a scientific organisation must be a knowledge generator.

What do you do when you are not working?

Long walks at the beach, swimming, playing chess and So Duko. I also like going out to dinner with the family and reading novels.

What legacy would you like to leave at the end of your tenure as CEO at the HSRC?

I would like to contribute to major policies to improve service delivery in South Africa and across the continent. And I would like to attract a significant number of new masters and doctoral black researchers, who have excellent publication records and are undertaking research of national importance.
A survey in two rural townships has shown that over 30% of children are without a mother, a father or both. The problem is especially acute among children 15 years and older, where more than 20% are orphaned.

These are some of the findings of an HSRC census report on the prevalence of orphaned and vulnerable children (OVC) and their living conditions in Kanana, in the Klerksdorp municipality in the North West, and Kopanong municipality, in the Xhariep district in the Free State.

The study forms part of a five-year project aimed at implementing interventions to assist children, families and communities affected by HIV/AIDS in Botswana, South Africa and Zimbabwe, commissioned by the W.K. Kellogg Foundation.

The information provided by the study is important, as there are no reliable current statistics available on the number of OVC in any district in South Africa. Reliable information on the number of OVC is vital to government and non-government organisations to enable them to do proper planning and determine the impact of their work.

The main aim of the research was to count all OVC in eligible households in the two townships, and to obtain specific information on the caregivers, such as the total number of children they were taking care of; the nature of their accommodation; and the economic situation in each household.

Participation in the census was high: 99% (17 950) of households agreed to participate.

The average age of participants in Kanana is 25.6, in Kopanong 27.2. Over 40% of the population in both communities are children aged 18 years and younger. The overwhelming majority of children (70%) are younger than 15.

The problem of orphanhood in the communities is very serious. In Kanana, nearly 40% of all children have lost a mother, father or both parents. Of these children, 4% have lost a mother, 28% a father and 6.6% both parents.

In Kopanong, about a third (34%) of all children have lost a mother, a father or both parents. Of these children, 6% have lost a mother, 19% a father and 8.3% both parents.

In both these communities, the problem is especially acute among children of 15 years and older, as over 20% of them are orphaned.

There are no differences in the average number of meals orphaned and non-orphaned children have per day. But orphaned children are more likely to go without food at least once a week. In Kopanong, 43% of household members do not have food to eat one day per week, compared to 51% in Kanana. This finding concurs with reports of lack of food security when one or both of the parents die, especially when the dead parent is the breadwinner.

A particular area of concern, especially in Kopanong, is the large number of households that are headed by illiterate women over 50. This can pose several serious challenges. Firstly, because they are illiterate, the majority are unemployed, poor and are not aware of their rights to social grants. Secondly, these women are not able to help the children with their homework, which is to the detriment of the children’s academic development.

The survey found that school attendance is very high, with over 90% of children aged 6 to 18 attending school in both communities. This is made possible by virtually free schooling, since parents and/or guardians are only required to pay if they can afford to. A small minority of children are reportedly not attending school because of financial reasons.

In both communities, a third of households have incomes of less than R650 per month,
making them vulnerable according to at least one of the criteria set for the study.

Overall, tap water, electricity and health services are widely available to the majority of households in Kopanong. One serious concern is that about half of Kanana’s households still use the bucket toilet system, placing children in these households at a higher risk of contracting infectious diseases.

At the time of the census, there had been an outbreak of cholera due to water pollution following heavy rains. Ill health posed an additional burden on a number of households, and in a third of the households at least one family member was seriously ill in the month before the census.

In Kopanong, 26% of the entire sample received some form of grant, whereas in Kanana, only 16% received a grant – mostly old age pensions and child support grants. A relatively high number of people had disabilities, but relatively few of the households had access to disability grants. This issue is serious enough to require further investigation.

The number of child-headed households in both communities is very low. In Kanana only 30 households are headed by children, in Kopanong 34. The role of the extended family in both communities could possibly account for the low figures, providing a safety net for these children.

The problem of orphanhood and vulnerability of children is indeed serious, and the community’s ability to provide adequate support to these children is limited owing to generally high poverty levels.

Interventions that will assist households to generate more income to help them care for OVCs is crucial, especially to improve food security. The disability and serious illness of household members adds to the bleak prospects of many households.

Professor Leickness Simbayi is a Research Director, Sean Jooste is a Research Specialist and Azwifaneli Managa is a Junior Researcher in the Social Aspects of HIV/AIDS and Health Research Programme.
Most African countries have embarked on new education policies and curriculum changes after UNESCO’s 1990 World Conference on Education For All. Yet education success for the majority of children remains elusive.

A draft report of a study on language education research was recently debated at the Conference on Bilingual Education and the Use of Local Languages in Windhoek, attended by education officials and experts from 19 African and 5 European countries. The draft report was compiled by organisations such as UNESCO Institute for Education, the Association for the Development of Education in Africa, and the Deutsche Gesellschaft für Technische Zusammenarbeit.

A final report will be submitted to the Association for the Development of Education in Africa Biennale in Gabon in March 2006.

The study shows that although language education policies diverged across sub-Saharan Africa during the colonial period, post-colonial developments are showing a remarkable convergence towards one language model. Tanzania, Ethiopia and Eritrea are the only countries with other models.

The former French, Portuguese and Spanish colonies used only the colonial language in education. Post-independence shows increasing movement from zero mother-tongue education to between one and three years of learning in the mother tongue, followed by a transition to French and, in Mozambique, Portuguese.

In contrast, African languages were transcribed by missionaries in the former British colonies and used as the medium of instruction in education for four to six years. Since independence these countries have tended to whittle away at mother-tongue education (MTE) and either eliminate it or reduce it to a maximum of three years.

Today, with a few exceptions, there is a convergence towards similar language education models across sub-Saharan Africa. In most cases children receive up to three years of MTE, followed by a switch to education in the former colonial language.

But research in psycholinguistics and second-language acquisition shows an inherent design flaw in such models. Children are expected to learn through a second language before they have developed sufficient proficiency or competence in this language to make this possible.

One of the reasons for the design flaw is that language education models used in African settings have their origins in second-language programmes designed in Europe to teach students a second language, such as conversational skills, writing tasks and some literature – not to prepare them to learn mathematics, science, geography or history through the second language.

A second reason is that the language
programme designers have not kept up to date with contemporary research between the cognitive development of children and language learning, and how children use language to learn all areas of the curriculum. And lastly, because these programme designs do not originate in African settings, they do not accommodate the multilingual nature of the continent.

It is almost impossible for pupils to learn enough of the second language in three years to switch to a second-language medium of instruction by Grade 4. In countries where there are well-trained teachers and sufficient classrooms and schoolbooks, children usually need between six and eight years to learn a second language before they can use it as a medium. This means under optimal conditions they should not switch language medium before Grade 7.

In less well-resourced schools, the research evidence shows that it may be possible to switch medium in Grade 9. Switching medium several years earlier results in educational failure, as countless studies demonstrate.

The draft report sets out an analysis of a vast set of apparently incontrovertible data that are likely to shock governments across the continent. Studies from Africa range from the earliest internationally significant study of bilingual education which took place in South Africa in the late 1930s, to a Nigerian study in the 1970s, an HSRC study headed by Carol Macdonald in 1990 and more recent studies in Niger, Mali and Ethiopia. Longitudinal studies of bilingual and English second-language programmes in Nigeria and North America were cross-checked against many shorter-term studies to establish what education planners can expect from different types of language education models.

Insignificant differences in literacy development among different language models are evident between Grades 1 and 3. Any model that is implemented by well-trained teachers and accompanied by good teaching materials will do better than a model that lacks these resources.

But when children are tracked over a long period from Grade 4 onwards, significant gaps begin to appear between children who continue MTE and those who have switched to a second-language medium. We can now predict that most students who switch from mother-tongue medium to another language by Grade 4 are likely to achieve only between 30% and 40% in their second language by Grade 12, even though they seem to have had longer exposure to this language.

In contrast, students who have learned in the mother-tongue medium for at least six years are likely to reach 50% or more in the second language. Those who have MTE throughout (Grades 1 to 12) plus the second language taught as a subject by a teacher who is proficient in the language are likely to achieve 60%.

So, despite popular wisdom, the longer students have MTE plus well-resourced second language as a subject, the better they will perform in this language, and are more likely to achieve well in mathematics, science and their own home language than those learners in models with an early transition to an international language.

The report also dispels the notion that MTE is more expensive than second-language education.

Early transition to the second language is the most expensive to resource, since it requires all teachers to develop native-like proficiency in the second language to teach well in it.

In South Africa, it would mean about 200 hours of English second-language development tuition for 200 000 teachers. If a country were to opt for this, the return would still not be worth the investment. Nowhere has it been demonstrated that a mainstream education system can be successful if it is based on the second language, particularly when this language may in fact be the child’s third, fourth or even fifth language.

The most economical scenario is to equip a corps of teachers with what is known as ‘native or near-native-like proficiency’ in English to teach English as subject language specialists. This corps would comprise about 15% of the teachers from Grades 4 to 12. The return on investment for this model promises far greater rewards, both economically and in terms of educational outcomes for students.

A compromise would be to have MTE in Grades 6 to 8, followed by the transition to English. The returns are high but the costs are greater.

The draft report can be traced electronically as follows: http://www.adeanet.org/meetings/en_Aug-locallanguages-2005.htm

The draft report is likely to shock governments across the continent

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**Table: Language Model Comparisons**

<table>
<thead>
<tr>
<th>Early-exit: 1 to 3 yrs MTE, then L2** medium after Grade 4</th>
<th>MTE 6 to 8 yrs, then dual medium (L1* plus L2) to Grade 12</th>
<th>MTE for 12 years plus L2 as subject taught by L2 specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% teachers from Grade 4 to 12 need upgrade proficiency in E/F/P/S*</td>
<td>Upgrade 50% teachers E/F/P/S* proficiency</td>
<td>Upgrade 15% of teachers E/F/P/S* proficiency (the specialist L2 teachers only)</td>
</tr>
<tr>
<td>100% L2 methodology</td>
<td>50% teachers L1 methodology + 50% L2 methodology</td>
<td>85% L1 methodology + 15% L2 methodology</td>
</tr>
<tr>
<td>100% teachers content upgrade</td>
<td>100% teachers content upgrade</td>
<td>100% teachers content upgrade</td>
</tr>
<tr>
<td>COST</td>
<td>RETURN</td>
<td>COST</td>
</tr>
<tr>
<td>high</td>
<td>lowest</td>
<td>medium</td>
</tr>
</tbody>
</table>

* L1 = first language, ** L2 = second language, * English / French / Portuguese / Spanish

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Dr Kathleen Heugh is a Chief Research Specialist in the Assessment, Technology and Education Evaluation Research Programme. She was one of the principal researchers of the study on language education.

Social science that makes a difference
South African firms have faced a new operating environment since 1990, as the economy has shifted from a relatively closed state to the open globalising regime of the World Trade Organisation. Firms seeking to compete globally in new markets require access to competitive technologies. These may be imported or developed in-house, and in both cases research and development (R&D) capability is required.

These challenges and the way firms in different industry sectors respond provide a research agenda that turns up interesting paradoxes. In trying to understand these responses, ‘evolutionary economics’ provides insights into so-called path dependence as well as the cumulative and non-linear character of learning in firms. History matters, and the more one knows the more one can know.

In the South African case the sanctions era gave rise to some quite distinct corporate behaviours. This history must be factored into the analysis. Foreign multinationals operating in the country often went the route of disinvestment and sold on to local management or other parties, thereby cutting the flow of new technology from the foreign parent. Some of these ‘franchises’ then set up a local research and development (R&D) capacity, as in software development and the automotive industry.

On the other hand, the mines, banks and insurers, SASOL and those companies organised in the ARMSCOR value chain, as well as the parastatals, could not disinvest. But they also faced the technology acquisition problem. This was met by both local R&D and technology importation, against very short timelines.

Both groups experienced distorted flows of tacit and embodied technologies. How can one begin to make sense of the way these behaviours have changed?

One approach is through the time series of R&D surveys that show R&D spending since the 1980s at around 0.75% of GDP, with the business sector spending half the total.

Using new data from the R&D surveys of 2001/02 and 2003/04, as well as historic data, the Centre for Science, Technology and Innovation Indicators (a unit of Knowledge Systems) seeks to understand the above corporate dynamics with the view to inform decision-making by government as it seeks to better support the various actors in the national system of innovation.

The European Union (EU), through its Barcelona Declaration, has set the target of spending on R&D at 3% of GDP by 2010, with the business sector expected to account for 67% of the spend. The question these benchmarks pose is this: with the EU average GDP/capita of $25 000, are these at all relevant to policy in a country with GDP/capita of $10 000 purchasing power parity? The problem is sharpened yet further when one notes that the average EU Gini coefficient is 0.3 compared with our high value of 0.6. Are we attempting to punch above our weight when handicapped by the Gini drag? The accompanying graphic (diagram 1) positions country business expenditure against GDP/capita, and shows that we keep interesting company, as we are in the quadrant of previously closed economies of the various communist states.

What else can we say about the R&D behaviour of business? Well, SA business generally funds its own R&D. In other words, there are
Weak financial linkages to the other major R&D players, namely the universities and government laboratories. Compared with the EU member states and the larger Organisation for Economic Co-operation & Development, this financing behaviour by our firms, at 56%, is slightly above the average value of 50%. This then constitutes one of the paradoxes: in a low GDP/capita environment, our firms appear to show R&D behaviour like their more advanced peers abroad. In this sense, SA business is ‘normal’; it finances its own R&D and utilises the flow of human capital from the universities as a source of new technological knowledge.

Let’s examine this a little more closely. An important measure of country (and corporate) competitiveness is the volume of patent applications and patents awarded at the US Patents and Trademark Office (USPTO). For South Africa, the volume of patent awards is low, and almost static, at around 120 per year. This low historic value may be a legacy of the closed economy; it may also be a reflection of the low country spend on R&D and its limited stock of high-level human capital. Before one leaps to these conclusions, one must look at the patent application data, bearing in mind the shifts described above. But here too the data disappoint: USPTO patent applications are also static.

However, South Africa’s transnational corporations, as part of their globalisation strategies, are filing patent applications in the countries where they trade or manufacture, as a defensive strategy. To prosper globally, one must protect one’s intellectual capital. The patent databases tell the story one way. The other way to gain insight into R&D behaviour is by examining the R&D expenditures at corporate level.

A panel of firms across mining, resources, manufacturing and electronics, for which at least four records exist across the selected time period, is now under scrutiny. The panel includes 12 large R&D performers drawn from the 30 firms with (2003/4) R&D expenditures greater than R50 million a year. Another 27 are medium to small spenders, ranging down to R4 million annual R&D expenditure, drawn from the 120 firms in this category.

Preliminary findings show four different R&D investment behaviours for firms

*Figure 1: GDP/capita in relation to Business share of national R&D (BERD)*

Preliminary findings show four different R&D investment behaviours for firms. These may be categorised according to firms active only in the domestic market, firms subject to the resources commodity cycle, firms that have been subject to (foreign) takeover and firms that have acquired significant foreign market share.

Those firms that have globalised aggressively show a growth in R&D expenditure that far exceeds economic growth rates. These R&D aggressive firms include those that are most active in patenting their inventions. The domestic market firms show R&D expenditure over time that follows economic growth; the resources firms demonstrate an erratic pattern that appears to follow the domestic resources price (resources are dollar denominated); firms subject to takeover appear to curtail their local R&D considerably.

This short digression raises many more questions than it answers. To be sure, the most compelling questions relate to how the country will reach the 1% R&D spending target that the 2002 R&D Strategy has set. If indeed business is punching above its weight, is the implication that government, and the publicly funded sector with the universities, are in the lightweight category? It may well be that to reach the 1% target it is government that has to put on weight. There is an historic case to be made: when one looks at the top 20 R&D performers, the unassailable truth is that only 5 are in the business sector. If one moved back 15 or 20 years, the number of large business players might have been only two. This suggests the role of the state as a technology incubator if not midwife. It is this nursery role that might want enlargement through a recommitment to state funding of R&D. Back to the future? •

Professor Michael Kahn is Executive Director of the Knowledge Management (KM) Research Programme. Stanley Ntakumba and Ncosikhoe Batatu are Researchers and Julien Rumbelow and Anthony Burns are Consultants to KM.
A key element to successful interventions is to target pre-adolescent youngsters who are still at low risk of being infected.

With this in mind, the AmaQhawe (Champions) Family Project was adapted from a programme originally developed in the USA: the Collaborative HIV/AIDS Adolescent Mental Health Project (CHAMP). AmaQhawe is a collaborative project between the HSRC, the School of Psychology at the University of KwaZulu-Natal and USA-based collaborators, funded by the National Institute of Mental Health.

The programme’s basic aim is to strengthen the families of pre-adolescent children, and their communities and social networks. Families that are part of a social network tend to be better at reducing risk for their children. Evidence shows that in addition to education about HIV/AIDS, communication, parental warmth (as opposed to a punitive parenting style) and active monitoring of children helps to reduce risk behaviour in adolescents.

The South African version of the CHAMPS manual was based on findings from a focused ethnographic study that identified a breakdown in traditional customs of bringing up adolescents, particularly in sexual and other behavioural practices.

The study revealed that parents felt disempowered; communication between parents and children was poor; and parents used punitive methods to discipline their children. It also revealed poor knowledge of HIV/AIDS and how it was transmitted, and parents or caregivers did not know how to deal with the loss of family members who died from AIDS.
Families that are part of a social network tend to be better at reducing risk for their children

Since parents were sensitive about discussing sex and puberty with their children and many had low literacy levels, a cartoon-based storyline was used to introduce various topics, for example, parent–child communication, puberty and dealing with the stigma of HIV/AIDS.

The cartoon characters provide the necessary distance from the topic to allow parents (and other caregivers) and children to talk through the cartoon characters. The cartoon characters and storyline mirror the problems that confront families and open up avenues of discussion.

The sessions are delivered to multiple family groups, facilitated by trained community workers. Participants can take home a booklet, which allows other family members who did not attend the sessions – usually adult males – to also become familiar with the material.

Community leaders, who are members of the CHAMP-SA Board overseeing the project, play an important role in working at a community level by addressing issues of common concern, such as spaza shops that might sell alcohol to young people. In this way they help influence youth behaviour in the community.

A preliminary evaluation of the programme, among 288 (out of 450) families, reveals that the programme is having a positive effect on key processes, such as parent or caregiver communication with children about sensitive topics; parental monitoring; neighbourhood social control; and stigma in families exposed to the programme, compared to the matched control families.

The following graphs illustrate the positive effects of the preliminary analysis of the programme, which was administered to 228 out of 450 families.

The next step is to determine the longer-term impact CHAMP-SA has had on adolescent risk behaviour among the original child participants, who have now reached adolescence.

CHAMP now faces the challenge of disseminating the programme more widely to other areas where the need for community and school-based interventions has been identified. To this end, CHAMP is establishing itself as a non-profit organisation so it can solicit the necessary funding.

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Professor Arvin Bhana is a Research Director in the Child, Youth and Family Development Programme, and Professor Inge Petersen is Head of the School of Psychology, University of KwaZulu-Natal.
'China is a sleeping giant. Let her lie and sleep, for when she awakens she will astonish the world.'

These words by Napoleon Bonaparte in 1803 could not be more relevant today, given China's significant diplomatic and economic emergence in the post-Cold War era. But China's rise has produced mixed feelings.

On the one hand, China is a tantalising opportunity. On the other, it is a terrifying threat. The enigma that surrounds China has less to do with Beijing's commercial and political interests and the attendant prospects in the Chinese market, and more to do with the uncertainty that lies beneath the rhetoric of its guiding foreign policy principles of mutual interest, peaceful co-existence and harmony in diversity.

South Africa's increasing trade relations and political friendship with China need to be examined beyond the rhetoric. Following the democratic elections in 1994, the Two China dilemma (mainland China and Taiwan) was one of the first critical issues in the government's foreign policy. The Mandela government was confronted by the following issues:

First, forging ties with Beijing would have sent out the wrong message about Pretoria's own values in terms of its democratic and human rights, especially after the Tiananmen Square crisis.

Second, switching formal ties to Beijing would have meant the loss of Taiwan's largesse in lieu of the Reconstruction and Development Programme.

Third, there was no guarantee that Beijing would have reciprocated financially, given the relatively small amount of investment in South Africa by China at the time.

And finally, there was no guarantee that economic linkages with Hong Kong would have continued following the island's incorporation under Chinese rule.

The Mandela Presidency was guided by the pragmatism that diplomatic ties with Beijing would bear for South Africa's rapid reintegration into the world community. It also looked at the benefits, especially for the government's aspirations in the reformed UN Security Council and in the context of South-South co-operation. Moreover, formalising relations with Beijing meant that post-apartheid South Africa affirmed mainland China's position on one China.

As such, on 1 January 1998 Pretoria and Beijing formally entered into diplomatic relations, followed by the Presidential Bi-National Commission (BNC) in 2000. Areas of co-operation range from mutual support for the New Partnership for Africa's Development and Africa's development, South-South co-operation, multilateralism in reforming the global trade regime and the UN to foster peace and stability in Africa, and pursuing a new international political and economic order based on peace, justice, stability and equality.

In addition, both sides have reaffirmed their commitments to expediting the Southern African Customs Union-China free trade agreement, facilitating greater linkages around education co-operation and the one China policy. Whereas the BNC reaffirms political ties between both sides, it is in the realm of economic relations that the heart of the relationship is rooted.

Since the establishment of bilateral diplomatic ties between the two sides, trade has grown rapidly. Between 1998 and 2003 trade between the countries rose by an annual 36%, from R5.3 billion in 1998 to R23 billion in 2003. From January to November 2004, trade exchanges between the two sides hit US$5.381 billion. China is now South Africa’s largest trading partner and South Africa is China’s biggest trade partner in Africa, amounting to about 20% of the total volume of its trade with the entire continent.

However, as Figures 1 and 2 illustrate, trade between South Africa and China is heavily weighted in China’s favour. In 2004 South Africa’s trade deficit with China was R9.85 billion, a substantial increase of 88% since 2001. The reason for this yawning gap is that...
manufactured products from China dominate the trade relationship, followed by high technology. These include capital equipment, TVs, electronic goods, ‘white goods’ and textiles. In contrast, South Africa’s main exports to the mainland are iron ore, manganese, chrome ore, tobacco, wool, granite, gold, copper, aluminium and auto components, thereby making South Africa the net supplier of raw materials to China.

Two-way investment has also been on the rise. By the end of 2002, Chinese enterprises had invested US$160 million in 98 projects in agriculture, textiles, electronics, mining, as well as banking, transportation and communications in South Africa, while South African enterprises had invested in 206 projects in China. There are currently around 20 South African-based businesses with offices in China and some 187 Chinese companies in South Africa with a stake of around US$100 million in investment. As of 2004, Chinese foreign direct investment (FDI) to South Africa amounted to about R500 million, while South African FDI to China amounted to about R4 billion.

With China’s rising domestic demands, the Chinese authorities are keen to find alternative sources of energy. So Beijing’s expanding interests in the South African market include technologies in mining, water management, electricity supply, solar energy and nuclear research for energy requirements. By contrast, South African companies investing in China include a basket of resources, mining and financial conglomerates: Anglo American, AngloGold, Anglo Platinum, Anglo Coal, Kumba Resources, Old Mutual, Standard Bank, De Beers, Sasol, Absa, MIH (M-Tel), SAB-Miller, plus smaller specialist entities.

Tensions over cheap clothing imports from China will undoubtedly intensify

What has interested commentators is whether South Africa and China are allies within the global community. While some see these relations borne out of common synergies around South-South co-operation, advancing a multilateral global order and calibrated towards mainstreaming Africa’s development trajectory, others are relaying it as nothing more than economic and political expediency – i.e. South African corporates hoping to get their slice of the Chinese market while China’s behaviour, in turn, matches that of national interest.

But not to engage with China in the 21st Century is tantamount to political and economic suicide, although proceeding with caution is advisable. This is because:

◼ China remains the dominant pole in the South, with greater influence, and sees itself as representing the voice of the developing world and the South within the Security Council.

◼ The Chinese political and economic footprint in Africa does not always match South Africa’s innate desire to propel continental peers towards greater accountability and better governance.

◼ The emergence of the Chinese investor in the African market does represent a clash of interests and competition for South African corporates also operating in the continent.

The above points are all notwithstanding the current tensions around local industries being crowded out by cheap clothing imports from China, which will undoubtedly intensify under the proposed free trade agreements in other sectors.

Clearly, then, South Africa’s relations with China can be seen as a both an opportunity and a threat in the current global order. South Africa can gain from China’s experience of developing a cheap skilled labour force that enabled it to become the workshop of the world. At the same time, Pretoria will have to absorb the inequalities as relations grow, until such time as it catches up with the East Asian dragon.

Sanusha Naidu is a Research Specialist in the Integrated Rural and Regional Development Programme at the HSRC, based in Durban. This article is drawn from a forthcoming chapter in the State of the Nation 2005/2006 book.
My visit to Gambia, to kick-start the data collection phase of the Scout evaluation study, made all the difference in terms of boosting morale at all levels of the organisation and demonstrating the efficiency of the first phase of data collection for the project.

Almost all of the project volunteers were teachers, who became translators on the spot for some of the kids who were struggling with English. When one Scout indicated that he could only read Arabic, the teachers fetched a colleague who could translate for him. When the pencils for the survey arrived unsharpened on the first day, every volunteer took a blade and helped sharpen the pencils in a few minutes.

On my first day in the country I was taken to see one of Gambia Scouting’s important community projects: road safety. Gambia, the smallest country in Africa, has only one traffic light, which makes road safety a community concern. The youth – boys and girls – were helping police direct traffic at this major intersection. Because of their participation in community safety and the general perception that Scouting inculcates positive values, there is a very good relationship between scouts and the police, as well as with the political and business elite.

The next morning, rain was pouring in the district we had selected to begin the survey. I didn’t think anybody would turn up – but when I arrived at the venue, it was packed with leaders and their Scouts, and the scout vehicle was still transporting Scouts from other places. Some Scouts and leaders walked from nearby areas to take part in the survey.

After everybody started working on their questionnaires, the communications officer for the Gambia National Scout Association told me the local radio station wanted to interview me on its afternoon call-in show. This was an opportunity to promote the Scouts’ work, the Jacobs Foundation funded evaluation study, as well as the HSRC. So we raced off under umbrellas to the radio station, where for a good hour and a half we were bombarded with questions about Scouting in general and the evaluation study in particular.

After two days of fieldwork we had 60 questionnaires from leaders and 175 from Scouts. The most important benefit of the trip has been in the experiences that have challenged many of the conventional, Eurocentric research methods that we tend to apply blindly in all contexts.

**“The trip has challenged many conventional, Eurocentric research methods”**

Professor Yaw Amoateng is a Research Director in the Child, Youth and Family Development Programme.
In October 2002, a range of institutions and collaborators identified three new areas for research into diversity in education: patterns of enrolment; representation in school textbooks; and how teacher education addresses diversity in schools. LINDA CHISHOLM and MOKUBUNG NKOMO present some of the preliminary findings.

With the support of the Mott Foundation, a range of institutions and collaborators from the Universities of Pretoria, Wits, Cape Town, KwaZulu-Natal and Harvard, the Centre for Education Policy Development, the Human Rights Commission, and others initiated the process. It began with a colloquium in October 2003, drawing together existing work in the area and stimulating new questions and approaches to issues of race, racism, diversity and integration in South African schools.

NATIONAL PATTERNS OF ENROLMENT

Tracking enrolments to establish the movement of black learners between schools, does not tell the full story of what happens inside schools. An analysis of 2001 data from the national Education Management Information Systems (EMIS) databases by Linda Chisholm and Mohammed Sujee of the Gauteng Department of Education, confirmed that there was more integration of African learners into schools previously defined as Indian and coloured than into white schools. Schools previously defined as white remained 59% to 70% white, although there are variations between provinces.

The statistics on race for the Western Cape provide an interesting anomaly, in so far as far more learners were defined as ‘other’ rather than black, coloured, Asian or white.

TEXTBOOKS

Textbooks, or learning support materials, played a powerful role in shaping the Apartheid curriculum in the past. To what extent have they changed? In 2004, Carolyn McKinney analysed 61 textbooks used in South African primary schools, including Grade 1 reading schemes (51 readers, 111 stories) and 10 Grade 7 books on language and communication, and natural science.

The Grade 1 readers, in general, underrepresented rural, poor and working-class social worlds and presented gender stereotypes. They provided almost no opportunities to address racism, sexism, poverty, disability or other forms of social exclusion.

Males were generally over-represented in Grade 7 language and communication texts, whereas rural settings, poor and working-class characters were under-represented.

Representations of gender, race, social class and rural/urban location (but not disability) were generally better in Grade 7 natural science texts, though still in need of improvement.

Disabled people were invisible in almost every text analysed. The study concluded that learners should be provided with more opportunities to explore social diversity and problems of exclusion.

TEACHER EDUCATION

Schools in South Africa have become more diverse, posing new challenges for teachers and teacher education. This diversity is multi-faceted, encompassing racial, class, gender, religious, linguistic, physical and other differences.

A recurring theme in the literature is the fact that deracialised enrolments are not matched by a more diverse teaching body. How are teacher education institutions responding to this dual challenge of preparing students for teaching in schools different from the ones they attended and experienced as learners? And how are they preparing them to deal with diversity and difference amongst learners?

A new study by Crispin Hemson from the University of KwaZulu-Natal examines this question through a focused look at how teachers are being prepared through the Postgraduate Certificate of Education at three universities that are very different in history and context.

The three sites include a former ‘homeland’ university, an urban, long-established liberal university, and a campus that was formerly a university which provided the intellectual foundations for Afrikaner political and educational thought, and is now part of a newly merged university.

The study reveals great unevenness. In all three cases the staff and student composition largely reflects the apartheid racial composition of the institution.

The racial positioning of the former ‘homeland’ university continues to have a negative effect on staff and students. There is a strong sense of victimhood, issues of diversity are not engaged, and there is little... continued on page 16
Mike de Klerk is more than usually preoccupied. He has just been appointed Chief Operating Officer of the HSRC. For him this is a huge career shift, from a lifetime of research and dedication to rural economic development to taking charge of operational functions at the HSRC.

What is foremost on his mind is the responsibility of leadership and the challenges of management style. In an interview in Mike de Klerk’s office in Pretoria, from where he has established and managed the Integrated Rural and Regional Development (IRRD) Research Programme over the last four years, he ruminates on inclusivity and equality. A soft-spoken, humble man, his convictions stem from a deep Christian belief that God’s grace covers all of humanity.

‘If God in his wisdom sees fit to treat us all equally, and love us all equally, and we have the temerity to say, ‘Thy kingdom come, Thy will be done’, that is what you’ve got to do! That is why I found apartheid difficult to live under. How could you possibly justify inequality if you believe in this God?’

De Klerk is the quintessential ‘servant-leader’, as described by Robert Greenleaf, who coined the phrase. De Klerk listens empathetically to his troops, carefully considers all views, and relies on his persuasive powers and the ability to conceptualise beyond daily realities to make decisions. Greenleaf calls this the ‘ethical use of power and empowerment’.

The servant-leader recognises both the top-down and bottom-up views of authority, and that leadership and following are interdependent.

In the words of Max Depree: ‘The first responsibility of a leader is to define reality. The last is to say thank you. In between, the leader is a servant’. De Klerk is the quintessential ‘servant-leader’, as described by Robert Greenleaf, who coined the phrase. De Klerk listens empathetically to his troops, carefully considers all views, and relies on his persuasive powers and the ability to conceptualise beyond daily realities to make decisions. Greenleaf calls this the ‘ethical use of power and empowerment’.

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In the words of Max Depree: ‘The first responsibility of a leader is to define reality. The last is to say thank you. In between, the leader is a servant’.

Not that De Klerk would ever describe himself in such terms, and he has never read Greenleaf or Depree. He laughs and says, ‘A great deal of management is about empowering colleagues to make up for one’s own deficiencies’.

He grew up in Cape Town. His father came from upper-crust Afrikaner stock, and his Jewish mother – from the Sephardic, not the Ashkenazi branch, he points out – was a pianist.

De Klerk’s philosophy on leadership and management style grew over a career of 37 years. As an economist, fresh from UCT, he met head-on with the realities of a harsh business world. After a spell at Rand Mines, followed by a few years as manager of five

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For copies of the reports, e-mail media@hsrc.ac.za.
Profile

Mike de Klerk

Executive Director of the Integrated Rural and Regional Development Research Programme

By Ina van der Linde

Born: 1947
Marital status: Married to Janeen. They met while both were lecturing at the University of Cape Town. Children Katherine (15) and David (13).
Mother tongue: English
Qualifications: MA in Economics (cum laude) from the University of Cape Town. He also studied at the Institute for Development Studies, Sussex (1993-1996).
Research interest: Land reform and rural development
Relaxation: Choral singing (baritone, first bass) and classical music, especially Bach, Haydn, Brahms and Rachmaninov; hiking (when time allows); cycling, 4x4ing, and swimming the Midmar Mile with David.
Current reading: Dark Star Safari by Paul Theroux, and the National Geographic magazine.

And that was when he found his career: research and teaching in rural development, employment, land issues and agriculture.

From the Charles Johnson Memorial Hospital, he went into teaching: first at Wits, later at UCT and in 1998 he joined the Land Bank as General Manager: Research and Development.

In between, he did his Masters dissertation on what mechanisation in the maize industry did to employment, entitled Technological Change and Employment in South African Agriculture: The Case of Maize Harvesting in the Western Transvaal, 1968-1981.

On farmers: ‘I also recognised that much of what is said about farmers is not true. There are bad employers, but many are extremely caring. They are, although paternalistically, often more concerned about the welfare of their workers than most industrial employers.’

Since the inception of the IRRD Research Programme in 2001, research activities have been organised into four broad sub-programmes under the overarching theme of poverty reduction, De Klerk relates. Over time, the research focus and corresponding skills have evolved to reflect the changes in users’ needs driven by shifts in the national and international political, social and economic landscape.

Currently, the four sub-programmes are land and agrarian reform; rural infrastructure and service delivery; regional migration and investment and trade; and poverty and inequality.

These sub-programmes are designed to respond to national priorities addressed by the government’s social, economic and international relations clusters, designed to push back the frontiers of poverty; to bring the benefits of growth to the ‘second economy’; to improve service delivery; to mitigate the effects of HIV/AIDS; and to mobilise Africa to achieve the Millennium Development Goals.

Soon IRRD will undergo another change. Under a new executive director, it will integrate urban development studies and add new research areas, such as environment and tourism, and food security.

From a small programme with seven projects in 2001, IRRD researchers completed a sizeable 30 projects in the 2004/05 financial year.

What would De Klerk regard as his main achievements over the last four years? He stresses that this was a team effort: ‘It was really we. My function is to get the right people, give them the necessary support in terms of raising funds and seeding ideas, and then to support them in going for it. This has really worked extremely well. Last year our gross external earning (excluding the Parliamentary grant) was R25 million, the third most in the HSRC.’

IRRD’s greatest achievement was that it has established credibility in the market. In addition, they have rapidly moved from doing mainly small projects into the ‘big end of the market’ – doing large projects, stretching over a few years and including a range of partners, skills and funders.

‘For me, the greatest excitement was seeing the HSRC starting to win for the research community as a whole’.

Somewhat apprehensive about his new position as Chief Operations Officer of the HSRC, Mike de Klerk is also well-aware of the fact that his many different experiences – business manager, academic, economist, researcher, leader of a successful research programme – and his beliefs and values, have equipped him well to tackle any challenge awaiting him in future.
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