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Human Sciences Research Council

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www.timss-sa.org.za

# 1. South Africa: Education over 20 years

## Pre-1994

- Separate and unequal development by racial groups.
- Africans restricted to barren and remote lands, poverty, pow quality and limited to education and menial jobs.
- Apartheid social engineering: education the weapon for under-development "what is the use of teaching the Bantu mathematics when he cannot use it in practice? The idea is absurd"(Verwoerd, 1953).

## Present

- Democratic government with single education department.
- SA: population 50 million; 12 million school students; 28 000 schools and 350 000 teachers.
- Improved access to education but quality education & math performance remains elusive.
- High levels of poverty, unemployment and inequality.
- Two systems – economy & education

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# 2. Measuring educational achievement

Since 1994 we participated in national, regional and international educational assessment studies. South Africa is now consolidating its assessment plan

- International: TIMSS 1995, 1999, 2002 & 2011 & 2015. Mathematics and science
- International: PIRLS 2006, 2011 and in 2016. Reading literacy
- Regional: SACMEQ 2000, 2007, 2011; 2014. Reading and mathematics
- National Systemic Evaluation Studies : 2000 (grade 6); 2002 (grade 3) 2004 (grade 6) and 2007 (grade 3 & 6). Language/ literacy and mathematics
- Annual National Assessment: 2011, 2012, 2013, 2014, 2015. Languages/ literacy and mathematics/ numeracy. Grades 1-9

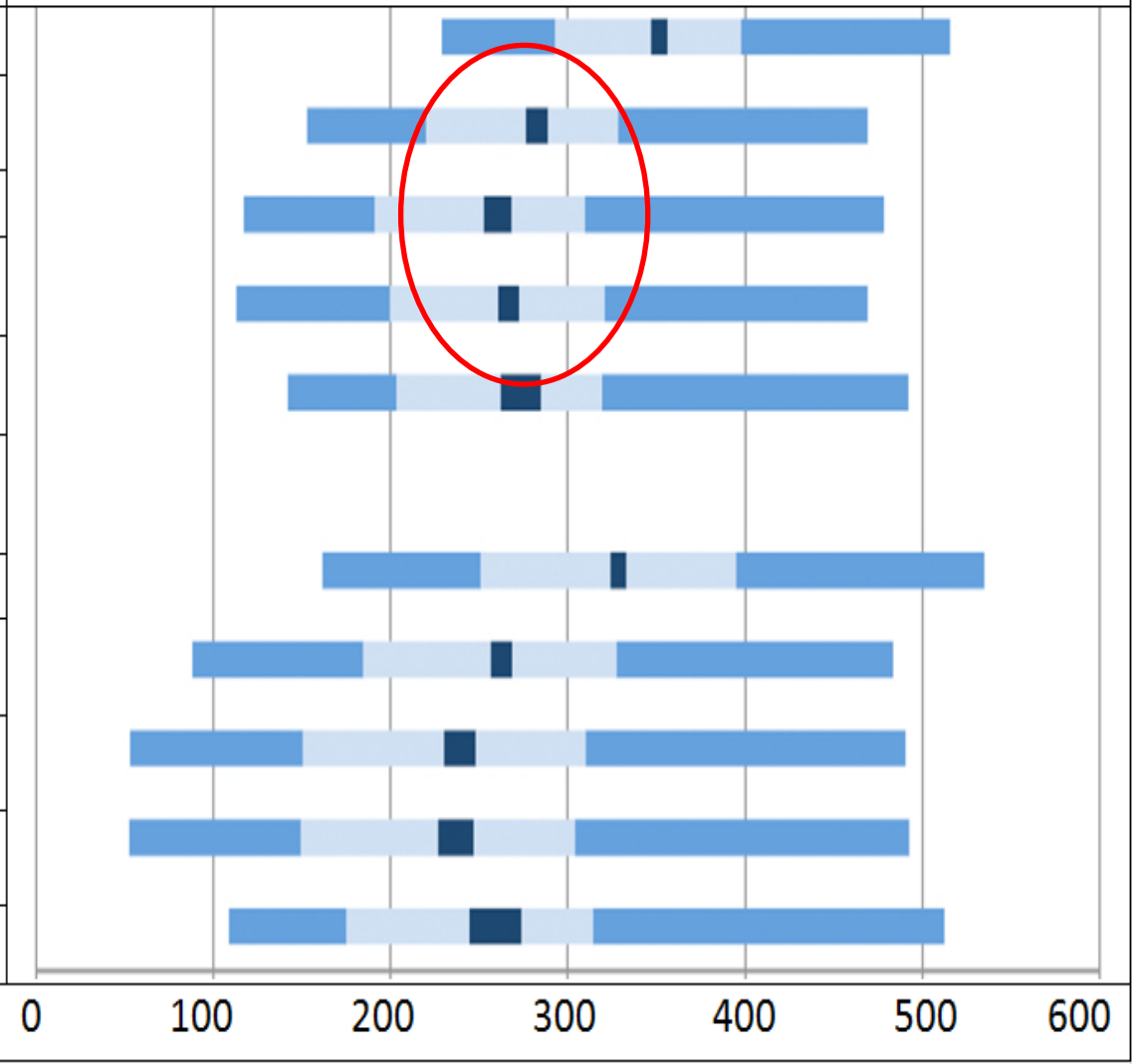
# Beyond Benchmarks

We will present the analysis of TIMSS achievement scores and then examine the contextual factors that have an impact on educational outcomes and how this contributes to the South African policy dialogue.

Also present the modalities for research communication

# 3.1.Trend in mathematics achievement

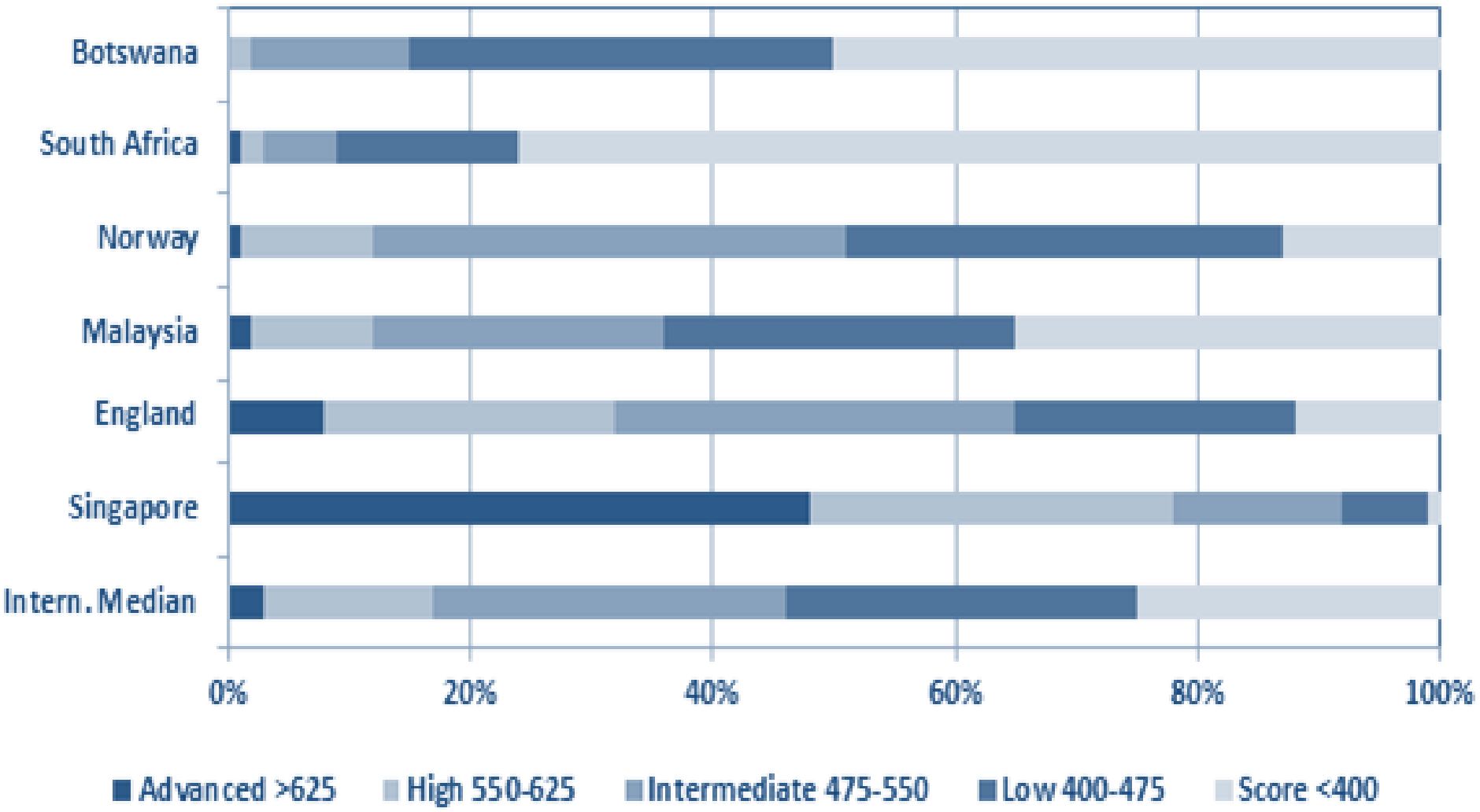
| MATHEMATICS | Average scale score |
|---|---|
| Grade 9 TIMSS 2011 | 352 (2.5) |
| Grade 9 TIMSS 2002 | 285 (4.2) |
| Grade 8 TIMSS 2002 | 264 (5.5) |
| Grade 8 TIMSS 1999 | 275 (6.8) |
| Grade 8 TIMSS 1995 | 276 (6.7) |
| SCIENCE | |
| Grade 9 TIMSS 2011 | 332 (3.7) |
| Grade 9 TIMSS 2002 | 268 (5.5) |
| Grade 8 TIMSS 2002 | 244 (6.7) |
| Grade 8 TIMSS 1999 | 243 (7.8) |
| Grade 8 TIMSS 1995 | 260 (7.9) |



# 3.2. Achievement scores >400

| | Advanced | High | Intermediate | Low | Total |
|---|---|---|---|---|---|
| | >625 | 625-550 | 550-475 | 475-400 | >400 |
| **Mathematics** | | | | | |
| TIMSS 2011 | 1% | 2% | 6% | 15% | **24%** |
| TIMSS 2002 | 0.60% | 1.50% | 2.80% | 5.60% | **10.50%** |
| **Science** | | | | | |
| TIMSS 2011 | 1% | 3% | 7% | 14% | **25%** |
| TIMSS 2002 | 1% | 2% | 3% | 7% | **13%** |

# 3.3. South Africa and other countries



# 4. South African Schools and Household

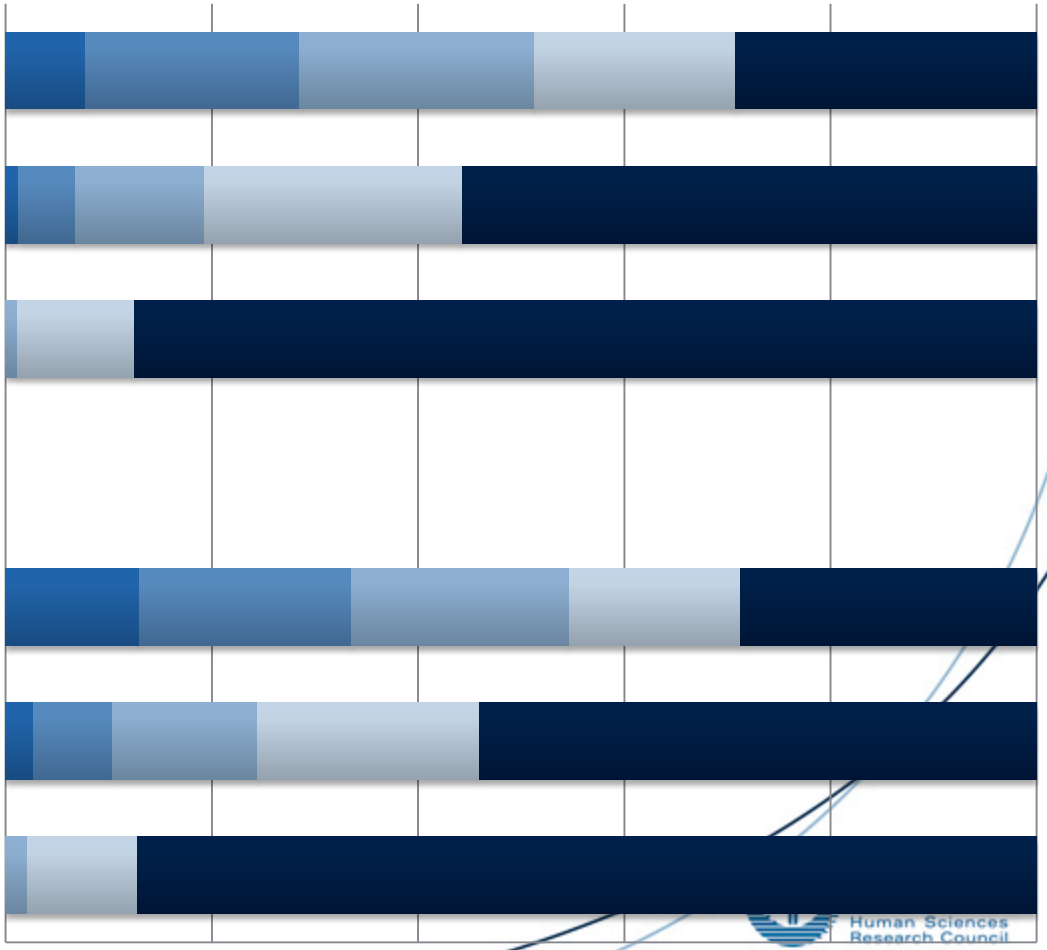
School and the home both contribute to determine the educational outcomes.

- Home background influences educational outcomes and reinforces the reproduction of society.
- Our analyses shows that Socio Economic Status and parental education have the best predictors of educational performance.
- We need to improve both homes and schools for improved learners outcomes.

# 4.1. South African schools

## Three types of school: (i) No-fee paying (ii) Fee-paying (iii) Independent

| Mathematics average scale score (SE) | |
|---|---|
| Independent (n=920) | 474 (17.1) |
| Public (fee paying) (n=4233) | 397 (6.0) |
| Public (No fee paying) (n=6816) | 324 (2.7) |
| **Science average scale score (SE)** | |
| Independent (n=920) | 479 (19.1) |
| Public (fee paying) (n=4233) | 394 (7.6) |
| Public (No fee paying) (n=6816) | 294 (4.2) |



# 4.2. South African Homes

| Resource at home | Public schools (2002) | No Fee (2011) | Fee paying (2011) | Independent (2011) |
|---|---|---|---|---|
| Computer | 33% | 23% | 44% | 77% |
| Own books | | 60% | 68% | 82% |
| Internet connection | | 21% | 38% | 69% |
| Own cellphone | | 74% | 81% | 92% |
| Dictionary | 78% | 63% | 81% | 94% |
| Electricity | 80% | 79% | 92% | 98% |
| Running tap water | 64% | 59% | 80% | 92% |
| Television | 82% | 82% | 92% | 98% |
| Radio | 92% | 79% | 85% | 89% |
| Water flushed toilets | 48% | 31% | 66% | 86% |
| Motor car | 38% | 29% | 47% | 78% |
| Telephone | 54% | 27% | 34% | 56% |
| Fridge | 73% | 71% | 86% | 95% |

# 5. TIMSS analysis to stimulate the policy debate

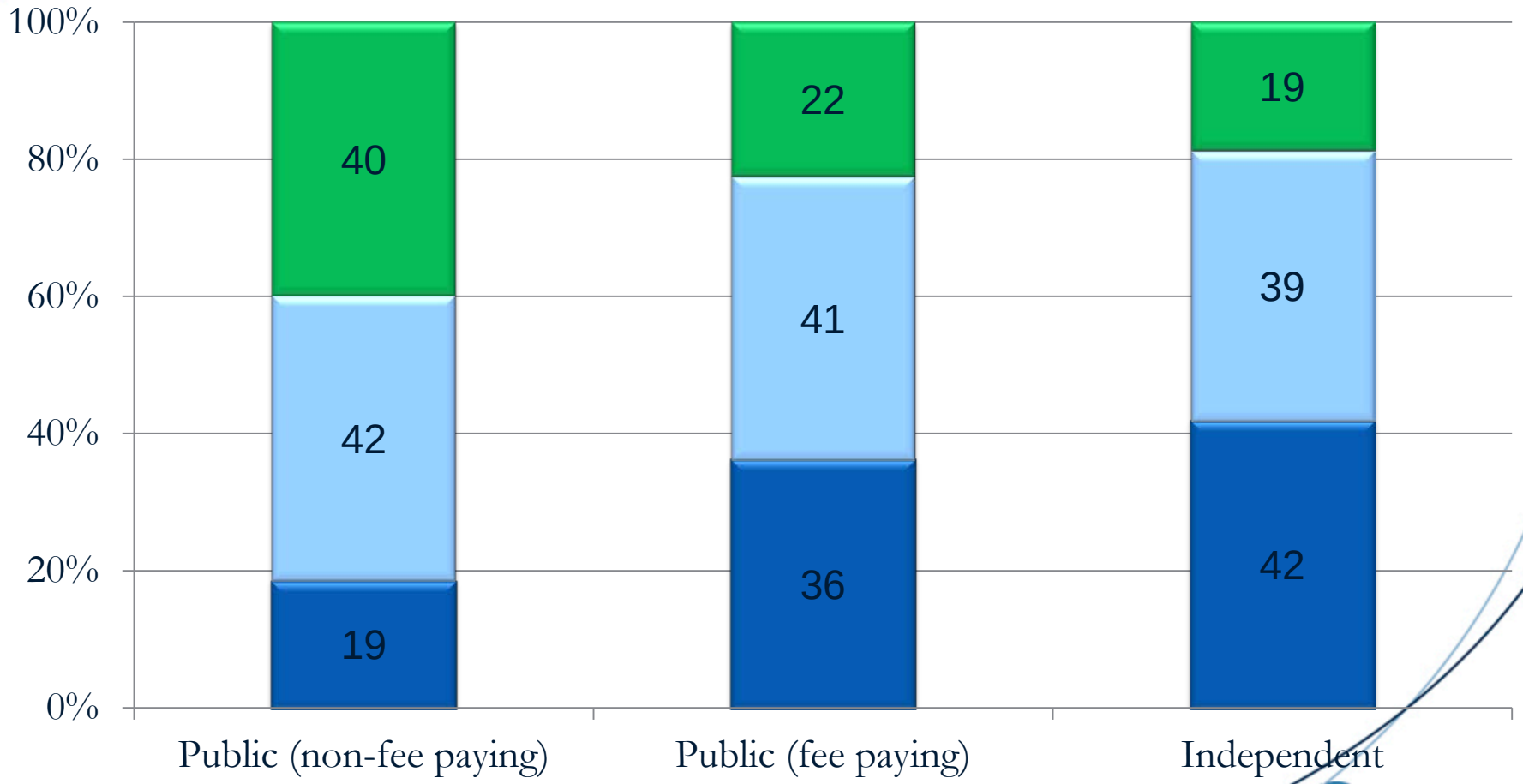
Education is the Number One priority.

- We have analysed TIMSS contextual data and its association to achievement.

- We present three insights to extend the debate:
  - (i) gender complexities
  - (ii) school safety
  - (iii) language of instruction and performance

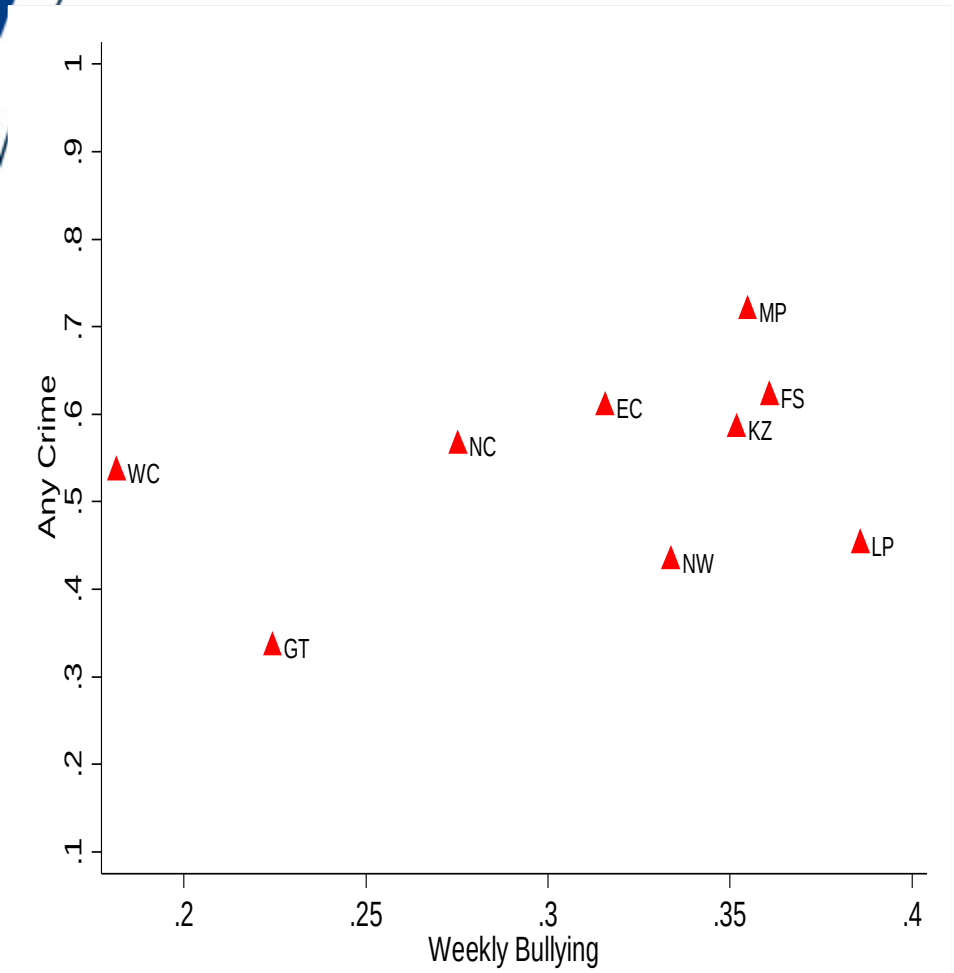
- We hope these insights stimulates the debate in both the social and public space.

# 5.1.School Safety: Bullying at school



# Safe and Sound?
# Violence and South African Education

## Community Violence and School Safety




- independent schools are somewhat safer but even here, one in five students is bullied on a weekly basis.
- The SES of students in a school is a strong indicator of how vulnerable learners are to acts of violence. The chances of being bullied regularly are higher for learners of low SES who have weaker support systems at home.
- There is higher levels of bullying for boys than girls in similar school types
- Schools where there are no discipline or safety problems achieve better results but this link is dependent on the size of the school.

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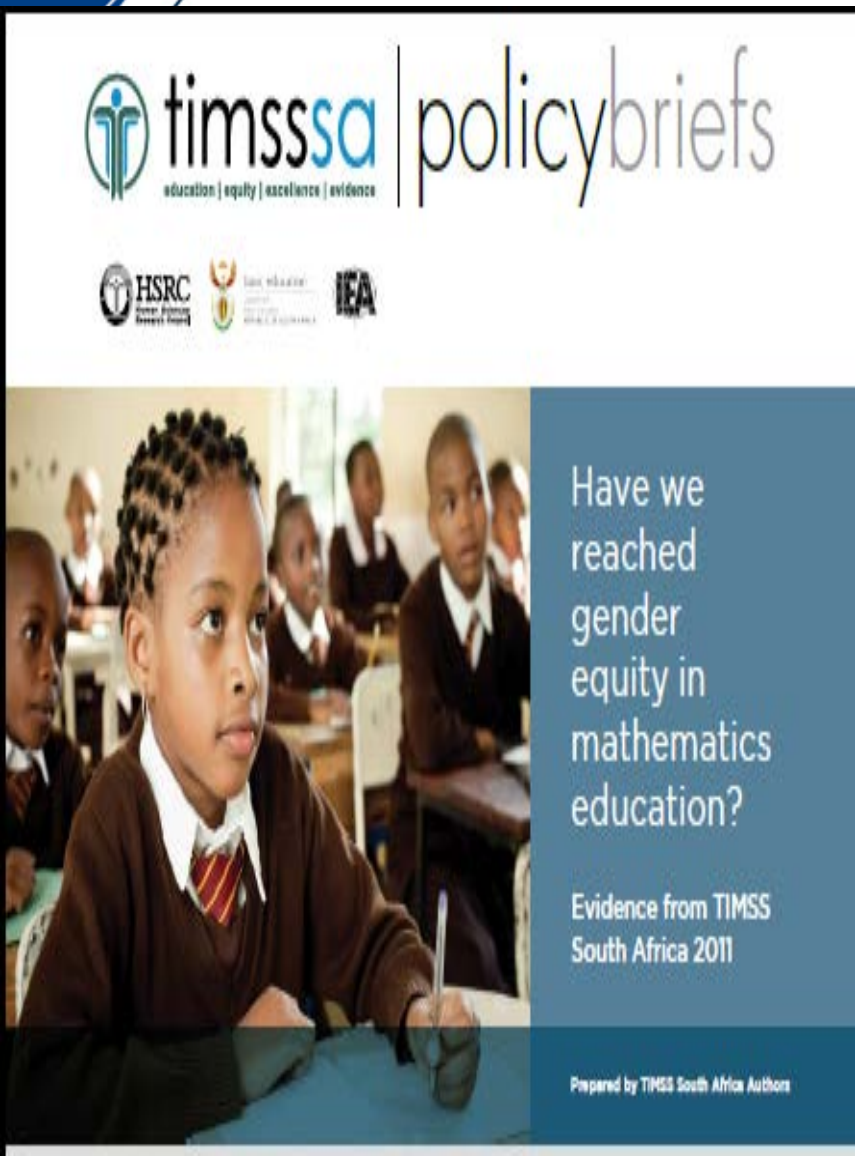
# 5.2 The complexities of gender dynamics




- Achievement gaps has to less to do with gender and more with educational environment.
- Drop out rates for boys are higher than for girls.
- Girls were at an advantage in all forms of engagement with parents.
- Boys are more likely to be victims of bullying
- Boys are the 'at risk' group at schools – middle class indifference and working class safety.

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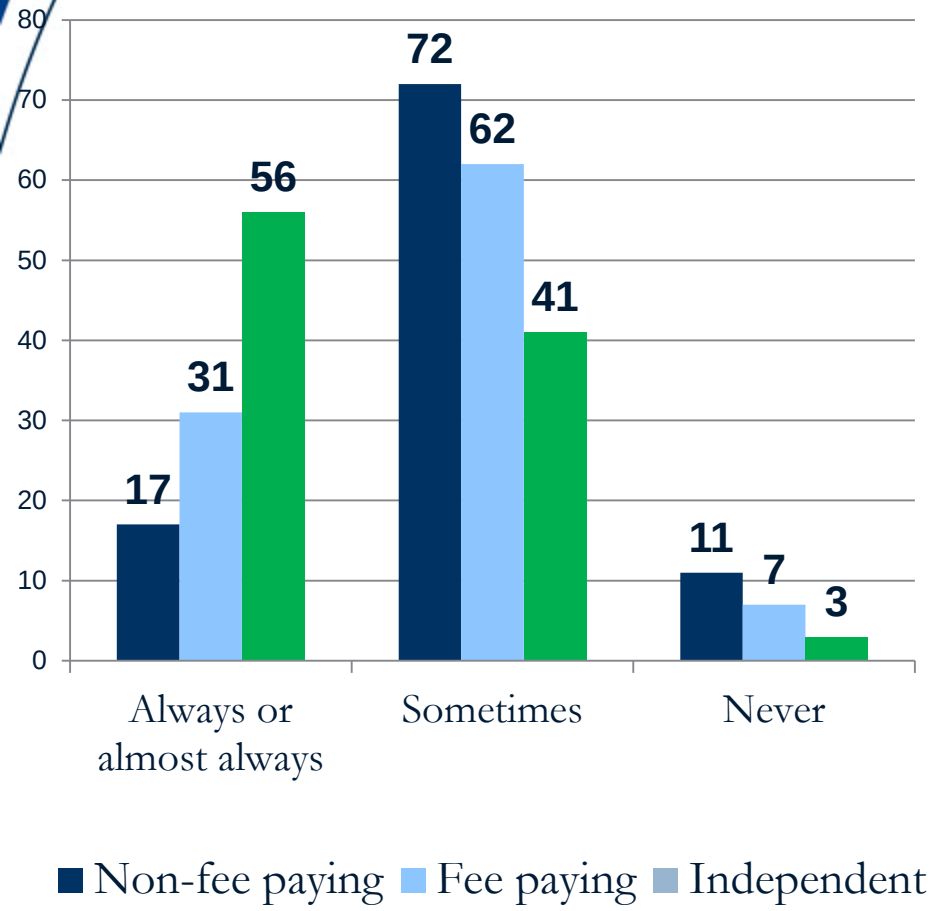
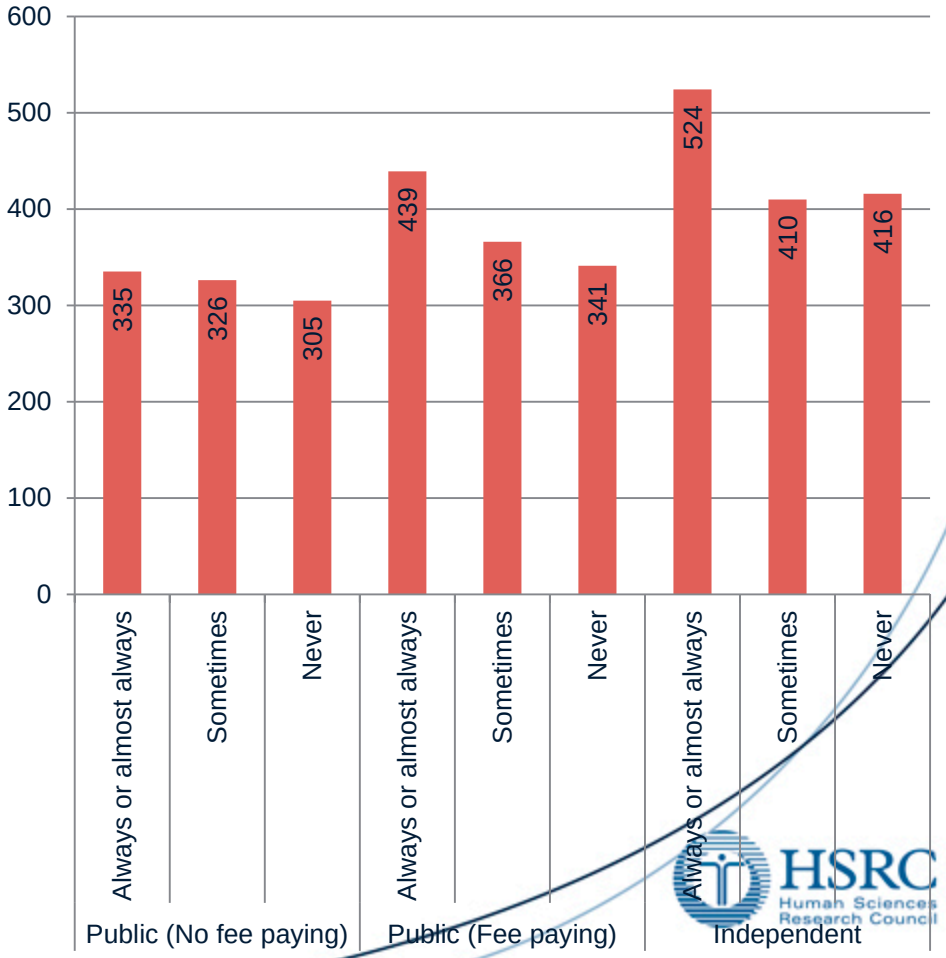
# 5.3. Language of Instruction

## Extent to which Lang of test spoken at home




## School Type, Home Lang & Achievement

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# 6. Expanding the conversation with the analysis from TIMSS data

TIMSS Website: http://www.timss-sa.org.za

- Blogs;
- Op-eds
- Policy Briefs: extending the policy insights about debates from analysis of TIMSS data

# 7. Next steps in educational research

How do we improve the educational outcomes for ¾ of the school going population who do not meet the minimum competency levels.

- How do we capture far more than now about what happens inside classrooms: pedagogical resources (labs, school libraries); pedagogical practices; school climate.

- How do we capture the 'intangibles' that contribute to better quality learning engagements and outcomes.

- How do we capture how the home supports learning of the young.