



Impacts of Pre-Service Training and Coaching on Kindergarten Quality and Student Learning Outcomes in Ghana



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ABSTRACT

Using a randomized-control trial, this study evaluates a program designed to support Ghanaian kindergarten student-teachers during pre-service training through mentorship and in-classroom training. Several potential barriers to improved teaching quality and learning outcomes are examined. Findings show that the program improved knowledge and implementation of the national curriculum for individuals both when they were student-teachers and, the following year, when they became newly qualified teachers (NQTs). There were mixed impacts on professional well-being, increasing personal accomplishment and motivation but decreasing job satisfaction for NQTs. There were mixed impacts on teaching quality, with increases in child-led learning but decreases in some other aspects of quality. There were no impacts on NQTs' student learning outcomes. The findings highlight system level challenges with both the posting of NQTs and the absence of support in their first teaching year. Implications for global early childhood education policy and teacher education are discussed.

1. Introduction

International efforts to increase access to high-quality early childhood education have risen dramatically in recent years. Sustainable Development Goal 4, Target 4.2, calls for “ensur[ing] that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education” (United Nations, 2015). For this target to be achieved, governments will need to focus on both access to pre-primary education (e.g., by incorporating it into the basic education system) and ensuring the delivery of high-quality education (e.g., by producing a well-trained teacher workforce). Ghana has been a pioneer in these efforts, expanding 2 years of pre-primary education—called kindergarten 1 (KG1) and kindergarten 2 (KG2)—as part of its universal basic education system in 2007. With some of the highest enrollment rates in early childhood education (ECE) on the continent at over 75% net enrollment in 2015–16 (Ghana Ministry of Education, 2016; UNESCO, 2015), Ghana's government has turned its attention the issue of quality, including developing a pre-service teacher certification track specifically to train KG teachers.

Developing and expanding a high-quality pre-service training program is one of top priorities of the Ghana Education Service in the Ministry of Education (MoE). Seven of the 40 colleges of education in Ghana currently offer a track for kindergarten teachers. Certification is a 3-year process, with 2 years of coursework and 1 year in a classroom as a student-teacher. This study evaluates the impacts of a training program implemented during the student-teaching year using a randomized control trial. The program provides KG student-teachers with

guidance through mentorship and in-classroom training throughout their placement year focused on successful implementation of the national curriculum and KG-specific pedagogy, which focuses on activity-based child-centered approaches. This study followed teachers over the course of two academic years, with impacts assessed on student-teachers at the end of the school year and the following year when student-teachers were placed as full-time newly qualified teachers (NQTs). It is one of the first longitudinal impact evaluations of a pre-service teacher training program in sub-Saharan Africa (SSA).

1.1. Early Childhood Education Quality

Numerous studies have shown that a significant portion of variance in student learning is explained at the classroom level (Rivkin, Hanushek, & Kain, 2005), and that features of the classroom context meaningfully predict student learning outcomes and academic trajectories (e.g., Hamre & Pianta, 2001; Mashburn et al., 2008). *Process quality*, considered the driver of child learning and development, refers to the nature of children's daily interactions and experiences in the classroom, with a broad focus on the social, emotional, physical, and instructional aspects of activities and interactions. *Structural quality* refers to regulable resources, such as class size, student-to-teacher ratio, and teacher training and education (Slot, Leseman, Verhagen, & Mulder, 2015) and is considered important for improving learning outcomes only to the extent that it promotes process quality (Pianta et al., 2005; Seidman & Tseng, 2011). While the majority of evidence on the importance of pre-primary classroom quality in promoting learning comes from U.S. contexts (see Yoshikawa et al., 2013), increasing

evidence from low- and middle-income countries (LMICs) points to similar associations. This growing body of evidence comes from both descriptive (Aboud, 2006; Brinkman et al., 2017; Leyva et al., 2015; Rao et al., 2014) and experimental and quasi-experimental studies (Araujo, Carneiro, Cruz-Aguayo, & Schady, 2016; Yoshikawa et al., 2015).

The primary question countries face is *how* to promote both structural and process quality and learning in their education systems. While some models have been evaluated in low- (Özler et al., 2017) and middle-income countries (Yoshikawa et al., 2015; for reviews see Ganimian & Murnane, 2016, and Conn, 2017), the majority of studies concerned with teacher professional development have focused on in-service teacher training. Yet pre-service training is the base from which teachers develop their practice. While some evidence suggests that new teachers adjust their practice to the local school environment in ways that may ‘wash-out’ the effects of their pre-service training (Westbrook et al., 2009), other studies suggests otherwise. In a study across six countries in SSA, including Ghana, Akyeampong, Lussier, Pryor, and Westbrook, 2013 found that pre-service training experiences had a powerful effect on the practices of new teachers, and also induced misplaced confidence leading to standardized teacher-led approaches that failed to engage students. If and how pre-service training can be modified to induce long-term impacts on teaching knowledge and practice is an area in need of research.

1.2. Teacher Professional Well-being

Ghana’s education system was regarded as one of the most highly developed and effective in West Africa and the teaching profession was held in high esteem in the 1960s and 70s. However, the education system has deteriorated since, and a major present-day challenge is the inability to attract high caliber candidates to become teachers (Adu-Gyamfi, Donkoh, & Addo, 2016). Teachers in LMICs face many challenges, including increasing workloads due to education reform, low and infrequent teacher remuneration, lack of professional recognition, challenging working conditions (i.e., large class sizes), lack of accountability, minimal professional development opportunities, and lack of voice (Bennell & Akyeampong, 2007; Wolf, Aber, Torrente, McCoy & Rasheed, 2015). There is growing concern about a “motivation crisis” among teachers in LMICs (Moon, 2007) and in Ghana specifically (Bennell & Akyeampong, 2007). Teacher motivation and attendance, as well as high rates of turnover (Osei, 2006), are serious challenges to improving educational quality and child learning in Ghana and other LMICs (Bennell & Akyeampong, 2007; Chaudhury, Hammer, Kremer, Muralidharan, & Rogers, 2006).

In addition to motivation, three other areas of professional well-being have been found to predict teaching outcomes in high-income countries. Job burnout is a psychological syndrome in response to chronic work stressors (Maslach, Schaufeli, & Leiter, 2001), and has been associated with job withdrawal, absenteeism, intention to leave the job, and turnover. For people who stay on the job, burnout leads to lower productivity and effectiveness at work across various professions (Kop, Euwema, & Schaufeli, 1999; Leiter, Harvie, & Frizzell, 1998; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). Personal accomplishment has been linked to different dimensions of burnout, and to student behavior patterns (Hastings & Bham, 2003). Finally, teacher job dissatisfaction has been found to be a primary reason for leaving the profession (Green-Reese, Johnson, & Campbell, 1992; Hall, Pearson, & Carroll, 1992), and job satisfaction a key predictor in teacher retention (Zigarelli, 1996). Few impact evaluation studies have considered professional well-being for teachers in SSA and in pre-service training contexts. But evidence suggests that improving teacher professional well-being may be an important component of any professional development effort.

1.3. Kindergarten Education in Ghana

Ghana’s 2004 National Early Childhood Care and Development Policy highlights access to quality kindergarten education as central to improving early childhood development and learning, and as a promising way to prevent development delays and foster early learning despite adversity. In 2007, the government expanded access to 2 years of pre-primary education—called Kindergarten (KG)—by including it in the free and compulsory basic education provided by the state starting in 2008. It was one of the first countries in SSA to do so. The KG system is accordingly financed as part of the primary school system. The curriculum emphasizes play and joy of learning, as well as creativity, prosocial skills, and active engagement, as key elements of KG education (Ministry of Women & Children’s Affairs, 2004). Yet recent reports on the KG sector have concluded that the curriculum is rarely implemented, and that quality is low across the country (Ghana Education Service, 2012; UNESCO, 2006).

Pedagogical practices observed in several studies in Ghana are highly teacher-directed and considered to be oppressive of young children (Adu-Gyamfi, 2014; Akyeampong, 2017), with children viewed as “receptacles in need of control” (Agbenyega, 2017, p. 682). Thus, despite the national curriculum being play-based and child-centered, it is rarely implemented as intended (Ghana Education Service, 2012). Some have argued that the greatest need for Ghanaian early childhood teachers is to transform experiences to see “best practice” and change teachers’ beliefs and value systems by changing the way teachers are educated (Agbenyega, 2017; Akyeampong & Lewin, 2002; Akyeampong, 2017). While questions may remain about the appropriateness of child-centered pedagogical approaches in Ghana, a recent study showed that training teachers on these approaches led to increased use of child-friendly practices and improved early literacy, early numeracy, and social-emotional development for KG children (Wolf, Aber & Behrman, 2018).

1.4. Effective Teacher Training Programs

Few, if any, experimental studies have considered how effective different types of pre-service training programs are in changing teachers’ pedagogical beliefs and attitudes, and, perhaps more importantly, the quality of teaching and learning in SSA. But there is growing evidence for in-service training. A synthesis of 115 rigorous evaluations of in-service training educational initiatives in LMICs concluded that resources improve student achievement only if they change children’s interactions at school (Ganimian & Murnane, 2016). Two other meta-analyses came to similar conclusions. McEwan (2015) found that across educational interventions evaluated in LMICs, programs that used computers or instructional technology, teacher training, and smaller classes / learning groups had the largest impacts on learning outcomes. Conn (2017) focused on studies in sub-Saharan Africa only, and found that programs that alter teacher pedagogy or classroom instructional techniques had an effect size approximately 0.30 standard deviations greater than all other types of programs combined. Finally, Evans and Popova (2015) conducted a review of meta-analyses analysing educational interventions in sub-Saharan Africa, and concluded that pedagogical interventions that tailor teaching to student skills, repeated trainings, and improving accountability have been most consistently shown to improve student learning outcomes.

These findings point to the importance of not only training teachers in instructional content but in helping teachers improve their daily interactions with students to change children’s daily school experiences. In low-resourced countries, in particular, efforts to improve teaching practice are not successful without specifically guided instruction (Ganimian & Murnane, 2016). These findings parallel a robust and growing evidence base on successful teacher professional development programs in high-income countries, showing the effectiveness of an outside expert providing frequent ongoing support to teachers

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