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Media statement by the Human Sciences Research Council (HSRC) on the release of the TIMSS 2015 grade 5 study

'Results show correlation between early learning experiences and future educational success,' says Dr Vijay Reddy, Principal Investigator of TIMSS 2015 grade 5 study and Executive Director at the Human Sciences Research Council.

The Human Sciences Research Council released the results of South African participation in the Trends in International Mathematics and Science Study 2015 in the report *TIMSS 2015: Highlights of Mathematics Achievement of Grade 5 South African Learners* authored by Vijay Reddy, Kathryn Isdale, Andrea Juan, Mariette Visser, Lolita Winnaar, and Fabian Arends.

TIMSS is project of the International Association for the Evaluation of Educational Achievement (IEA) headquartered in Amsterdam. The IEA, with the International Study Centre which is based at Boston College, released the international results of the study today.

TIMSS was conducted at the grade 5 level for the first time in South Africa in 2015. Forty-eight countries participated at the grade 4 or 5 level in TIMSS 2015. TIMSS 2015 provides an opportunity for South Africa to, firstly, estimate its achievement in relation to other countries and establish the baseline for South African mathematics achievement and, secondly to report on pre-grade 1 educational activities and its influence on achievement.

The top five ranked countries were from East Asia – Singapore, Hong Kong SAR, Republic of Korea, Chinese Taipei and Japan. The five lowest performing countries were Jordan, Saudi Arabia, Morocco, South Africa and Kuwait - countries from Africa and the Middle East.

The Western Cape, Gauteng and Mpumulanga are the three highest provincial performers. The three lowest performing provinces are North West, Limpopo, and Eastern Cape. The difference between the highest and lowest performing provinces was 100 points for mathematics.

South African achievement continues to remain highly unequal with only one quarter of learners at public no-fee schools (Quintile 1, 2 and 3) achieving mathematics scores above the minimum level of competency.

As with the assessment at grade 9, it is encouraging to note that 1.3% of South African mathematics learners scored at the Advanced level of achievement – globally 6% of learners achieve at this level. We must support this group of high performing learners to improve their achievement scores.

Socio-economic indicators such as parents' level of education and the number of books in the home are positively related to learner achievement: those with more resources have higher mathematics scores. But what parents do matters alongside what parent have: many

features of the early educational environment experienced by learners have also been shown to improve performance, including engagement in early literacy and numeracy activities and having parents with high educational expectations.

Starting educational activities early influences mathematics achievement. Between a quarter and one third of learners in no-fee schools read books or play with alphabets, number toys, building blocks or shapes compared to half the learners attending independent schools. Learners from households where parents often read books to the child score 35 points higher than if they never read to their children.

Learners whose parents reported spending time with them on early literacy and numeracy activities achieved higher scores. The different home learning experiences leads to varied levels of readiness for learners in independent, fee-paying and no fee schools. There are differences in the extent of early educational activities for learners from less and more affluent environments. Learners start grade 1 with different levels of school readiness and this difference widens as the learner proceeds through the school system.

Good quality preschool settings offer another important contextual boost for learners. Pre-school attendance in South Africa is almost universal with almost nine out of every ten learners having some form of schooling prior to grade 1. Both in South Africa and internationally the more preschool instruction received by learners, the higher their average mathematics score in grade 5. We examined whether this is realised for learners from different contexts: the preschool experience of learners in public fee-paying and independent schools appears to have a positive impact on their performance. Unfortunately those who in Q1-Q3 no-fee schools do not appear to get the same educational "boost" from attending preschools that those in fee-paying and independent schools do.

This is probably an indication that the quality of preschool education available to those who go on to Q1-Q3 schools is not as high as that of the pre-schooling available to those who subsequently attend fee-paying and independent schools. Quality investment in early years is crucial for those most in need. It appears that the quality of pre-school education that learners receive is far from equal, failing the most disadvantaged and most in-need learners.

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