

Impact Evaluation Design: KG Quality Assurance System in West Bank

The Institute for Fiscal Studies

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1. Introduction

The aim of this document is to set out a design for conducting a rigorous evaluation of the KG Quality Assurance System (QAS) which is currently being designed and is planned to be deployed to private and public KGs in the West Bank in 2022. The aim of the QAS is to strengthen and streamline the system for monitoring KGs and support KG teachers in improving quality of ECE provision in the West Bank and Gaza. Under the current system MOEHE has employed 37 KG supervisors, who conduct ad-hoc monitoring visits to KGs and provide in-service trainings for KG teachers. The new QAS will introduce a new tablet-based approach with which will streamline the focus of the monitoring visits and provide automated in-person coaching instructions. Additional features under consideration include assignment of a tailored digital training module for teachers as follow-up to the visit, as well as follow-up SMS coaching.

Embedding a rigorous evaluation as part of the planned launch of the QAS has the potential to make several important contributions:

- Respond directly to government request to build more rigorous evidence on how to effectively improve the quality of service delivery in the Palestinian KG sector.
- Help inform decision making within the Ministry of Education and Higher Education (MOEHE), which is responsible for the KG sector, on whether the QAS needs to be adapted in any way and whether funding for it should continue beyond the initial planned period.
- In the context of broader ECD literature provide evidence on efficacy of this novel approach to improving quality at scale without the need to highly qualified ECE workforce.

In the remainder of this document we set out a design which would allow to embed a rigorous evaluation into the planned roll-out of the KG QAS programme. We start by providing some background information about ECE provision and KG sector in Palestine and the weaknesses that the QAS aims to address. Section 3 sets out the evaluation project objective, core research questions and potential to make contributions to policy and global

ECE knowledge-base. Section 4 presents a more detailed description of the QAS, followed by an outline of a theory of change for how it could achieve impacts. The proposed evaluation design is presented in Section 5.

This is one of four project documents relating to work that will involve the Institute for Fiscal Studies as part of the World Bank programme of ECD improvements in Palestine. The other three, which we refer to throughout this document, include:

- Impact Evaluation Design: In-Service Professional Diploma for KG Teachers in West Bank & Gaza
- Pre-Analysis Plan
- Review of Measurement Tools

2. Background

ECD Oversight & Strategy

In Palestine, three different ministries are responsible for the provision and oversight of key early childhood development (ECD) services. The Ministry of Health (MOH) manages maternal and child healthcare services offered in public primary healthcare facilities and clinics, the Ministry of Social Development (MOSD) oversees birth registration and nurseries, and the Ministry of Education and Higher Education (MOEHE) is responsible for the kindergarten (KG) sector. Until 2017, these ministries operated in silos without any formal channels to coordinate the planning and provision of ECD services.

Cognizant of the importance of children's early years, the Palestinian Authority (PA) launched its first National ECD Strategy in 2017. Among other objectives, the National ECD Strategy calls for an expansion of the KG sector and better-qualified staff to deliver KG services.¹ The implementation of the strategy is monitored by the newly established National ECD Committee, which brings together representatives from MOH, MOSD and MOEHE.² The National ECD Committee holds regular consultations with the ECD Thematic Working Group, which includes representatives of about 15 international and local nongovernmental and civil society organizations that are active in the Palestinian ECD sector. The ECD Thematic Working Group is chaired by the Head of the KG Division of MOEHE.

KG Enrolment

About half of Palestinian children aged 4-5 are missing out on early education.³ As of 2019, the gross enrollment ratio in KG in Palestine was at 54.4 percent, with no differences in

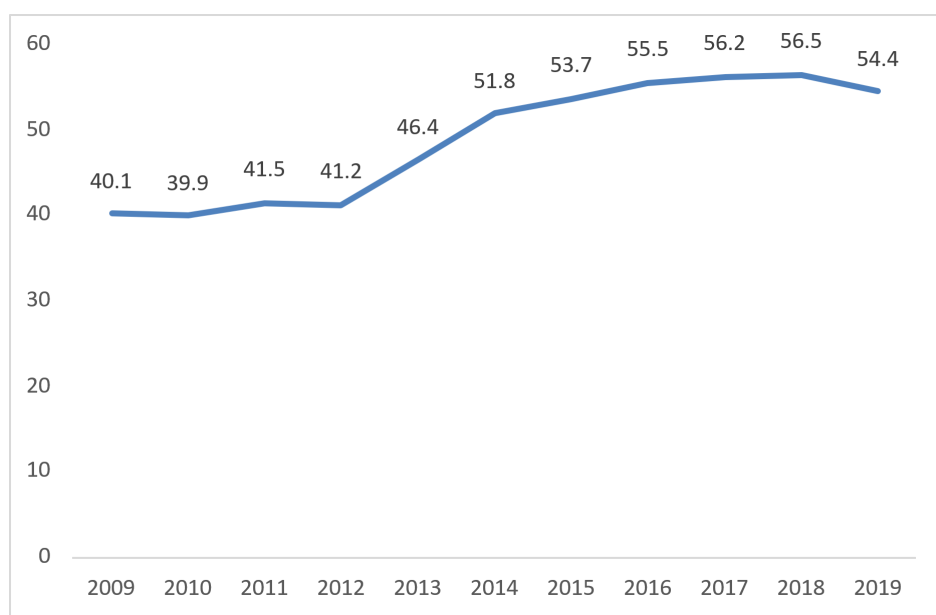
¹ The early childhood education objectives of the National ECD Strategy ([link](#)) were also echoed and endorsed in MOEHE's Education Sector Strategic Plan for 2017-2022 ([link](#)).

² The 'National ECD Focal Points' are the head of the KG division for MOEHE, the director of the public health department for MOH, and the director of the nursery department for MOSD. Meetings of the National ECD Committee are facilitated by UNICEF.

³ The net enrollment rate in KG in Palestine was at 49 percent in 2017 (World Bank EdStats).

enrollment rates between boys and girls (World Bank EdStats). Over the past decade, enrollment in KG has increased by almost 20 percentage points. While the current level of enrollment is higher than the regional average for the Middle East and North Africa (31.2 percent) and the average in lower middle-income countries (36.1 percent), the PA has shown a clear commitment to further expanding access to KG. In 2018, the government passed a law making KG2 compulsory as of 2020.

Figure 1: Gross Enrollment Ratio in KG in Palestine, 2007-2019



KG services in Palestine are almost exclusively provided by the private sector. In 2012, MOEHE introduced public KG2 classes, which were integrated in existing public primary schools. The private sector remains the sole provider of KG1 classes. In the academic year 2018/19, there were 214 public KGs and 1,127 registered private KGs in the West Bank (excluding Gaza).

KG Quality

The majority of KG teachers in West Bank do not have any training in early childhood education (ECE). While public KG teachers are required to hold a Bachelor's degree in ECE, there are no minimum education qualifications for private KG teachers. According to MOEHE estimates, approx. 3,060 private KG teachers (i.e., 70 percent of the entire private KG teacher workforce) do not have any formal training in ECE.

Palestine does not have a standardized system for KG quality monitoring and in-service KG teacher professional development in place. MOEHE has employs 37 KG supervisors, who

conduct ad-hoc monitoring visits to KGs and provide in-service trainings for KG teachers. Focus group discussions with KG supervisors and teachers have highlighted several key weaknesses in this system:

- (1) Supervisors have little time to observe teacher-child interactions as they spend each school visit mostly filling out forms on classroom infrastructure and administrative data.
- (2) Supervisors struggle to synthesize what they observed and provide tailored coaching to teachers on the spot.
- (3) After their school visit, supervisors do not follow up with teachers to address any challenge/gap that they might have observed. As such, teachers have no access to support/coaching beyond supervisors' annual visits.
- (4) Supervisors do not link their assessment of teachers' classroom practices (observed in monitoring visits) to teachers' in-service training. MOE's existing in-service training program is not based on any diagnostic of teaching practices and consists of one-size-fits-all, costly in-person sessions. There are no clear selection criteria to determine KG teachers' participation in the in-service training opportunities. The trainings do not follow a standardized structure; the content, material and delivery format are at the discretion of the KG supervisor. In addition to MOEHE's trainings, various NGOs offer small-scale in-service training for KG teachers, using their own training materials.
- (5) Public KGs receive monitoring visits much more often than private KGs. There is no parallel monitoring system for private KGs. This is a concern because (a) currently the majority of KGs in West Bank & Gaza are private; (b) most KG teachers with no ECE qualifications who stand to benefit the most from in-service monitoring and coaching teach in private KGs.

KG Quality Assurance System

Under the new World Bank ECD Project, Palestine aims to establish a rigorous, streamlined KG Quality Assurance System. This will be a packages of interventions designed to improve quality of KG teaching in public and private KGs. It will include a tablet-based application which will be used by supervisors during monitoring visits to KG to replace current system. The application is being developed by a team of ECE experts and will ensure that the focus and feedback of the supervisors are directed at the areas that are most critical for child development. The application will be complemented with digital in-service-training modules and follow-up SMS coaching.

This QAS has the potential to significantly improve ECE in Palestine through greatly strengthening the current KG monitoring and in-service coaching system. If proven effective, it will fully replace the existing system.

3. Project Objectives & Importance

The overarching aim of this project is to conduct a rigorous evaluation of the Palestinian KG QAS in order to build critical knowledge for implementation of ECE improvement and scale-up in Palestine which will also be relevant for MENA and conflict affected contexts more widely. To this end we will implement a rigorous RCT of the KG QAS with the specific aim of answering the following 5 key research questions:

Research Questions

- 1:** Can the combination of linking monitoring data from school visits to both coaching and in-service training of KG teachers improve teaching practices? Do programme effects vary by teacher experience and initial level of classroom quality? What are the characteristics of teachers for whom we observe largest treatment effects?
- 2:** Does the QAS achieve similar impacts in private and public KGs?
- 3:** Do any changes in teaching practices translate into improvements in children's cognitive and socio-emotional development in Palestinian KGs? What are the characteristics of children for whom we observe the largest treatment effects?

- 4:** What are the main mechanisms through which the KG QAS affects quality of care and education in KGs, as well as any developmental outcomes of the children?
- 5:** In what ways could programme content or implementation strategy be improved for greater impacts and/or cost-effectiveness?

Policy: A rigorous evaluation of the Palestinian KG QAS would provide crucial information for evidence-based policymaking in Palestine and beyond. Evidence on the impact of the KG QAS is of particular importance to Palestinian policymakers due to the imminent expansion of the KG sector. Under the World Bank project, a PPP model will be developed that is estimated to enroll an additional 20,450 children in KG2. Assuming an average KG teacher-to-student ratio of 1:25, the PPP model would require an additional 818 KG teachers in the private sector. Finding out what works in KG quality monitoring and teacher professional development is essential to ensure that an increase in KG enrollment will not come without a due focus on the quality of KG services. Looking beyond Palestine, several other countries in the MENA region are currently planning to expand the coverage and increase the quality of their KG systems. As a comprehensive, standardised system implemented at scale Palestine's KG QAS may pave the way for the development of similar in-service PD models across the region.

Global knowledge-base: The preschool years are a period of rapid growth in cognitive, social, and emotional skills, and a sensitive period for the promotion of children's educational and developmental potential. This message is getting through to the public and policymakers. Universal access to quality early childhood care by 2030 is one of the Sustainable Development Goals (SDG's); influential international institutions such as the World Bank and UNICEF are calling for governments to significantly increase national education budget allocations for pre-primary education. ECE has the potential to play a particularly crucial role in conflict affected contexts. Adverse effects of conflict on well-being jeopardise the ability of parents to provide young children with the care, stimulation and protection they need to thrive. Pre-schools can play a key role in mediating the damaging effects of exposure to conflict and the conflict affected home environment, building children's resilience, improving their outcomes and reducing intergenerational transmission of effects of mass-trauma experiences. In this context, effective preschool can even be an early life strategy towards future de-escalation of conflict.

However, it is not enough to increase spending on early years; if the money spent increases access to poor quality services, it may deliver few or no benefits⁶. The design of the QAS combines features that reflect recent findings on what works in the education literature. Specifically, evidence on teacher training programs in low- and middle-income countries suggests that "scaffolding" instruction programs which provide step-by-step instructions to teachers are particularly effective⁴. There is also evidence that teacher/caregiver behavior can

⁴ Mbiti, Isaac M. 2016. "The Need for Accountability in Education in Developing Countries." *Journal of Economic Perspectives*, 30 (3): 109-32.

be very responsive to simple, specific regular text-message reminders about what to follow up on with their students/children⁵ ⁶.

The concrete tailored supervisor feedback and specific training modules under the proposed interventions will build on scaffolding principles. The text-message that will be sent to teachers following monitoring visits will provide regular simple reminders. The evaluation will, thus, provide novel evidence on whether integrating these features into a scalable, government implemented quality monitoring system can achieve significant improvements in KG quality which translate in better outcomes for children.

⁵ Kotze, J, Fleisch, B, and Taylor, S. 2018. "Alternative forms of early grade instructional coaching: Emerging evidence from field experiments in South Africa." *International Journal of Educational Development*.

⁶ Kraft, Matthew A. and Todd Rogers. 2015. "The underutilized potential of teacher-to-parent communication: Evidence from a field experiment." *Economics of Education Review*, Vol 47 (2015) 49-63.

4. KG QAS

Target: The KG QAS will target all public and private KG teachers in the West Bank. All KG supervisors will be trained to implement it and instructed to replace their current approach to supervision with this one. As part of the training supervisors will further be instructed to visit both private and public KGs.

Description of the QAS: Based on discussions with the key stakeholders including Ministry of Education, KG supervisors and KG teachers, the following package of interventions was identified:

(1) Monitoring visit by KG supervisor with in-person coaching

KG supervisors will be equipped with a new tablet-based application to monitor KG quality during their routine school visits, focusing on teacher-child interactions in the classroom. The tablet-based application is currently under development and will be field-tested in the second half of 2021. It will simplify data entry and automatically generate an on-the-spot, tailored coaching script based on supervisors' input. Supervisors will provide in-person coaching to the KG teacher following the classroom observation.

(2) Completion of a tailored digital training module

Depending on teachers' strengths and weaknesses identified during the monitoring visit, the tablet-based application will assign teachers a digital training module from a menu of modules. The modules will be developed as part of the KG Teacher In-Service Professional Diploma (which is described in detail in the Impact Evaluation Design document for that programme) and will cover a wide range of topics such as play-based learning, teaching early math, socioemotional skills, etc. Teachers will be required to complete the digital training within three months.

(3) Follow-up SMS coaching

Following the monitoring visit, KG teachers will receive personalized, bi-weekly SMS text messages over the course of 5 months with nudges, reminders, and resources on topic(s) that were identified as areas for improvement.

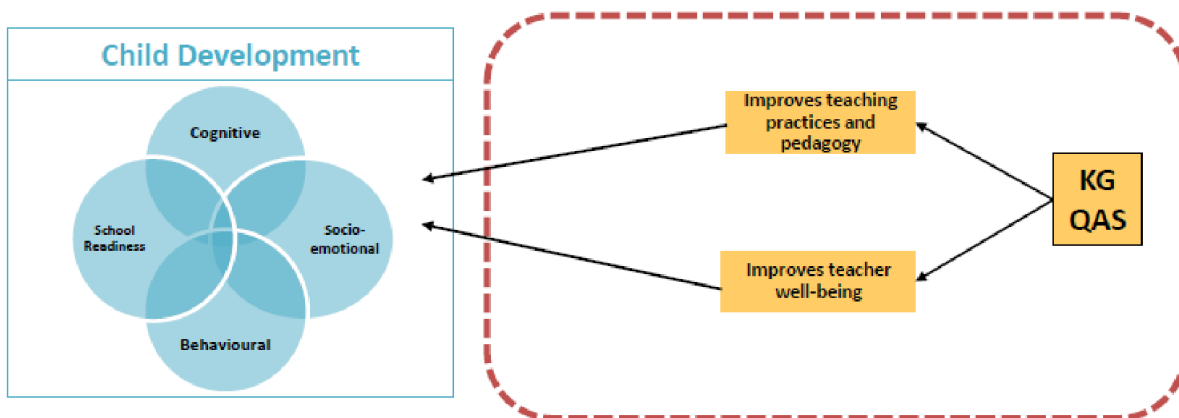
While it has been agreed that component (1) will be a core part of the QAS, whether and how components (2) and (3) will be integrated remain under consideration.

Activities to be financed under the WB project: Development of the computer-based monitoring application, booster training modules and content for follow-up SMS messages by an international team of experts with local universities, NIET and MOEHE; eligible implementation cost for the roll-out (trainer fees, transportation, printing etc.).

Theory of change: Figure 2 presents a draft theory of change (ToC). This ToC will be revised and refined to align closely with the content of the QAS, as it is developed, as well as through consultation with the project advisory board and local stakeholders.

The QAS is intended to improve the education system (which is malleable) as a strategy for promoting positive child development. Child development is conceptualised as a multi-dimensional construct encompassing cognitive, socio-emotional, behavioural and school readiness domains. The QAS can have impacts on these domains directly through improving teaching practices and pedagogy and teacher well-being.

Figure 2: QAS Theory of Change



5. Evaluation Design

Trial design, Arm 1 – KGs receive enhanced monitoring linked to coaching and in-service training: KG teachers in the treatment group will receive a package of interventions building on a routine school visit by a KG supervisor as described in Section 4.

Trial design, Arm 2 –KGs receive business as usual⁷ monitoring visits: KG supervisors conduct standard KG visits:

- Supervisors assigned to control schools will not have been trained nor equipped with the tablet-based application.
- KG teachers in control KGs will receive in-person coaching by the KG supervisor during her visit, but the supervisors will not have any guidance/script on how to deliver this coaching.
- KG teachers will not receive any follow-up SMS coaching.
- KG teachers will not be assigned and given access to any digital in-service training modules.

Trial implementation: We have considered two different approaches to implementation.

Approach 1: Half of the supervisors (around 18) are trained on the new enhanced monitoring and coaching QAS, while the training of the other half is postponed until after the completion of the trial. This would allow the trained supervisors to implement the programme in the Treatment KGs (Trial Arm 1) and the untrained supervisors to implement the “business as usual” visits in the Control KGs (Trial Arm 2).

⁷ While under the current system KG supervisors are supposed to make monitoring visits to both private and public KGs, in reality visits to private KGs happen much more rarely than visits to public KGs. As part of the trial, however, all public and private KGs in the control group will receive a visit. This will be closer to “business as usual” for the public KGs than the private KGs, but will ensure consistency of experience in control group, as well as align with the message of the programme that supervisors must maintain as much oversight over private KGs as public KGs.

Approach 2: Implement all of the “business as usual” visits in Control group KGs (Trial Arm 2) before any of the supervisors have been trained on the new enhanced monitoring and coaching QAS. Once all of the monitoring visits to Control group KGs have been completed, all of the KG supervisors are trained on the new enhanced monitoring and coaching QAS and conduct visits and follow-up with the Treatment group KGs (Trial Arm 1).

The advantage of Approach 1 is that it allows activities in the treatment and control groups to be conducted at the same time, minimising the risk of contamination of the analysis by differential time-specific events between treatment and control groups. The advantage of Approach 2 is that it eliminates supervisors as a potential channel for contamination of the control group. Supervisors work closely together and within Approach 1 it would be difficult to stop those in the treatment group from sharing their learning with those in the control group, especially among groups of supervisors covering the same geographic area.

Weighing up the risks of the two approaches we have decided that the spillover risk is a more concerning as we have no way of effectively mitigating this risk, while we will be able to minimise the risk of differential time-specific effects in treatment and control groups by ensuring that the gap between implementation of activities in the treatment and control groups is small. There will be 33 supervisors conducting visits to 300 KGs in the control group (see Sample below). Each supervisor is able to complete 5 visits per week. This means that control groups visits can be completed within two weeks. Training on the new QAS system and planning for visits to the treatment group KGs will then not take longer than another 10 days to complete. This will allow us to ensure that the gap between implementation of treatment and control activities is limited to around one month.

Primary Trial outcomes: (a) Teaching practice and KG classroom environment (b) Child resilience, cognitive and socioemotional development and school readiness of children attending KG.

Sample: The unit of randomisation in our study is a KG which, on average have 20 children and 1 teacher per class with 3.4 classes. We will sample 300 KG classes per arm; only 1 class will be sampled per KG. The study will include all public KGs. According to the Palestinian MOEHE, there were 214 public KGs in the West Bank in 2018/19. We will sample 5 children per class and all of the teachers teaching that class (most often KGs have one teacher per class). This will yield a total sample of 3,000 children across 600 KG's and at least 600 KG teachers.

Statistical power: With this design, we will have 80% power for a minimum detectable effect on teaching practice and classroom environment of 0.18SD assuming a correlation of 0.6 between baseline and endline measures of the outcomes. This design will also give us 80% power to detect at least a 0.13SD effect on child development, assuming an intra-cluster correlation coefficient of 0.15 and a correlation of 0.4 between baseline and endline measures of outcomes. Data sources utilised for informing assumptions made about intra-cluster correlation and correlation between measures of the outcome at baseline and endline include data collected as part of evaluations of a pre-school quality improvement programme in Colombia and KG teacher training programme in Ghana⁸⁹.

Selection of KGs, randomisation and blinding: All KGs located in the West Bank will be eligible for randomisation into treatment. Pairs of KGs will be created by matching each KG to one other KG along a set of relevant covariates, such as private/public status, size and location. 300 pairs of KGs will be randomly sampled from these, stratifying by key characteristics and within each pair one KG will be assigned to the treatment group and one to the control group. The pair matching will help ensure that the sample is balanced on key characteristics across treatment and control groups. The stratification will further help ensure that we draw a sample of KGs which represents the diversity of KGs within the West Bank.

⁸Andrew, A., O. Attanasio, R. Bernal, L. Cardona Sosa, S. Krutikova, M. Rubio; "Pre-school quality and child development" With *NBER Working Paper* No 26191; August, 2019.

⁹ Wolf, Sharon, J Lawrence Aber, Jere R Behrman, and Edward Tsinigo, "Experimental impacts of the 'Quality Preschool for Ghana' interventions on teacher professional well-being, classroom quality, and children's school readiness," *Journal of Research on Educational Effectiveness*, 2019, 12 (1), 10{37}.

Within each KG we will randomly select one class for participation in the study. All teachers teaching the selected class will be enrolled in the study - most often there is one KG teacher per class. Within each class, we will use the class list to draw a random sample of 5 children, yielding a sample of 3,000 children.

While participating KGs cannot be blinded to their intervention status, members of the data collection team will be.

Data collection: We will collect two rounds of data within the scope of this project – one baseline and one follow-up round. Both surveys will be conducted by a survey company and will not involve the supervisors implementing the intervention. Survey instruments will be designed to enable analysis set out in the “Pre-analysis Plan” project document, using selection and adaptation process set out in the “Review of Measurement Tools” project document.

A full baseline survey in treatment and control group KGs will be conducted before the start of quality monitoring visits in the control group. The follow-up round of data collection will take place three months after completion of all monitoring visits in the treatment group, just before the end of the school year, repeating measures from baseline.

Figure 3 shows a preliminary timeline for evaluation and KG QAS implementation activities.

	2021						2022											
Activity	Ju l	Au g	Se p	Oc t	No v	De c	Ja n	Fe b	Ma r	Ap r	Ma y	Ju n	Ju l	Au g	Se p	Oc t	No v	De c
Digitization of QAS tool & coaching material																		
QAS training of supervisors & roll-out																		
Baseline data collect																		
Baseline data analysis and report																		
Endline data collection																		
Endline data analysis and evaluation report																		

Figure 3: Preliminary timeline for evaluation and KG QAS implementation activities

Impact Evaluation Analysis: Our main impact analysis will consist of estimation of intent-to-treat impacts of eligibility for the new KG-QAS. It will follow the trial protocol and detailed plan for the data analysis which will be published before the start of the programme. Project document “Pre-analysis Plan” sets out in detail a draft plan of the analysis we plan to perform.

Process and Economic Evaluation: To assist MoE in its longer-term ambition to utilise the KG QAS in its efforts to strengthen provision of streamlined ECE services for all KGs in Palestine, we will conduct rigorous process and economic evaluations alongside the main impact evaluation.

To this end we collect a set of indicators of fidelity and compliance with the KG QAS programme in treatment KGs. A preliminary list can be found in Table 1. We will use this information to study how important fidelity is for achieving programme impacts, as well as which specific dimensions of fidelity are most critical.

We will work with MOEHE, supervisors and participating KGs to collect cost data relevant for estimating total cost of the programme to the provider as well as participating KG's. If the programme achieves impacts on primary outcomes we will use standard tools developed by J-PAL to conduct cost-effectiveness analysis¹⁰.

Table 1: Indicators of implementation compliance and monitoring

Variable	Data source(s)
Compliance with randomization at KG level	Phone survey of a random sample of 10 KGs in treatment group and 10 KGs in control group
Proportion of planned class observations that took place	KG supervisor tablet application
Proportion of class observations that were completed	KG supervisor tablet application
Proportion of in-person coaching session delivered	KG supervisor tablet application

¹⁰ Dhaliwal, I., Duflo, E., Glennerster, R., Tulloch, C. In: Glewwe, P, Ed. Education policy in developing countries. University of Chicago Press. 2013. Pp 285-338.

Proportion of teachers who started the assigned training module	Teacher Training Platform
Proportion of teachers who completed the assigned training programme	Teacher Training Platform
Proportion of teachers who opened x number of follow-up SMS	SMS Tracking Platform
Proportion of teachers who opened all SMS	SMS Tracking Platform