Policy Focus:

Solving the teacher shortage in pre-primary classrooms

INTRODUCTION

Fursa kwa Watoto (FkW) (Opportunities for Children) was initiated by a collaborative of organizations to develop a high quality, cost-effective preprimary education package that is aligned with the Government of Tanzania's education structures and can be widely implemented, scaled, and sustainable across Tanzania. FkW was developed through a partnership between Aga Khan University, CSR Group Africa, Children in Crossfire, Dubai Cares, Maarifa, Mathematica Policy Researcher, Tahea, UNICEF Tanzania and the William and Flora Hewlett Foundation. FkW focuses on interventions designed to positively affect children's learning and school readiness by improving instructional and classroom practices through teacher training, feedback, and mentoring; upgrading and aligning the classroom environment to the needs of early childhood education; and facilitating the use of locally made learning materials that support student learning. The FkW model also includes training for head teachers, local and district education officers, and parents so they may collectively improve and support pre-primary education.

During the pilot phase, AKU's Professional Development Trainers (PDTs) trained two cohorts of teachers in Moshi schools and two cohorts in Mwanza in 2014-2015. In total, 84 teachers and paraprofessionals participated.[1] The training schedule was organized so that teachers taught

FkW Package for Pre-primary teachers: In-service training, observation, mentoring, and support

The FkW training course was developed by AKU with input from the FkW Steering Committee, consisting of the collaborative organizations. The intervention package was developed iteratively, piloted in 2014 and 2015, and modified as teachers were observed and lessons were learned. The course was designed to:

1. Improve participants' knowledge of early childhood education concepts
2. Develop pre-primary instructional practices and teaching techniques and abilities
3. Empower teachers and paraprofessionals to provide a stimulating and caring learning environment for social, emotional, and behavioral development.
4. Empower teachers and paraprofessionals to engage children and use play to support learning

[1] PDTs observed teachers at the beginning and the end of the training course and completed the AKU teacher observation tool. AKU PDTs also conducted two follow-up mentoring visits in 2015 (Aga Khan University 2015a, 2015b) which focused on providing professional support, observing teaching practices, identifying challenges, and making recommendations. The PDTs also completed the teacher observation tool to track progress during the mentoring visits, and conducted two visits to each teacher during the pilot phase.

their regular morning sessions in preprimary classrooms while PDTs visited each school to mentor and assess teachers' and paraprofessionals' instructional performance. In the afternoon, trainers, teachers, and paraprofessionals came together at a nearby site for the FkW classroom activities. In this brief, we present data showing how teachers and paraprofessionals successfully improved instructional practices over the course of the pilot and that paraprofessionals performed on par with certified teachers. This finding has important policy implications given the serious teacher shortage in pre-primary classrooms across Tanzania.

Measuring and understanding instructional practices

We assessed preprimary instructional practices using a **teacher and classroom observation tool**. We also conducted **qualitative activities** to understand teachers' perceptions of their practices, head teachers' perceptions of teachers' practice, and parents' perceptions of preprimary teaching.

The teacher observation tool and rubric was developed by AKU and revised in collaboration with members of the FkW Steering Committee (AKU 2015c). The tool was used to assess teacher performance in five areas: (1) lesson plan development and use; (2) instructional strategies and skills; (3) instructional procedures and resources; (4) classroom management; and (5) reflective practices. Teachers received a score from 1 (poor) to 5 (excellent) in each area and a total score that could range from 5 to 25. Scores were then converted to percentages with 1=20% and 5=100%. During the pilot phase of FkW (2014-2015), the tool was administered by PDTs affiliated with AKU at multiple time points during the teacher training, including during the 1) first and 2) the second half of the three-week training, 3) about six months later during a mentoring

Figure 1-3. Teachers and paraprofessionals during the FkW in-service training.

visit, and 4) during a second mentoring visit, conducted about a year after the training.

For the qualitative study, schools were randomly selected from the full sample of schools piloting FkW. We interviewed teacher paraprofessionals, and head teachers. Local parents who were active in parent partnerships participated in the focus group discussions (FGDs). Trained interviewers conducted interviews and FGDs, and digital recordings were transcribed and translated before the data was analyzed. We interviewed 30 teachers or paraprofessionals, 20 head teachers, and conducted 6 focus groups with parents. Interviews with teachers and paraprofessionals focused on perceptions of instruction, implementing the FkW approach, classroom environments and materials, behavior management, and student learning. The head teacher interviews and FGDs with parents focused focused on perceptions of preprimary education and student learning.[2,3]

FINDINGS

Teachers and paraprofessionals performance

We found positive results indicating that teachers' and paraprofessionals' demonstrated improved instructional practices, with improved classroom environments, over the course of the training and mentoring visits. While the timing and sequencing of pilot was not ideal, still, evidence emerged that both teachers and paraprofessionals gained skills and were able to demonstrate high quality instruction in line with best practices in early childhood education. Next, we show how teachers' and paraprofessionals' performance improves over time during the course of multiple observations and mentoring visits.

Figure 4 illustrates that teachers' and paraprofessionals in both Moshi and Mwanza demonstrated improved instructional practices over time. We see a steady upward trajectory in performance indicating that teachers developed skills and improved their methods and procedures, use of learning resources, classroom management, and other practices.

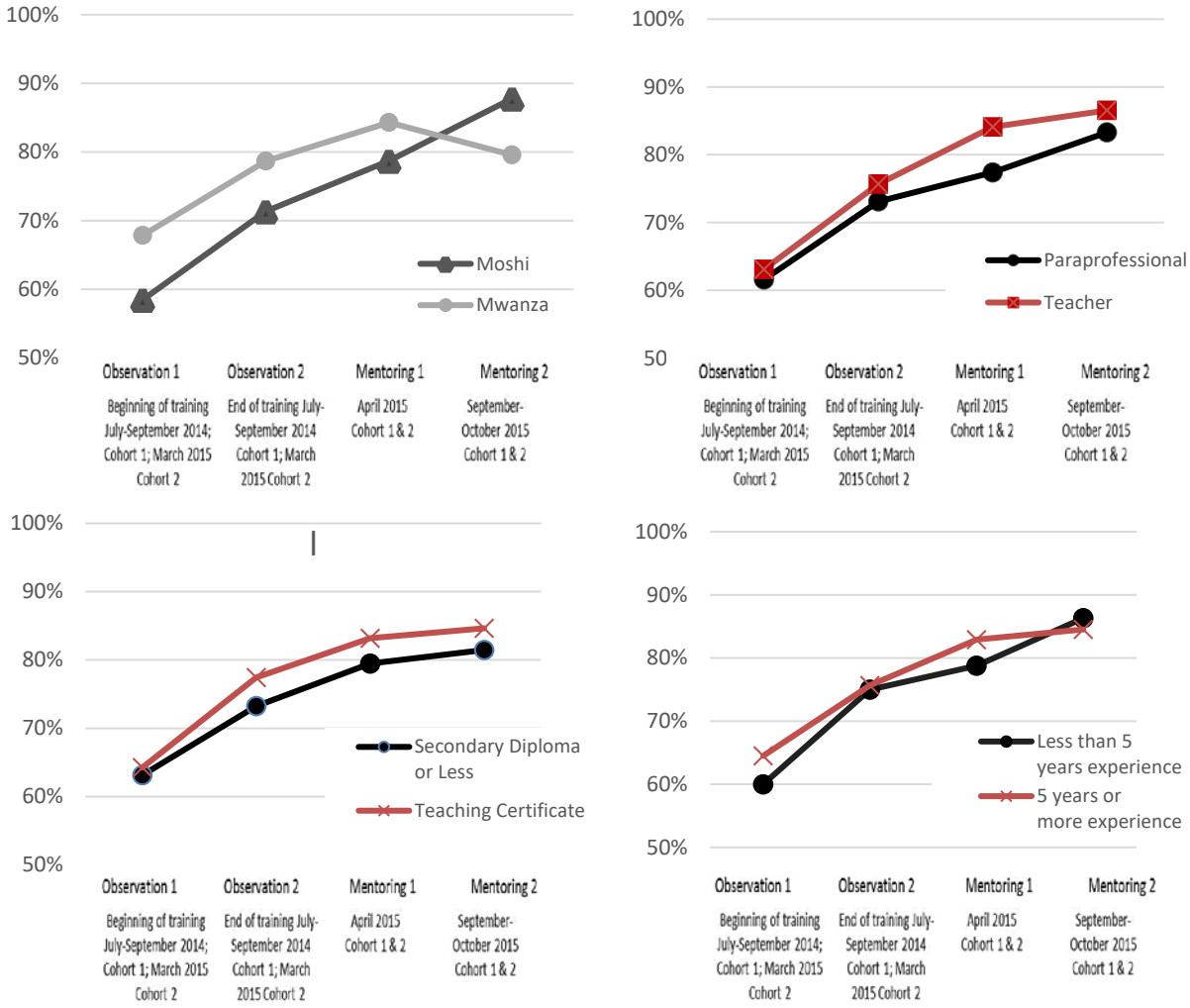
Next, we looked at scores based on professional status (whether the trainee was a certified teacher or paraprofessional), educational level, experience, and age (Figures 5, 6, and 7). Paraprofessionals' instructional performance is of great interest given the extreme teacher shortage across Tanzania. Para-professionals have often been regarded as having too little formal education and training to perform well. However, recruiting paraprofessionals as pre-primary teachers may be the only way to fill the human resource gap and reduce the teacher shortage in the short- and long-term.

Paraprofessionals performed as well as certified teachers in most measures of instructional and classroom management practices and scored within two to six percentage points of teachers' on the total average score. Paraprofessionals demonstrated similar skills and practices to teachers at teach assessment point.

[2] To select a random sample of teachers and head teachers, the schools were stratified based on perceptions of teacher and school performance using the AKU teacher observation tool results and the 2013 national examination results. Teachers and schools were classified as weak, average, or strong. We randomly selected 32 preprimary school teachers or paraprofessionals and 35 head teachers and deputy head teachers across both regions, which yielded 10 or 11 respondents from each group of weak, average, and strong teachers. In total, 28 of the 32 selected preprimary school teachers and all 35 respondents from the school leadership were interviewed.

[3] All interview and focus groups participants were read an oral consent statement prior to participation. All interviews and FGDs were digitally recorded and then transcribed into word documents. Next, professional translators translated the contents of the interview. CSR conducted a content analysis of key themes in each of the separate teacher, head teacher, and parent databases. A moderator and a note taker, using a discussion guide organized around relevant themes and sub-themes of the study, conducted the discussions.

Figure 4-7. Scores by region, professional status, education, and experience



Source: Teacher observation data in Moshi and Mwanza collected by Aga Khan University at four time points. Observation 1 occurred during the first week of training. Observation 2 occurred during the third week of training. Mentoring 1 visit occurred 2-5 months post-training. Mentoring visit 2 occurred 6 months to 1 year post-training. Analysis conducted by Mathematica Policy Research.

Note: Sample size: N=84 teachers and paraprofessionals in total, 39 from Moshi, 45 from Mwanza.

We found few differences in instructional practices based on status (certified teacher or paraprofessional), level of education, or length of teaching experience.

Overall, once trained by AKU, teachers and paraprofessionals performed well on a range of measures regardless of their professional status, education and certification level, or their length of experience as a teacher.

These findings strongly suggest that the FkW training and approach can be implemented by teachers and paraprofessionals regardless of their professional status, education level, experience, or age. Paraprofessionals and young teachers demonstrated their ability to implement improved instructional practices in their classrooms. AKU mentioned that these teachers received additional support during the trainings and suggested that the extra support is important to their success.

Perceptions of FkW

We asked teachers, head teachers, and parents to describe their perceptions of the FkW approach. We asked about the teacher and head teacher training, classroom learning environments, use of learning materials, and the parent partnership program.

Teacher training

Most teachers and paraprofessionals described how they modified their instructional practices post-training and explained how they implemented the new approaches. Most respondents said that FkW approaches are easy to understand and only require commitment and a willingness to implement. They described how they now used interactive teaching practices due to their improved understanding of early childhood learning processes. They used 'circle time' each morning to check in with and engage students. They also incorporated reflective practices to assess whether

Figure 8. Circle time in pre-primary

The voices of teachers, paraprofessionals, and head teachers…

"The training was very important to me … I came to know what children need and how they can learn on their own using pictures and other playing instruments."
—Teacher

"before … I did not know how to plan … I did not know that there is need for teaching aids … teaching was really difficult for me."
—Paraprofessional

"I have realized that . . . the pupils are supposed to [talk] so that they can understand easily. So there has been change, a child understands more in a situation of pupil-led learning."
—Paraprofessional

"I had no prior knowledge on how to run a preprimary class. The training exposed me to various teaching techniques, such as making the learning area and organizing the classroom, and all these have brought major changes in my teaching."
—Teacher

"Because the approaches are not difficult … Those approaches, especially the games, make children like school.
—Teacher

"…when I go to the preprimary class, I find a teacher using participatory methods, the children are involved … That is something I find good."
—Head Teacher

objectives from each day's lesson plan had been met. Teachers thought these techniques made students want to come to school each day.

The majority of head teachers and deputy head teachers praised preprimary teachers' ability to implement the FkW approach following the trainings. They observed teachers implementing the FkW teaching approaches, such as using teaching aids and songs, and improved classroom management practices. They felt as though children were more engaged and excited about learning.

Classroom management approaches.

As a result of the FkW training, teachers reported modifying their approach to classroom management. They moved from using punishment to non-punitive practices, such as looking at the child in the eye, positioning near the child, and using a firm voice. The majority of teachers also explained that classrooms with stimulating learning areas tend to prevent some poor behavior. Large classes could be broken into small, manageable, participatory groups in which all students could access learning materials.

Voices on FkW…

"The classroom is now too small and overcrowded with children. Even during games, when you decide to take in all 50, children they will not fit."

—Teacher

Challenges to implementing improved teaching approaches.

Voices on FkW…

"It has changed a lot because before the training we used to use sticks, thinking that it was the only way to discipline a kid. But there are still other ways to discipline children in classroom, apart from the stick."

—Teacher

Teachers described a number of challenges that varied by school. Some schools had high teacher-to-pupil ratios and students of different ages and abilities, which made it difficult to develop sessions appropriate for all. Several teachers in Mwanza described a language barrier, as some students speak *Kisukuma* rather than Swahili. Further, in some schools, the classroom and facilities were poorly constructed or dilapidated, or could not be used during the rainy season. In several schools, enrollment increases resulted in a shortage of materials. Teachers also explained that they lacked adequate time during the school day. While children are expected to move around and sing and play games, with increasing class sizes, teachers say there is little extra time available.

Impacts on children

While qualitative in nature, all respondents noted the effects of the FkW approach on children. They described children's improved literacy, numeracy, and social-emotional development and noted that children of different ages are all able to learn quickly with the FkW approaches. Teachers described how students were able to identify and pronounce letters and recognize word patterns, and some students were able to read. Most teachers reported that students' numeracy skills had improved quickly, including number identification, writing numbers, sorting, and identifying patterns. Teachers also reported that students' counting skills

had improved as materials supported easy recognition, recall, and number retention. Teachers attribute the changes in literacy, numeracy, and social interactions to the shift from non-participatory to participatory FkW teaching approaches, the use of learning materials and teaching aids, and circle time. Student learning is positively reinforced as teachers encourage students. Parents confirmed that their children were able to sing new songs, identify letters, and write words. Parents believed the preprimary teachers were positively affecting their students' learning and reported that kids love their teachers because of the way they teach. A full impact evaluation would be required to confirm and quantify these findings.

POLICY IMPLICATIONS AND RECOMMENDATIONS

Despite the well-established evidence on the impacts of early childhood education, major challenges impede quality implementation in pre-primary classrooms. Two key challenges include (1) a teaching shortage that has resulted in an unfavourable teacher-to-pupil ratio and (2) the reality that much of the teaching force is untrained or underqualified in early childhood education.

First, the national standard for the pupil-qualified-teachers-ratio (PQTR) was set at 1:25 in pre-primary classrooms. In 2016, the PQTR in government schools was estimated at one teacher to 369 pre-primary students. The pupil to teacher ratio (PTR) was 1:135. In Moshi and Mwanza, as of July of 2016, we found the average teacher-PTR was 1:85 students in Mzanza and 1:44 in Moshi. In 2016, the total number of pre-primary teachers in government schools country-wide was 10,994 teachers. An estimated 59,538 teachers are required to reach the national standard. This means the country would need an additional 55,509 qualified pre-primary teachers to meet the PQTR, or 48,544 teachers if the qualification is relaxed.

Next, to be qualified, teachers must have a "grade A" teaching certificate. However, pre-service teacher training colleges only recently began to offer the certificate for pre-primary education. Thus, most qualified teachers have no training in early childhood development and lack competencies to teach pre-primary education. In practice, schools often recruit and use teachers with lower level certificates, or paraprofessionals.

RECOMMENDATIONS

Given:

- The potential of pre-primary education to improve student academic and social development and other benefits;
- The severe teacher shortage leading to overcrowded classrooms and reduced quality instruction in Tanzania;
- The length of time required to build the cadre of certified teachers; and
- The great potential of paraprofessionals to demonstrate high quality teaching practices;

We recommend considering the following:

1. Defining a mechanism to formalize status and remuneration of experienced paraprofessionals to help reduce the teacher shortage in pre-primary classrooms until professional teachers are available.

   Paraprofessionals include individuals with secondary education, teaching experience and teacher training, as well as individuals who have lower qualifications. Any process to recognize paraprofessionals will require defining criteria.

2. Increase the number of providers offering certified pre-service and in-service training on pre-primary education.

We found that paraprofessionals trained and supported with FkW methods demonstrate quality instructional practices on a par with those of certified teachers (Miller et al. 2015). However, most paraprofessionals in Tanzania still lack access to in-service training and there are few teacher training programs for paraprofessionals in Tanzania.[4]

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FOR MORE INFORMATION

For more information or to receive regular updates on activities from the FkW Learning Agenda (2017-2019), please contact Dr. Candace Miller at cmiller@mathematica-mpr.com or +617-272-6392. Learning Agenda activities include a student assessment of 1,500 pre-primary students conducted at two time points, ongoing classroom observations in 120 schools, ongoing enrollment and attendance study, qualitative in depth interviews with respondents through the education sector, focus group discussions with School Management Committees and parents, and a costing study.

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