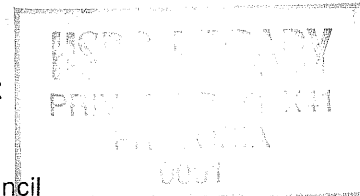


# **COUNTING STARS: METHODOLOGICAL DIFFICULTIES AND EMPIRICAL FINDINGS OF QUANTITATIVE RESEARCH ON THE SOUTH AFRICAN INDEPENDENT SCHOOLING SECTOR.**

HSRC RESEARCH OUTPUT

2009

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2009

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## **ABSTRACT**

The independent schooling sector has shown significant growth over the last decade leading to important policy questions about its size and profile as well as its role in a new democratic educational system. This paper focuses on a quantitative research project on the formally recognised South African independent schooling sector. As part of its new research programme on Human Resources Development (HRD), the Human Sciences Research Council (HSRC) recently undertook the project to assess the size and profile of the sector. This paper aims to discuss certain methodological difficulties with and some empirical findings from the project. It focuses firstly on the difficulties encountered with standard quantitative research methodology, such as the compilation of an accurate database of independent schools, obtaining acceptable response rates and calculating valid statistical weights. Secondly, it focuses on some of the key findings regarding the size, profile and growth of the sector. Comparisons are made with other sources, which make it possible to evaluate the accuracy of the methodology and validity of the findings. Some suggestions for future quantitative research serve to conclude the paper.

## **BACKGROUND AND OBJECTIVES OF THE RESEARCH**

The South African government recently launched its Human Resources Development (HRD) Strategy, which aims to increase the participation of all South Africans in life and work (SA Government 2001). As part of this strategy, the Human Sciences Research Council (HSRC) has been identified as the specialised agency to collect and analyse HRD data on a continuous basis to inform the strategy and

guide the relevant agencies and systems to ensure the effective planning and implementation of HRD strategies. The HSRC consequently identified HRD as one of its new key priority areas around which its research programmes are built. The HRD research programme has two main components: firstly, the development of a comprehensive cross-sectoral data warehouse focussing on the provision of information and analyses to support government decision making on HRD; and secondly, the production of the Biennial Review of HRD, which focuses on education and training, labour market and macro-economic indicators.

The purpose of the Biennial Review is to provide a structured and comprehensive overview of HRD issues in South Africa. For this purpose, five HRD focus areas are integrated into the Review. One of these areas is the supply of human resources to the national economy, which includes all educational sectors dealing with education and training, public and private provision of General Education and Training (GET), Further Education and Training (FET) and Higher Education and Training (HET) (HSRC, 2001). This paper reports on recent primary research done within the HSRC's HRD Research Programme, on the formally recognised<sup>1</sup> South African independent schooling sector for the data warehouse and Biennial Review.

A literature review suggested that very little consistent and sound information exists about the size and profile of independent schooling in South Africa. Educationalists such as Muller (1992) have studied the history and dynamics of independent schooling, but various role-players in the sector nowadays differ about the exact size and profile of the sector. This led to the objective that the research should foremost assess the size and profile of independent schooling. Key findings about sectoral size, profile and growth are reported in this paper. Before the findings are discussed, however, issues of research design and methodology are considered.

## THE RESEARCH DESIGN

Most researchers make a distinction between *quantitative* and *qualitative* research designs. 'Quantitative' and 'qualitative' actually refer to the type of research data irrespective of the research design, whereas research designs refer to different research *strategies*, such as surveys, evaluations or case studies.

In choosing a particular research design, the first factor that had to be considered was the extent of the group to which research findings had to be generalised. Since findings had to be generalised to all independent schools in South Africa, a survey research design was chosen in order to cover a representative sample of schools from the entire group of independent schools. The second factor that had to be considered was whether quantitative or qualitative data should be collected. Quantitative

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<sup>1</sup> 'Formally recognised' refers to schools registered with the Department of Education (DoE) or that are members of independent schools associations.

data was chosen for two important reasons. Firstly, the format of data was implicitly linked to the research objective, namely sectoral size and profile (i.e. headcounts and ratios), which is best described by quantitative data. Secondly, the need to generalise findings required that data had to be standardised by means of instruments and statistically analysed which is only possible if data is in a quantitative format. These considerations led to the use of a quantitative survey design to assess the size and profile of formal independent schools in South Africa.

## **THE RESEARCH METHODOLOGY**

### **Compiling a database of independent schools**

Proposing a quantitative survey of independent schools in South Africa can be illustrated by means of the following analogy. If one tries to count stars at night, one soon discovers that it is very difficult to find a starting point and keep track of which stars one has counted. Sooner or later one also realises that only a certain part of the universe can be seen from the point where one is positioned. The same difficulties are encountered in attempting to count independent schools in South Africa.

As with any quantitative survey, the availability of a fairly accurate and comprehensive database outlining the size and elements of the group under investigation is essential. There is currently no single governing body to keep a record of all independent schools in South Africa, which makes the planning of surveys in this sector particularly difficult. It is simply not possible to claim representivity or make inferences about a group if the size and elements of such a particular group are not systematically recorded in a single source. Many sources of independent schools in South Africa are fragmented, particular and often not reliable. This creates the need to obtain a fairly accurate and comprehensive database of independent schools in order to run any kind of quantitative survey.

The HSRC's Employment and Economic Policy Research Programme recently compiled a sector profile for the Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA). This required the compilation of a profile of independent schools. Lists of independent schools were received from the following sources:

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### Number of independent schools according to different sources

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DoE (2000) <sup>2</sup>	971
School Register of Needs (1998)	826
Lists of institutions obtained from ISASA <sup>3</sup>	530
ISASA (member schools)	308
Catholic Schools Association	473
Muslim Schools Association	71
Association of Christian Schools	37
<b>Total</b>	<b>3 216</b>

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Source: Erasmus, 2002.

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Many independent schools were listed in more than one source, which placed the total number of references far above the actual number of independent schools. Staff from the Employment and Economic Policy Research Programme therefore had to first eliminate duplications by means of a tedious process of comparing school attributes. Apart from using these secondary sources, *cyber trade* was also used – a process whereby school names and contact information are verified by means of Telkom's electronic telephone directory. This issued in a database of 1 513 independent schools.

The difficulties associated with compiling the database of independent schools were:

- Considerable variation between schools in terms of the extent to which information was complete
- Inconsistencies between sources in terms of the combination of schools at different levels, with some sources indicating a particular school as a combined primary and secondary school and other sources indicating a separate primary and secondary school under the same name. This results in either under-counting or double-counting of schools in the sector.

### Cleaning the database of independent schools

It was decided by the HRD Research Programme project team that the newly compiled database of independent schools had to be cleaned by means of a screen prior to the survey. The task was outsourced to a call centre, which had to contact all schools in the database telephonically.

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<sup>2</sup> Preliminary data from the 2000 SNAP Survey conducted on the 10<sup>th</sup> school day of 2000 by the DoE.

<sup>3</sup> Independent Schools' Association of Southern Africa.

At this point it is useful again to refer to the analogy of counting stars. Another difficulty with counting stars is that one may observe and count a star which may not exist any more. Given astronomical distances, the light of a star which may not exist any more, only reaches earth after a number of years. The same difficulty was experienced with counting independent schools. The outcome of the telephonic screen, in which 60,3% of all schools in the new database (912 schools) were successfully contacted, revealed that some independent schools were included that did not exist any more. Some institutions were also not independent schools at all, but public schools or FET providers, whereas others were combined schools. The following table shows the outcome of the telephonic screen.

<b>Telephonic screen of independent schools</b>	
Independent schools offering Grades 1 - 12 <sup>4</sup>	1 287
Recently obtained public school status	102
Combined schools still duplicated on database	96
FET providers	19
Closed or in process of closing	9
<b>Total</b>	<b>1 513</b>

It should be noted that the 1 287 schools include those that were not covered by the telephonic screen, and are therefore likely to contain further numbers of schools that are either closing or changing to public schools. However, this factor will be balanced by the factor of unknown schools in the country that have applied for registration to become independent schools. Crudely assuming the two factors to balance, the first finding of the study suggests that there are approximately 1 300 independent schools in South Africa providing schooling between Grades 1 and 12.

The difficulties associated with the database cleaning included:

- The lack of contact information available from the various sources from which the database was compiled
- Inconsistencies within the database in terms of combined schools
- Severe difficulties experienced by the call centre in reaching some schools telephonically or being able to interview a relevant staff member at some schools. Examples range from no co-operation at all to full co-operation and interest shown in the research

<sup>4</sup> This figure includes schools that were not telephonically contacted, schools indicated as combined whereas they constitute separate schools, as well as schools that indicated that they had applied for registration and were awaiting responses.

- The inability or reluctance of staff to provide information for research questions telephonically – especially information pertaining to headcounts of learners and teachers disaggregated by gender and population group.

## Administration of instruments

A standardised instrument was designed using schools as the unit of analysis and capturing headcounts and other variables within schools. Instruments were piloted, printed and mailed to all 1 287 independent schools that had complete postal addresses. The following table shows the outcome of the postal survey.

Postal survey of independent schools		
Return to sender	11	0,9 %
No response / refusal	866	67,2 %
Response (n)	410	31,9 %
<b>Total number of independent schools (N)</b>	<b>1 287</b>	<b>100,0 %</b>

As this table indicates, the survey obtained a response rate of approximately 32%. Representivity of responses by province is shown below.

Representivity of responses by province			
	Number of schools surveyed	Percentage of schools in database	Number of schools in database
Eastern Cape	29	28,2 %	103
Free State	37	51,4 %	72
Gauteng	151	36,0 %	420
KwaZulu Natal	86	32,2 %	267
Limpopo	21	22,1 %	95
Mpumalanga	24	36,4 %	66
Northern Cape	7	21,9 %	32
North West	14	28,0 %	50
Western Cape	41	22,5 %	182
<b>Total</b>	<b>410</b>	<b>31,9 %</b>	<b>1287</b>

The table above shows that all provinces yielded a sufficient response rate, with the Free State yielding the highest response rate (51,4%) and the Northern Cape the lowest (21,9%).

The difficulties associated with the administration of instruments included:

- Respondent fatigue - some schools showing a reluctance to complete the instrument after having to complete an extensive instrument for the DoE's SNAP survey as well as sporadic instruments and forms from independent schools associations
- Refusal by some schools to provide information disaggregated by gender and especially population group, mainly because of inability to do so or because of ethical considerations
- Reluctance by some schools to complete the instrument because of the exclusive use of English in the instrument
- Some schools not responding within the requested time period resulting in their instruments being excluded from the first round analysis.

## Statistical analysis

Data from the 410 completed instruments was captured, cleaned and screened for outliers. The analysis was preceded by a process of calculating statistical weights for each response. The use of a particular cohort factor to calculate weights was done subject to several considerations. Firstly, information had to be available for all schools in the database and dataset for the cohort factor. Secondly, the level of aggregation of the cohort factor had to be appropriate. If it was likely to be too high (such as at provincial level), then important internal variations were likely to be ignored (such as urban / rural variations); if it was likely to be too low (such as at census enumerator or postal code levels), then some cohorts may have had no responses.

The cohort factor that was used to calculate statistical weights for the dataset of independent schools was Telkom area dialling codes. The calculation was as follows:

$$Weight_{Cohort1} = \frac{\sum N_{Cohort1}}{\sum n_{Cohort1}}$$

Reasons for using Telkom area dialling codes included the following:

- Dialling codes were available for most schools in the population and sample. It was possible to lookup missing dialling codes in order to obtain a complete list.
- There was a sufficient number of responses in the sample to yield responses for all the cohorts of dialling codes identified from the population. Cohorts of dialling codes with insufficient responses (such as farm lines with five digits) were simply collapsed into higher

level dialling codes with three digits by omitting the last two digits. The use of dialling codes therefore also allowed flexibility.

- Area dialling codes accounted for important population variations in terms of the research, such as provinces and urban vs. rural areas.

## SOME EMPIRICAL FINDINGS

### Sectoral size and profile

The following table compares the sectoral size of independent schooling the DoE 2000 SNAP survey and the HSRC's 2002 survey of independent schools.

Sectoral size of independent schooling		
	DoE - 2000	HSRC - 2002
Number of independent schools	971	1 287
Number of learners	256 283	424 655
Number of teachers	14 981	26 750
Learner / school ratio	264	330 std dev = 280,6
Learner / teacher ratio	17.1	17 std dev = 10,9

Sources: Department of Education, 2002. *Education statistics in South Africa at a glance in 2000*.  
HSRC Survey of independent schools - 2002.

From the above table it is clear that the HSRC finds there to be a significantly larger number of learners in the independent schooling sector than does the DoE. Although the HSRC identifies a larger number of independent schools, a discrepancy is evident in the larger learner / school ratio in the HSRC survey. Was the HSRC survey biased towards larger schools? Or was the DoE survey biased towards smaller schools?

A series of chi-square tests<sup>5</sup> was run to test which possible categorical variables were most strongly associated with *school size* in the HSRC survey. *School size* was categorised as *small* schools (1 to

<sup>5</sup> Significance was measured at the 95% confidence interval.



330 learners) and *large* schools (schools with more than 330 learners). The following set of variables was tested:

- Province in which schools are located
- Co-educational status of schools
- Whether schools are primary, secondary or combined
- The year in which schools registered with the DoE
- The population group of the majority of learners in schools
- Typology of the schools
- Annual school fee category of schools.

The tests showed that there were no significant relationships between school size and co-educational status of schools or whether schools were primary, secondary or combined. Significant relationships were found with all other variables. Phi- and contingency coefficients showed the strongest associations to be with the province in which schools are located and with the annual school fee category of schools. A significantly larger percentage of large schools than small schools are located in Gauteng. Yet the provincial distribution of responses shows that there was no significant over-sampling in Gauteng compared to other provinces. However, a significantly larger percentage of large schools than small schools are found in the top school fee categories. This means that more large schools are likely to charge higher school fees and are therefore less likely to receive a subsidy and to be included in the DoE survey.

The larger number of learners in the independent school sector as ascertained through the HSRC survey is therefore likely to be explained by the possible exclusion of some larger independent schools in the DoE survey and not necessarily by biased sampling in the HSRC survey. A further possible logical explanation could be that enrolments in some independent schools increased between 2000 and 2002. It can therefore safely be assumed that there has been an underestimation of the size of the independent schooling sector, which now constitutes approximately 3,7% of schooling in South Africa (noting the two-year discrepancy between the DoE and HSRC surveys), compared to 1% in 1988 as assessed by the former Department of National Education.

The following two tables briefly illustrate the current profile of independent schools in terms of the majority population group of learners within independent schools and the annual school fee categories of schools.

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### Majority population group of learners within independent schools

Schools with a majority of African learners	563	43,8 %
Schools with a majority of Coloured learners	42	3,3 %
Schools with a majority of Indian learners	72	5,6 %
Schools with a majority of White learners	498	38,7 %
Unknown (refusal to disaggregate by population group)	112	8,7 %
<b>Total</b>	<b>1 287</b>	<b>100,0 %</b>

Source: HSRC Survey of independent schools - 2002.

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### Annual school fee categories of independent schools

R 0 - 6 000	682	53,0 %
R 6 001 - 12 000	278	21,6 %
R 12 001 - 18 000	149	11,6 %
R 18 001 +	178	13,8 %
<b>Total</b>	<b>1 287</b>	<b>100,0 %</b>

Source: HSRC Survey of independent schools - 2002.

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As the first of these tables shows, African learners constitute the majority of learners in 43,8% of schools. As the second table shows, more than half of all independent schools currently charge school fees in the lowest school fee bracket. This is in keeping with further findings of the research, which show an increase not only in schools with a majority of African learners, but also in schools with a majority of Coloured and Indian learners – and increase greater more than that of schools with a majority of White learners since 1990. There has also been a greater increase of schools charging fees within the lowest fee category since 1990.

### Sectoral growth

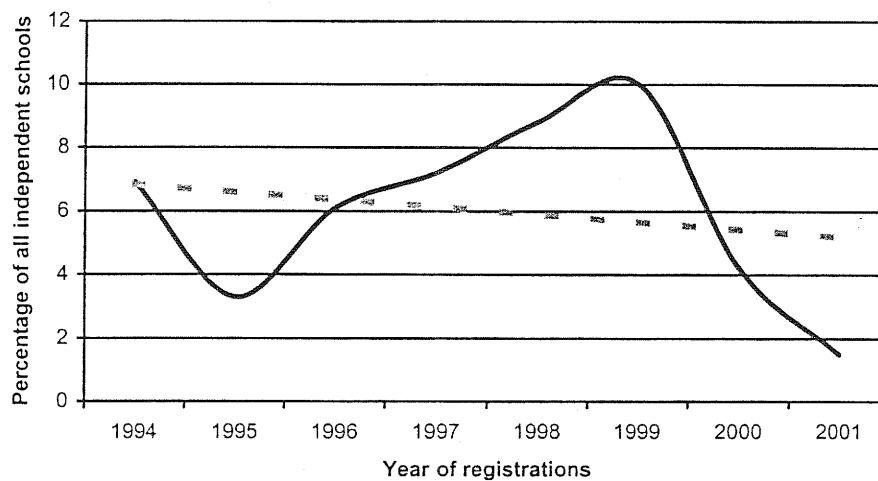
The research clearly supports the popular perception in the sector that independent schooling showed significant growth over the last decade. In fact, the research reveals that 61,4% of all independent schools were registered after 1990. An interesting finding is that growth was strongest in schools with a majority of African and Coloured learners between 1990 and 1994, whereas growth was strongest in schools with a majority of Indian and White learners since 1994. However, all schools within these

groupings show a significant decline in registrations during 2001. The following table and figure show the growth in registrations of independent schools since 1994.

Registrations of independent schools by year		
1994	89	6,9 %
1995	42	3,3 %
1996	79	6,1 %
1997	93	7,2 %
1998	112	8,7 %
1999	129	10,0 %
2000	54	4,2 %
2001	19	1,5%
<b>Total</b>	<b>617</b>	<b>47,8 %</b>

Source: HSRC Survey of independent schools - 2002.

Registration of independent schools by year



The bold line showing the actual percentages of schools registering indicates a significant decline in registrations after 1999. This results in the broken trend line showing a steady decline in registrations of independent schools since 1994. Possible reasons for the decline may include:

- The market for independent schools becoming saturated

- The possible increase or improvement of public schooling
- Administrative factors hampering registration processes.

## CONCLUSION AND SUGGESTIONS

Important empirical findings from this research suggest that the size of independent schooling in South Africa has been underestimated, that there was indeed significant growth in the last decade, and that schools with a majority of African learners and schools charging fees in the lowest school fee bracket have become the dominant role players in the sector. This flags important policy considerations as far as independent schooling is concerned, since these schools are clearly from the disadvantaged sectors and will change the profile of independent schooling in South Africa even further. More quantitative research is needed in this sector to establish greater confidence about sectoral size and profile to inform future policy formulation. The following suggestions should arise from this research:

- Future quantitative research can only be done consistently and comparatively if there is an accurate and comprehensive database of all formal independent schools in South Africa. Such a database should be managed by a central agency and updated and refined regularly to capture complete information on schools
- In order to reduce the effect of respondent fatigue and refusals, the issue of duplication of surveys within independent schools needs to be addressed
- The problem of missing data on disaggregated levels such as gender and population group needs creative solutions. Alternative survey methodologies could be considered, such as considering learners as the unit of analysis and making use of a master sample of independent schools.

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