Primary school quality for different socio-economic groups: findings from South Africa?

By

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Inequity in schools

- National/international studies (in late 1990’s to 2000) revealed former white schools outperformed former black schools-large between school variation in attainment.

- Inequity in schools due to the historical legacy of Apartheid.

- Three tier hierarchy according to race
  - Historically advantaged schools for whites (urban)
  - Schools serving Asian and mixed heritage children (urban/semi-urban)
  - Schools for Black Africans (rural and townships)
Education Policy

• Focus on ‘the school’ and identifying ‘poorly performing’ schools.

• Around 80% of learners are enrolled in historically black schools. Thus 20% in advantaged schools. Indication that top scores linked to SES (eg. Van der Berg, 2008).

• *Attainment improvements* follow from improved funding targeted mainly at improving the school facilities and resources.

• more weighting towards ‘lower performers’.

• determined by mean SES for school.
The SACMEQ II survey

• Second wave of education survey endorsed by a consortium of Ministries of Education from 14 Sub-Saharan African countries under guidance from IIEP at UNESCO,

• Survey of Grade 6 pupils, their teachers and headteachers in 2000 captured:
  o Pupil background
  o Teacher characteristics and attitudes to teaching and learning,
  o Headteacher profile, school organisation, management and school facilities.

• Pupils also tested in reading and mathematics.
SACMEQ school variation

• SACMEQ II survey found that the proportion of the total unexplained variation in pupil scores which is due to differences between schools (intra-class correlation) is 70% (0.7) for reading and 64% (0.64) for mathematics.

• 3163 pupils in 169 schools surveyed.

• SACMEQ did underestimate the intra-class correlation substantially (0.40) in sample design considerations.
Distribution of Grade 6 reading scores

- Non-normal
- Mode under 500 points, raw mean 485
- Long right tail
- Second (lower peak) clustering of marks around 600+ points
Socio-economic status (SES)

• SACMEQ derived SES indicator (Dolata, 2005) based on a principal components analysis of variables associated with social and economic status from the pupil survey.

• Final SES indicator is a composite of
  – the quality of the home structure,
  – parental education,
  – lighting source at home and
  – possessions in the home (inc. livestock).
Difference in attainment due to SES

South African maths scores

South African reading scores

[presenting a series of histograms showing the distribution of pupil maths and reading scores across different years (Sessions 1 to 4).]
Reading score, SES and location

- Clear location and SES interaction
- Similar partitioning in mathematics
School resource level, location, SES

School resource level
(Saito, 2007)

Mathematics scores by SES and location
Understanding factors affecting attainment

Key question:
Do different combinations of ‘in’ and ‘out’ of school factors explain variation in scores for learners of different social standing?

Quantitative Approach:
focus on factors affecting individual not school

- Multi-level modelling of pupils within schools
- Partition pupils according to SES status quartile grouping (Q1=least wealthy to Q4=most wealthy)
Which variables?

Out of school factors

- pupil’s individual background context;
- basic living conditions in which the individual lives which promote a stable home environment;
- educational resources and home support available to an individual outside of school.

In school factors

- School context and social influences on attitudes to learning
- School physical resources;
- School human resources;
- Pedagogy of teacher.
Results

Unexplained **school variation** reduced significantly

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Two types of findings for factors influencing mean scores:
- Factors independent of social standing of pupil
- Factors dependent on SES group
Factors common to all pupils

Well being-nutrition
Pupils who eat fewer than two meals per day attained lower scores, by 11 and 8 points on average, in reading and mathematics. However, more pupils from the lowest two quartiles report that they are under fed (almost 30% of pupils from quartile 1 and 26% from quartile 2)

School context
• Pupils in city schools attain distinctly higher mathematics scores, 27 points more than non urban counterparts, on average.
• Some evidence that smaller classes benefit individual pupils irrespective of social background in terms of their mathematics attainment, though the effect is smaller than others.
• There is a negative peer effect on mathematics attainment if many pupils are educated with a high proportion of pupils with access to few or no books at home.

School physical resources
• Lack of stationary for the individual learner has a depressing affect on mathematics and reading score. The results highlight basic resources such as writing implements and exercise books/paper.
• Whole school resources associated with raised mathematics and/or reading scores highlighted schools where teachers and pupils had access to a school computer (reading) or a video cassette recorder (mathematics) i.e. electrical devices.
• Increased mathematics scores were associated with good shelving in classes.

School human resources
• Individuals taught by maturer reading teachers (older) attain higher scores in reading.
• Some evidence that pupils taught by reading teachers who have completed high levels of teacher training attain enhanced reading scores, on average.
Factors dependent on SES group

Out of school

Q1:
• displacement from parental home (living with relatives or in a hostel (-ve affect))
• Overage (+ve maths and –ve affect reading)
• Pupils reporting have regular opportunities to practise LOI outside school (large +ve affect)

Q2:
• Gender-being girl (-ve maths and +ve affect reading)
• Overage (–ve affect reading/maths)
• Pupils reporting have regular opportunities to practise LOI outside school (large +ve affect)

Q3:
• Overage (–ve affect reading/maths)
• Pupils reporting have regular opportunities to practise LOI outside school (large +ve affect)

Q4:
• Gender-being girl (+ve reading)
• Overage (–ve affect reading/maths)
• Pupils reporting have regular opportunities to practise LOI outside school (large +ve affect maths)
• Pupils with more than 11 books at home attain markedly higher reading and maths scores.
Factors dependent on SES group

In school

Q1:
- Attending city school (+ve maths)
- Grade repetition –individual and large peer effect if many repeaters in year group (-ve)
- Peer effect if large proportion of year not practising LOI outside (-ve)
- Older teachers (+ve)
- Teachers in reading setting tests monthly and who regularly marked work (large +ve effect)
- Maths teacher who set tests at least once per week (-ve impact)

Q2:
- Grade repetition –individual and large peer effect if many repeaters in year group (-ve)
- Peer effect if large proportion of year not practising LOI outside (-ve)
- Female led schools enhance Q2 reading scores
- Older teachers (+ve affect reading/maths)
- If taught by Maths teacher who set tests at least once per week (-ve impact)

Q3:
- Grade repetition –individual and large peer effect if many repeaters in year group (-ve)
- Peer effect if large proportion of year not practising LOI outside (-ve)
- School with TV (+ve affect)
- Has textbook in maths (+ve)
- Regular correction of work enhances scores.

Q4:
- Grade repetition individual and large peer effect if many repeaters in year group (-ve)
- School with TV (+ve affect)
- Taught by Maths teacher who has trained for longer as a teacher (+ve)
- If headteacher has good no. of years teaching experience, scores enhanced
- Regular correction of work enhances scores.
Policy implications

- Target communities with fragile food resources to ensure pupils are not hungry and therefore are unable to learn to their true potential.
- Initiatives for setting up libraries/shared resources for communities to have wide access to books/resources
- Review the repetition policy at national level
- Given repetition rates, are teachers skilled to differentiate in their classroom practices? Implications for quality of training.
- Improve the quality of pupil monitoring (through testing and the type of feedback on work given to learners) through professional development.
- Target school resourcing on provision of basic stationary for each individual and investment in ICT resources
- Review language of instruction strategy in rural/isolated areas-support parents and community in learning LOI also? Start earlier? Extra classes? Ensure teachers in these schools are most highly qualified to teach in LOI-fluency. Or learn in mother tongue?
- Are experienced, highly qualified teachers and headteachers being distributed/attracted fairly to schools serving all communities?