Understanding and comparing student learning in southern Africa

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This special issue of *Prospects*, guest-edited by Martin Carnoy, reports the results of a major study comparing student learning in primary schools in the border region of two neighbouring countries: South Africa's North West Province and South East Botswana.

Like several other recent studies, it tries to identify schooling factors within countries that significantly impact student achievement. This research, however, distinguishes itself by honing in on learners who are physically proximate, culturally and socio-economically similar, and attending the same grade in two different school systems. It especially focuses on the characteristics of teachers and teaching that may contribute to learning gains in grade 6 in a group of lower and lower middle income schools shaped in different historical settings.

The articles included in this special issue have important implications not just for education policy in developing countries, but also for the methodology used to study an education process in almost any country, developing or developed. The research is classroom-based, and the articles that make up this issue of *Prospects* detail the classroom process that the underlying study found to be important to understanding why, in some classrooms, even low-income students learn more. Key data on learning, teacher skills, the schooling process, and the schooling environment help us understand better how students in the two countries learn mathematics, and what they learn. These insights, as Martin Carnoy highlights in his Introduction to this special issue, go far beyond those in other studies of schooling, even most studies outside southern Africa.

The underlying theory is that student learning is a complex function that includes many factors: the student's human and cultural capital, the teacher's capacity to teach the subject matter (content and pedagogical knowledge), the cognitive demands teachers make of students in the classroom, the amount of time spent on the subject matter (curriculum mandated by the state), the quality of the teachers' pedagogy in the classroom, and classroom peer conditions that influence learning. Although the neighbouring populations of students have similar characteristics, the two countries differ greatly in the histories of their educational systems: Botswana gained independence in 1966 and pursued as a

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national policy the development of its education system, while South Africa's apartheid system denigrated systematically equal opportunities for the black population. Their curriculum and teacher training policies are also worth comparing.

Linda Chisholm, advisor to the Minister of Basic Education in South Africa, and Bagele Chilisa, a professor at the University of Botswana, describe the historical context and educational policy differences of the two regions being studied: the North West region of South Africa (including important parts of a former homeland, Bophuthatswana) and South Eastern Botswana.

Nii Addy, who recently earned a Ph.D. at Stanford, analyzes the curriculum reform process in the two countries. This analysis provides valuable insights into the contrasting educational policy setting between the two and into how the reform process impacts teacher involvement and resistance to reform.

Margaret Irving, a South African Ph.D. student at Stanford and economics lecturer at the University of Cape Town, analyzes teacher labour markets and how teacher training policies in the two countries relate to those markets.

Cheryl Reeves, a professor at the Cape Peninsula University of Technology in South Africa, and Tenjiwe Major, a lecturer at the University of Botswana, assess the opportunity to learn in the Botswana and South African schools in the study sample. They use detailed student notebook analysis to show how much mathematics is covered during the 6th grade year and what mathematics is covered relative to what the study's student test asked of the sample of grade 6 students.

Ingrid Sapire, of the University of Witwatersrand, and Alejandra Sorto, of the Mathematics Department at Texas State University at San Marcos, discuss their analysis of 183 videotapes of 126 teachers in the two countries. They evaluate various aspects of teachers' mathematics teaching and provide an overall quality rating of teaching. Their analysis is unique from the standpoints of both methodology and empirical assessment.

The final paper in this issue, by Martin Carnoy, of Stanford University, and Fabian Arends, of the Human Sciences Research Council in South Africa, presents student gains in the two countries and the classroom and school factors that explain the gains, including teacher mathematics knowledge, opportunity to learn, and teacher teaching skills.

In addition to contributing to a better understanding of the educational policy settings in Botswana and South Africa, these remarkable articles highlight an important, universal message, one that Carnoy points to repeatedly in his Introduction: good teaching is critical to student learning. However, good teaching does not simply happen. Instead, it is the result of many factors, including assuring that teachers are provided adequate content and pedagogical knowledge and that everyone involved in education is held accountable to high standards.