



Improving teaching and learning of basic maths and reading in Africa: Does teacher preparation count?

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ABSTRACT

Teacher education has an important role in ensuring quality of learning especially for the poorest children. The article draws on a study of teacher preparation for the early primary grades in six African countries – Ghana, Kenya, Mali, Senegal, Tanzania and Uganda – in reading and mathematics. Initial teacher education had the strongest impact on newly qualified teachers but also induced misplaced confidence leading to standardised teacher-led approaches that failed to engage learners. Learning to read was divorced from meaning while mathematical activities were not linked to learning concepts. We suggest that teacher education is reconstructed as a study of classroom practice that places children's learning at its centre.

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1. Introduction

The goal of *achieving Education for All* by 2015 has galvanised many countries in sub-Saharan Africa (SSA) into confronting problems associated with their low rates of enrolment (UNESCO, 2008). In the last ten years statistics on access to primary education in African countries have been impressive, with countries such as Tanzania and Uganda reporting gross enrolment rates approaching 100%. However, alongside these reports are other studies that show that once in school, many children are failing to achieve levels of competence expected of their grade (CONFEMEN, 2010; Hungi et al., 2010). This is particularly disturbing in the case of reading and mathematics in the early grades, since both form the foundation upon which later progress in learning is based. Those who fail to make sufficient progress in these subjects are more likely either to drop out or become disengaged and unable to access the increasingly demanding work of the later grades (Liddell and Rae, 2001; Lewin, 2009; UNESCO, 2010; Glick and Sahn, 2010).

Concerns about this problem have led to increased international studies to monitor children's performance, especially in reading. What is being confirmed is that many children in African primary schools are falling short of the basic levels of literacy necessary to progress successfully to higher grades. For example, nine out of ten children tested by the Early Grade Reading Assessment in Mali

were unable to read a single word after two years of schooling, and even in Kenya where the results were relatively better, few children reached a fluency benchmark required for comprehension of a text with 92% of children in grade 2 in Mali, for example, being unable to read a word in French (Gove and Cvelich, 2011). Moreover, in the context of poor countries, it is those children from poor backgrounds who struggle the most (UNESCO, 2008). They need the most attention if significant inroads are to be made in breaking the inter-generational effects of poverty that poor learning outcomes perpetuates (Van den Berg, 2008). Improved levels of educational access and attainment have poverty-reducing effects as this ultimately improves livelihoods and incomes, effects that accrue over generations (Sabates et al., 2012). Households with more education are less likely to be trapped in poverty. Ensuring that all children acquire the most basic literacy and numeracy skills in the early years of schooling is the most fundamental step out of poverty and into a life of greater opportunities. Although globally, extreme poverty is falling, including in Africa, the continent is judged unlikely to half its poverty rate from 1990 levels by 2015 (IDRC/World Bank, 2010). Analysts assign multiple reasons for this but implicate poor quality education as a primary factor limiting progress (UNESCO, 2010).

If the poverty cycle that plagues the poorest households is to be broken, improving the chances of children progressing beyond primary to higher levels of education is among the first steps to be taken. For this to happen poor people must be assured that the cost of sending their children to school is offset by the quality of the education offered by the teachers in the schools they attend. A large body of research (summarised *inter alia* in UNESCO, 2010) suggests that is often not the case. Living standards analysis in

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Ghana, for example, show that the ‘extremely poor’ have notably lower attendance at school than other groups, especially at younger ages and with some households citing lack of progress in learning among other reasons why many of these children drop out of school (Akyeampong, 2009).

Within the debate about what constitutes and contributes to quality basic education, there is consensus that children must achieve at least the basic minimum or threshold competences,¹ in literacy and numeracy skills, and that having teachers with the skills and competence to organise and structure classroom activities that enable to children attain these expected levels is crucial (Tikly, 2011). We would argue that this teacher competence, should it benefit more privileged schools or a small group of more privileged children within schools, will increase educational inequality and widen the social and economic gap between the rich and the poor. Education for all requires that teachers generally are able to ensure the participation of all children, irrespective of social or economic background, in activities that promote learning of the basic competences on which they can then build. Although there is a general acknowledgement that teacher training and development is potentially one very important input into achieving this outcome, within the SSA context there is a limited amount of research devoted to understanding how this input is aiding or constraining this purpose.

In this paper, we present evidence to show why policy makers and development strategists in Africa should take a close look at initial teacher education for answers to improve quality in the early stages of primary education. Although governments, development partners and international NGOs are introducing school level interventions to address this problem in many school systems in Africa, we would argue that initial teacher education is at the heart of the problem *and* the solution to the early dropout that contributes to persistent poverty. After all, early grade primary teachers create the first formal learning experiences that young children encounter, for better or for worse – and for worse, if the picture of classrooms characterised by a lack of innovative methods and reliance on traditional teacher driven lecture, memorisation and recitation teaching styles persists (Hardman et al., 2008).

The paper argues that the first step towards addressing this problem is to understand how initial teacher education shapes beginning teachers’ professional understandings of effective practice in the context of learning to teach reading and basic mathematics. Although in-service teacher education is important and should be part of the effort to improve African teachers’ practices, it stands to make a better impact if initial teacher education provides learning experiences for teachers that make them *construct* and *practice* teaching as problem solving with children at the centre. Teachers in our study rarely framed their understanding of practice in terms of the kind of responses children make of their teaching and the implications for adapting and learning from the effects of this. Our evidence suggests that this is largely missing in the way in which initial teacher education prepares teachers to think about teaching reading and mathematics in the early grades of primary schooling.

That initial teacher education in Africa is in need of reform is well documented (see for example, Lewin and Stuart, 2003). Writing about the problem of teacher education in Nigeria, for example, Bakari (2009) catalogues weaknesses in the teachers’

capabilities in promoting effective learning at the classroom level as ‘startling disclosures,’ made more startling by the fact that Nigeria spends a colossal amount of money on continuing professional development (CPD) – about 2.55 billion Naira in 2005.² According to many researchers pre-service teacher education in Africa does not appear to prepare teachers adequately for the conditions they face in the field (Moja, 2000; Nkwanga and Canagarajah, 1999). One of the critical issues appears to be the focus on, and prestige of, paper qualifications with no performance standards in certification requirements (Theobald et al., 2007). Previous teacher training curricula in Africa and elsewhere has been criticised for being too theoretical with little emphasis on practical knowledge (Moja, 2000; Westbrook et al., 2009). The problem of teacher effectiveness has roots in how teachers are prepared for actual teaching and the professional support they receive once they start their professional life as teachers (Tatto et al., 1993; Lewin and Stuart, 2003). Pre-service teacher education needs unwrapping and critical assessment made of its training approaches to understand just where it is lacking and what changes are needed to prepare teachers with the potential to make a difference to children’s learning and achievement, and thereby make a significant contribution to the fight to reduce poverty through the provision of quality education in the early years of schooling.

This article aims to illuminate this issue. Based on the Teacher Preparation in Africa (TPA) Project,³ funded by the William and Flora Hewlett Foundation, it provides some answers to the question: how does initial and continuing education of teachers impact on the practice of teachers, particularly on the preparation that teachers receive who teach reading and basic maths in the lower primary grades and what support is available through continuing professional development (CPD) and other routes to teach these subjects. The TPA studies focused on six African countries – Ghana, Kenya, Mali, Senegal, Tanzania and Uganda – with the research implemented in each country by lead researchers and their teams. In Section 2 the methods of data collection are described, in Section 3 eight headline findings are presented with the accompanying evidence and Section 4 discusses the conclusions and implications for an urgent reconstruction of pre-service teacher education in sub-Saharan Africa, based on actual classroom practice, one that seeks to make trainees more critically aware of the learning needs of pupils and skills to make their learning more productive.

2. Method

The research was based on making a series of comparisons between the knowledge, understanding and practices relevant to the teaching of reading and mathematics that are expected of teachers during their preparation and those that are exhibited at different points in their training and early career. The points of comparison are summarised in Fig. 1.

First, competences relevant to the teaching of reading and mathematics that the different initial teacher education (ITE) programmes sought to develop in trainee teachers were established and compared to what the primary curriculum for early reading and mathematics in each country stipulated. Then, a picture of the knowledge, understanding and practice of actual trainee teachers at the end of their training, and of newly qualified teachers (NQTs), and of teachers having taken part in CPDs was developed using both quantitative and qualitative data.

¹ Recent work on the economic outcomes of schooling has also stressed that it is the quality of education rather than the quantity of those attending that is associated with national economic success (Hanushek and Wößmann, 2007). Moreover this work concludes that ‘The current situation in developing countries is much worse than generally pictured on the basis just of school enrollment and attainment’ (p. 77).

² Approximately US\$19 million at contemporary exchange rates.

³ In the French speaking countries the project was known as Formation Initiale et Continue des Enseignants en Afrique (FICEA).

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