

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

By

**Dr. Michèle C. Smith**

# 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

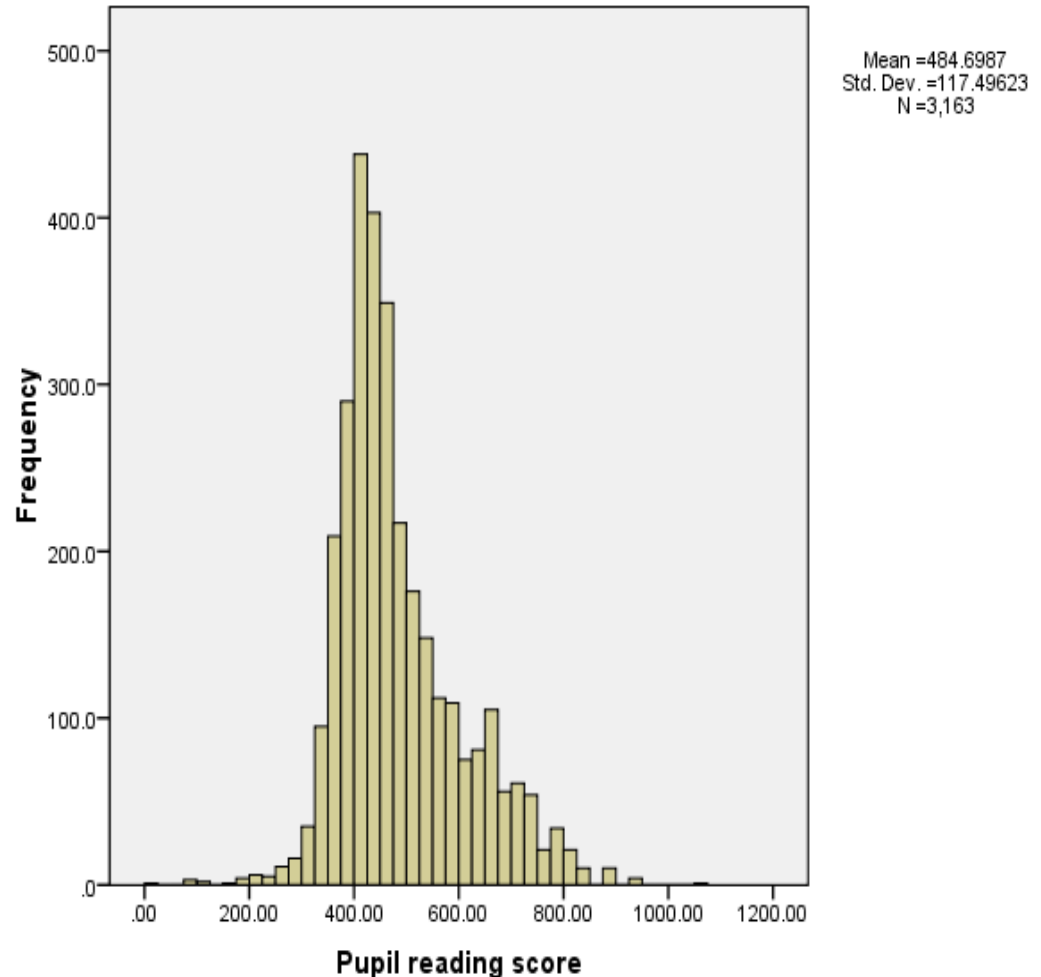
- Second wave of education survey endorsed by a consortium of Ministries of Education from 14 Sub-Saharan African countries under guidance from IIEP at UNESCO,
- Survey of Grade 6 pupils, their teachers and headteachers in 2000 captured:
  - Pupil background
  - Teacher characteristics and attitudes to teaching and learning,
  - 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

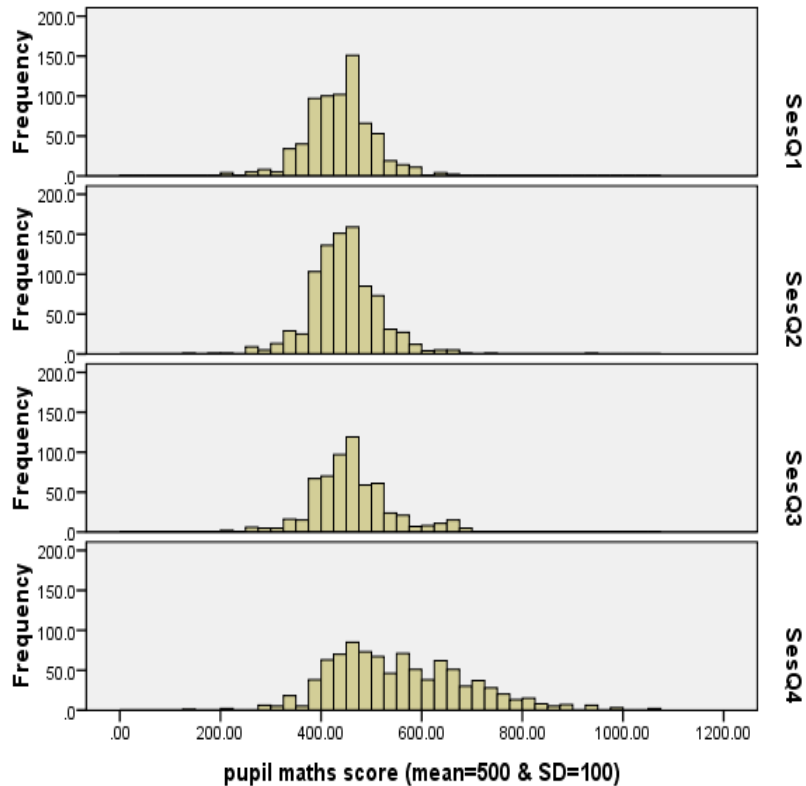


# Socio-economic status (SES)

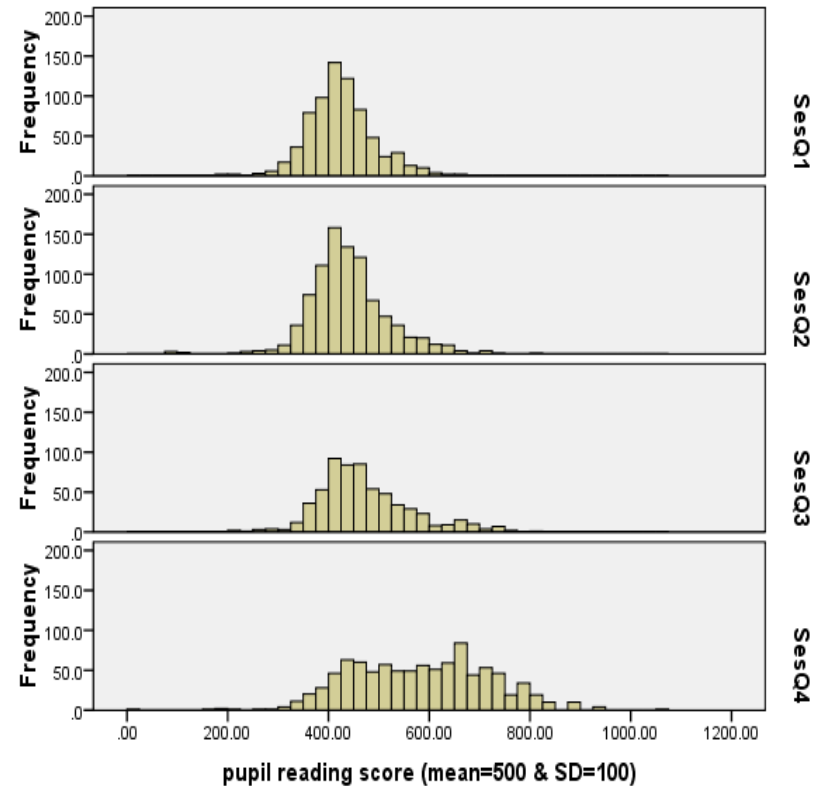
- SACMEQ derived SES indicator (Dolata, 2005) based on a principal components analysis of variables associated with social and economic status from the pupil survey.
- Final SES indicator is a composite of
  - the quality of the home structure,
  - parental education,
  - lighting source at home and
  - possessions in the home (inc. livestock).

# Difference in attainment due to SES

## South African maths scores

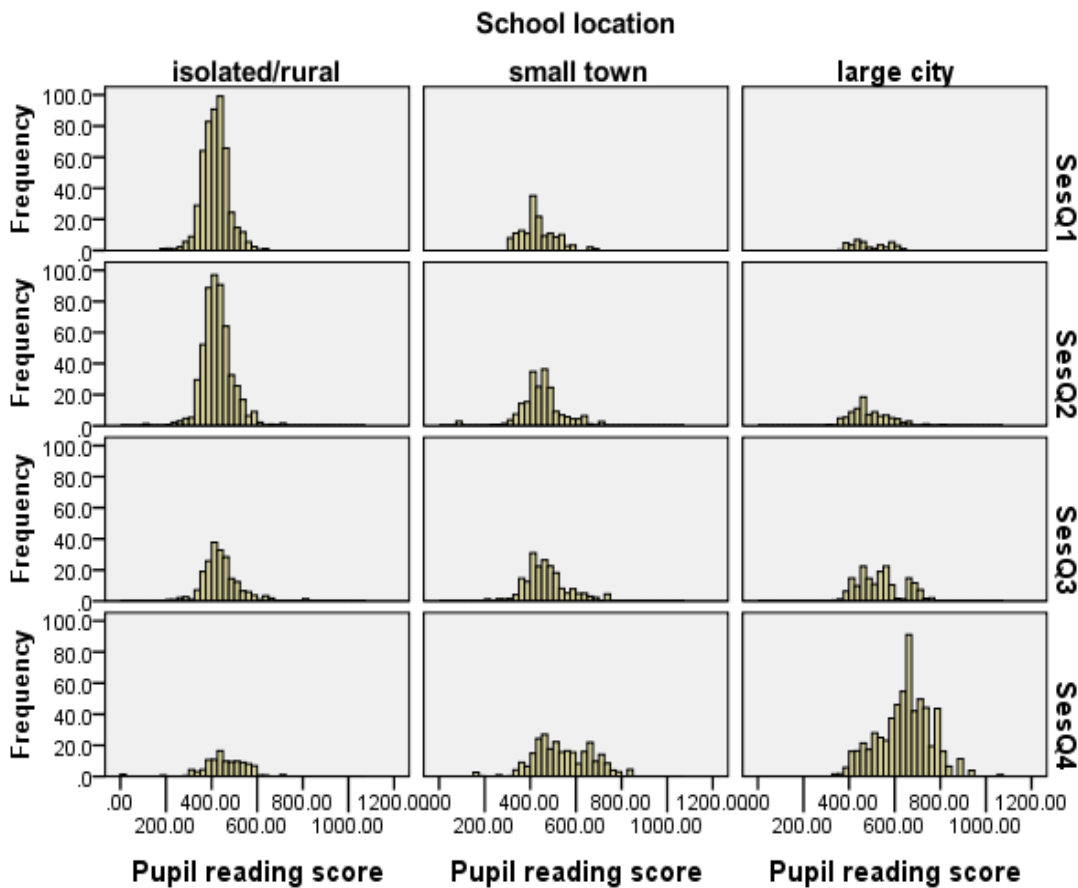


## South African reading scores





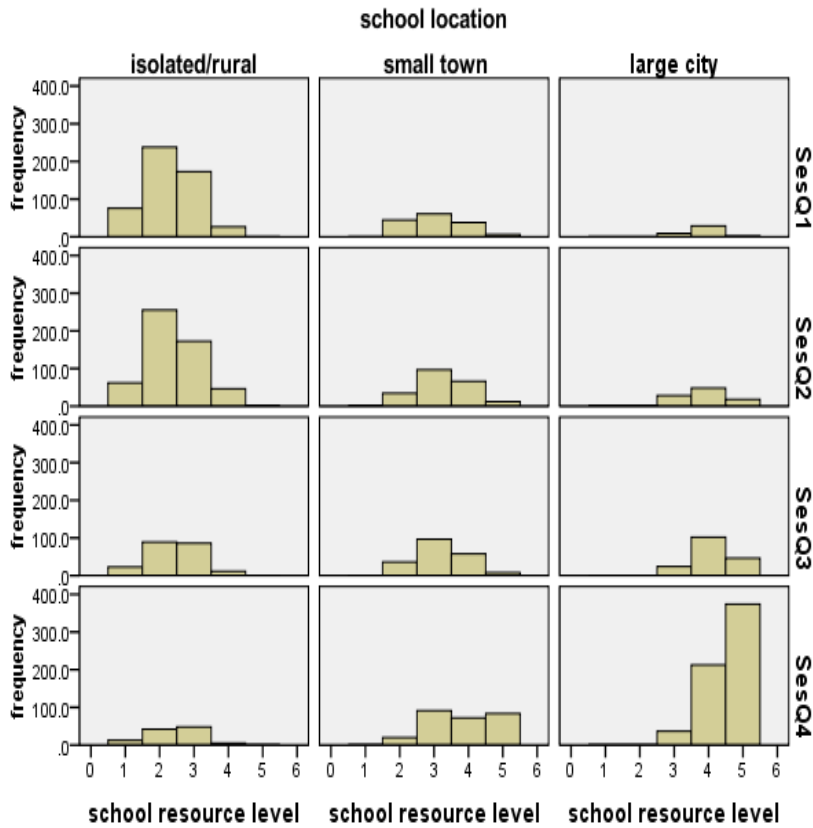
# Reading score, SES and location



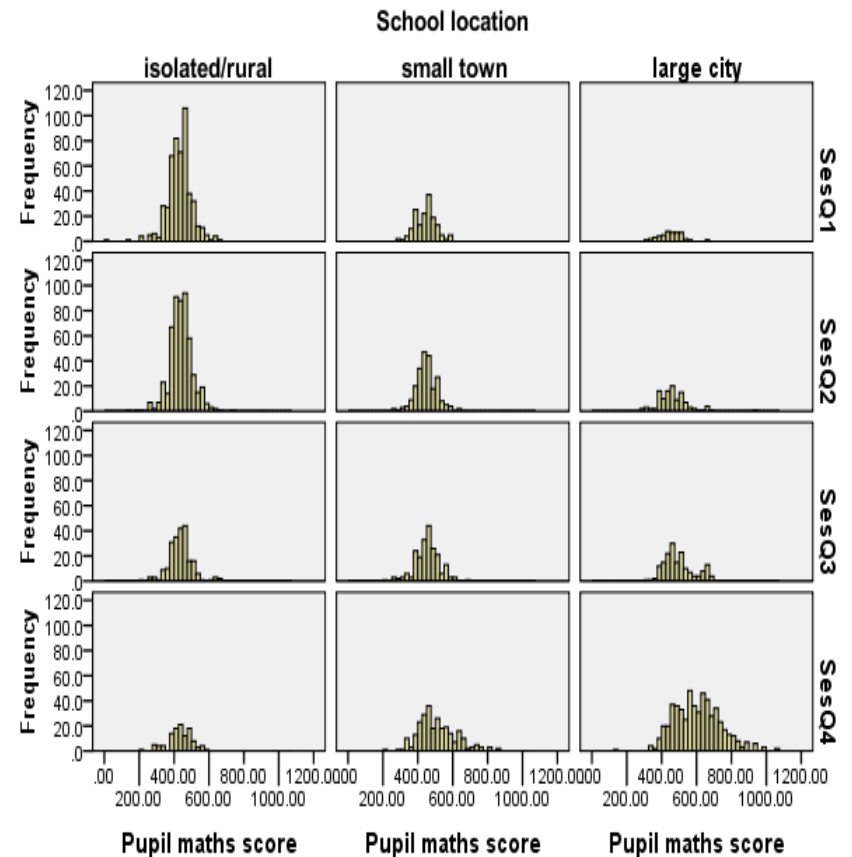
- Clear location and SES interaction
- Similar partitioning in mathematics

# 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

	Null Q1	Null Q2	Null Q3	Null Q4	Final Q1	Final Q2	Final Q3	Final Q4
Final Reading model reduced sample (n=2253)	0.50	0.54	0.68	0.58	0.20	0.31	0.48	0.22
Final Mathematics model reduced sample (n=2472)	0.45	0.59	0.61	0.53	0.28	0.43	0.42	0.21

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?