Studies show that the private returns to schooling in low income countries are substantial and quantitatively similar to those found elsewhere. But how is this consistent with mounting evidence that children in low income countries learn little while attending school? This paper resolves this apparent paradox. While various explanations are examined, attention focuses on how learning gains are expressed. Using data from almost one million children in East Africa, estimates from a sibling difference model reveal that the relative (as opposed to absolute) cognitive gains due to schooling are highly comparable to the magnitude of private returns. This is supported by estimates of the contribution of schooling to the total academic progress in a calendar year. It is also robust to plausible bias due to either omitted variables or measurement error, and is confirmed by a dynamic value-added model estimated for birth-year cohorts. One implication is that greater attention should be given to learning challenges that emerge before children enter school.