

Midline findings:

Classroom and teacher observations

The importance of pre-primary education in Tanzania

Policymakers and implementers have increasingly recognized the critical role that quality early childhood education (ECE) plays in laying the foundation for improved school readiness and learning outcomes. In Tanzania, despite the potential of pre-primary education, major challenges impede quality implementation of ECE. Key challenges include (1) a teaching shortage resulting in an unfavourable teacher-to-pupil ratio (2) the fact that much of the teaching force is untrained or underqualified in ECE, and 3) a reliance on outdated instructional practices and curriculum that is developmentally inappropriate for young learners, lacking active and experiential learning activities and foundational content.

Assessing instructional practices and learning environments

With the introduction of the Fursa kwa Watoto package of interventions, we began observing pre-primary classrooms to assess whether FkW trained teachers demonstrated improved practices compared to other teachers. Observing classrooms provides insights into changes in instructional practices and classroom learning environments and allows us to measure whether practices are sustained over time despite contextual challenges and post project implementation. This study helps assess project impacts as well as provides continuous learning for quality improvement in Tanzania's pre-primary classrooms.

The classroom observation tool

We assessed instructional practices using an observation tool that was developed collaboratively by FkW partner organizations. The tool assesses the quality of the learning environment and teacher performance in key areas, including lesson planning, instructional skills, learning materials, student participation, and classroom management. It also captures aspects of the school environment, including water and sanitation facilities and school feeding.

Data collection

We conducted repeated classroom observations, following the same schools, in May and November 2017. Our sample included 81 randomly selected schools in Kilimanjaro and Mwanza regions. Schools were randomly assigned to the FkW intervention or the control group so that the study groups were similar on school-level characteristics before the intervention was implemented. We assessed 81 schools across Kilimanjaro and Mwanza. Of the 40 schools in Kilimanjaro, 20 schools were intervention and 20 control, while in Mwanza, of the 41 schools, 20 were intervention and 21 were control. We conducted extensive training to ensure that classroom observers completed the tool in a systematic manner and reached an interrater reliability score of 96 percent. We plan to observe these teachers two additional times in 2018 to understand how instructional practices change one year after FkW activities have wrapped up.

Results

We found that, although classrooms are severely overcrowded (especially in Mwanza), that teachers in FkW classrooms demonstrate stronger instructional practices than their counterparts in control schools. FkW teachers also make the best use of limited space and resources and provide rich, child-centered learning environments. These differences have largely persisted over time, although with some small declines as control teachers improved their teaching practices and intervention teachers' held steady or dropped slightly. The following tables and figures include classroom observation results, overall and broken down by treatment status and region.

Figure 1. Changes in teacher observation summary scores over time

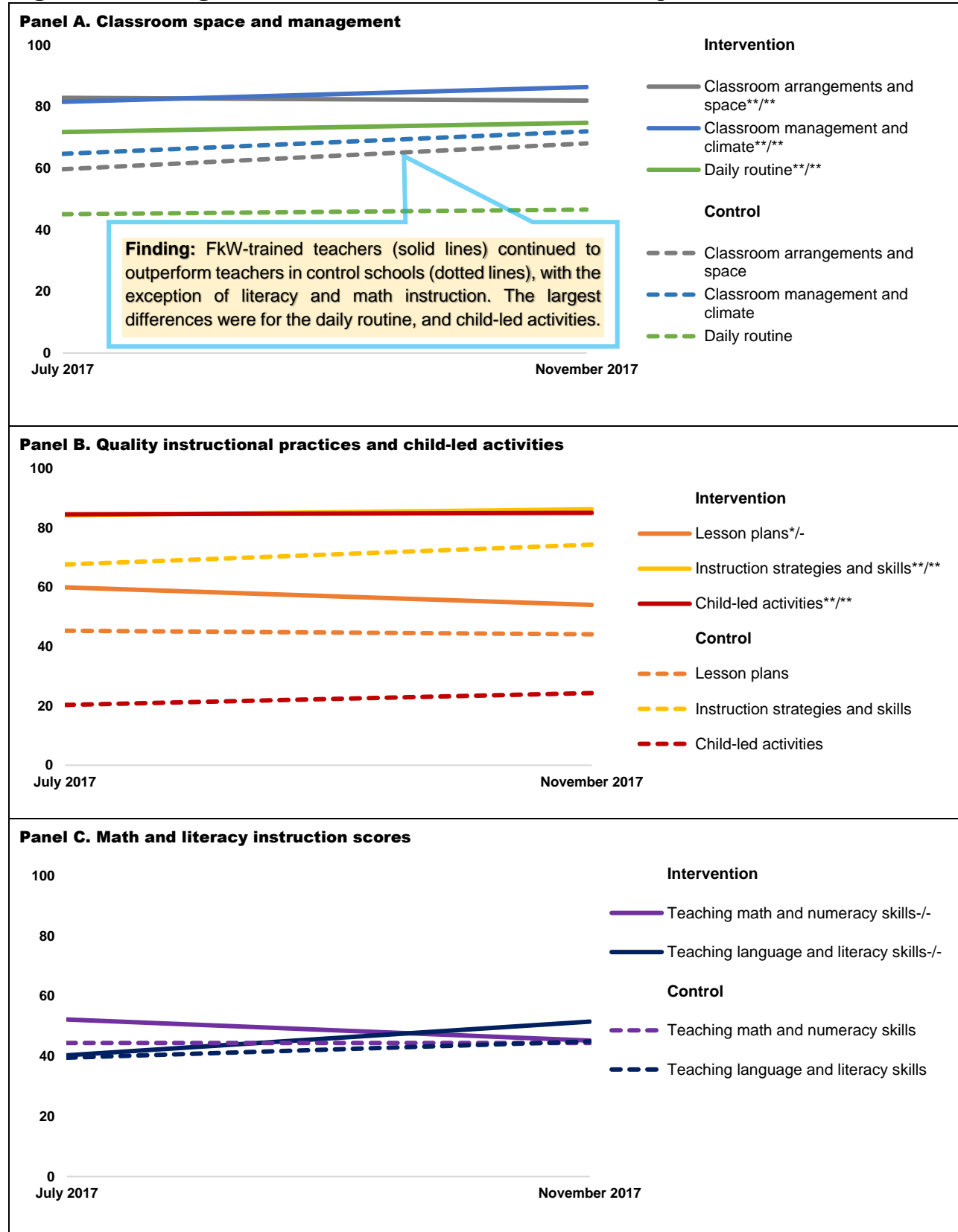
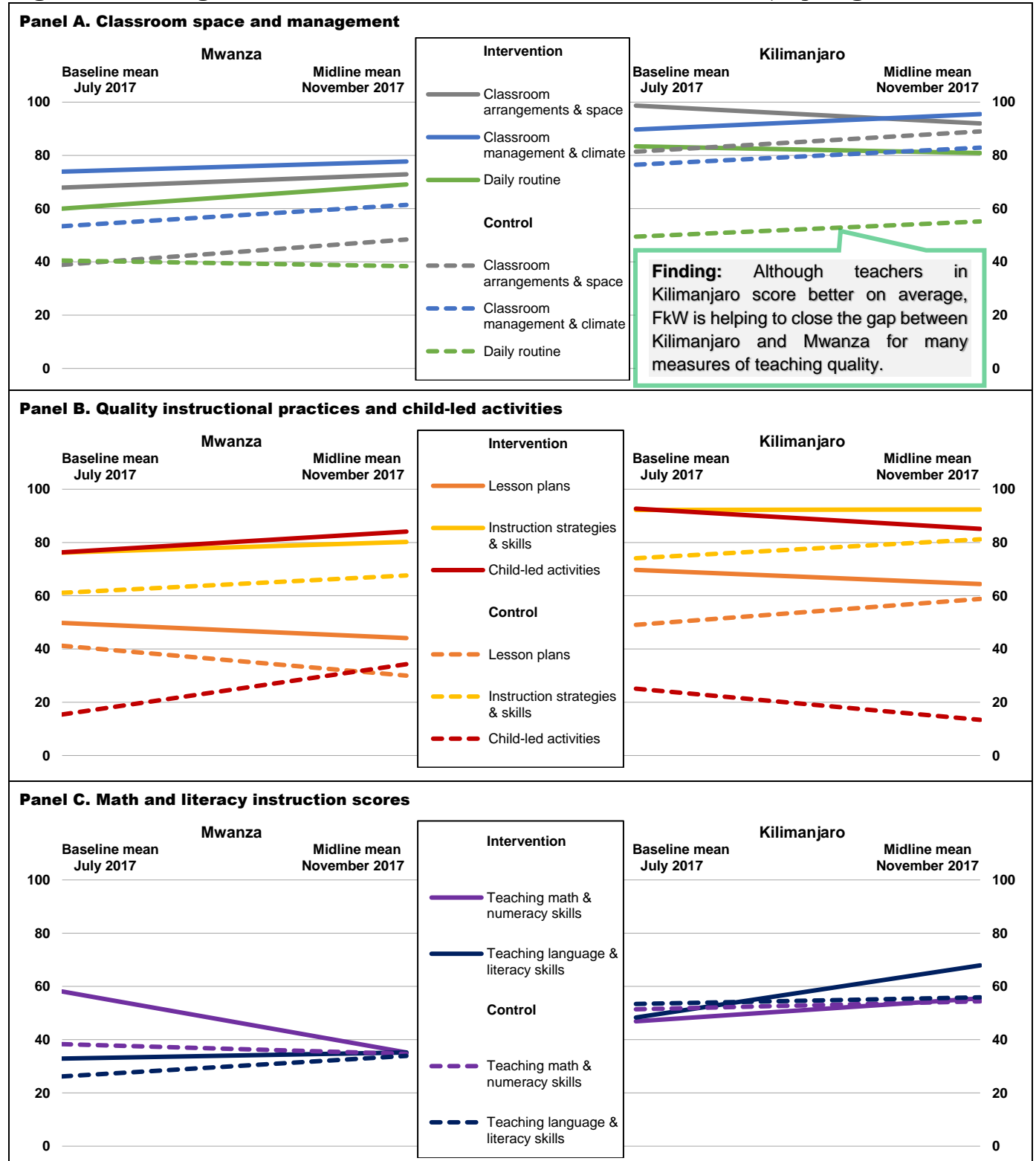


Figure 2. Changes in teacher observation scores over time, by region



**Table 1a. Classroom arrangements and space
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Classroom arrangements and space (% of possible points)	82.9	82.0	59.7	68.1	23.2**	13.8**
Classroom space (1 = inadequate, 4 = fully adequate)	3.6	3.7	2.5	3.0	1.0**	0.7**
Classrooms without enough sitting space (%)	5.2	3.1	35.5	17.1	-30.3**	-14.0*
Classrooms with enough sitting space, not for activities (%)	5.7	3.0	14.4	14.7	-8.7	-11.8*
Classrooms with enough sitting space, crowded for activities (%)	16.8	11.7	12.7	18.2	4.1	-6.5
Classrooms with enough space for all activities (%)	72.4	82.2	37.4	50.0	34.9**	32.2**
Classroom arrangements (1 = inadequate, 4 = fully adequate)	3.1	2.8	2.3	2.4	0.8**	0.4
Classrooms without enough seats (%)	3.6	12.5	39.7	35.3	-36.1**	-22.8**
Classrooms with enough seats, too few desks (%)	39.1	31.7	22.0	17.2	17.0	14.5
Classrooms with enough seats and desks, inappropriately sized (%)	4.0	16.4	11.0	15.7	-7.0	0.8
Classrooms with enough seats and desks, appropriately sized (%)	53.3	39.4	27.3	31.9	26.0**	7.5

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

Columns A through D average scores in intervention and control schools at two different points during the school year.

Columns E and F show the differences between the intervention and control group at each time point. Differences are statistically significant, if starred *.

Finding: Although FkW is improving classrooms' use of space, the between-group differences appear to be declining as enrollment increases over time.

Table 1b. Classroom arrangements and space by region

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Classroom arrangements and space (% of possible points)	67.9	72.9	38.9	48.4	29.0**	24.5**
Classroom space (1 = inadequate, 4 = fully adequate)	3.2	3.5	1.7	2.4	1.5**	1.1**
Classrooms without enough sitting space (%)	8.8	5.7	58.3	27.9	-49.6**	-22.1
Classrooms with enough sitting space, not for activities (%)	10.8	5.1	23.1	28.5	-12.3	-23.4*
Classrooms with enough sitting space, crowded for activities (%)	34.7	19.0	9.8	20.0	24.9*	-1.1
Classrooms with enough space for all activities (%)	45.8	70.2	8.8	23.6	37.0**	46.6**
Classroom arrangements (1 = inadequate, 4 = fully adequate)	2.3	2.3	1.4	1.5	0.8**	0.8**
Classrooms without enough seats (%)	5.2	23.7	71.2	63.2	-66.0**	-39.5**
Classrooms with enough seats, too few desks (%)	79.9	49.5	19.2	29.1	60.7**	20.4
Classrooms with enough seats and desks, inappropriately sized (%)	-1.0	0.4	5.7	4.4	-6.7	-4.0
Classrooms with enough seats and desks, appropriately sized (%)	15.9	26.5	3.9	3.3	12.0	23.2*
Kilimanjaro (N=40)						
Classroom arrangements and space (% of possible points)	98.7	92.0	81.4	89.0	17.3**	3.0
Classroom space (1 = inadequate, 4 = fully adequate)	4.0	4.0	3.4	3.7	0.6*	0.3
Classrooms without enough sitting space (%)	0.1	-0.1	11.0	5.7	-10.9	-5.8
Classrooms with enough sitting space, not for activities (%)	0.2	0	5.3	0	-5.1	0
Classrooms with enough sitting space, crowded for activities (%)	-0.1	4.7	16.8	16.5	-17.0	-11.9
Classrooms with enough space for all activities (%)	99.8	95.5	66.9	77.8	32.9**	17.7
Classroom arrangements (1 = inadequate, 4 = fully adequate)	3.9	3.4	3.1	3.5	0.8**	-0.1
Classrooms without enough seats (%)	-0.1	-0.1	5.7	5.7	-5.8	-5.8
Classrooms with enough seats, too few desks (%)	0.3	13.8	27.4	5.3	-27.1*	8.5
Classrooms with enough seats and desks, inappropriately sized (%)	9.2	32.5	16.5	26.9	-7.3	5.6
Classrooms with enough seats and desks, appropriately sized (%)	90.6	53.8	50.4	62.1	40.2**	-8.3

* Statistically significant at the .05 level. ** Statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 2a. Lesson plans
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Lesson plans (% of possible points)	59.9	54.0	45.3	44.1	14.6*	9.9
Written lesson plan with essential elements included	2.6	2.5	2.3	2.3	0.3	0.2
Objectives clearly stated	3.2	2.7	2.7	2.4	0.5	0.3
Suitability of content	1.9	1.8	1.2	1.4	0.7	0.4
Appropriate teaching and learning resources	1.9	1.7	1.0	1.1	0.9*	0.7

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 2b. Lesson plans by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Lesson plans (% of possible points)	49.8	44.1	41.2	30.0	8.6	14.1
Written lesson plan with essential elements included	2.7	2.1	1.9	1.9	0.8*	0.2
Objectives clearly stated	3.1	2.3	2.7	1.8	0.4	0.5
Suitability of content	1.0	1.4	1.1	0.7	0	0.6
Appropriate teaching and learning resources	1.1	1.3	0.9	0.4	0.2	0.9
Kilimanjaro (N=40)						
Lesson plans (% of possible points)	69.7	64.4	49.1	58.8	20.6	5.6
Written lesson plan with essential elements included	2.5	2.9	2.8	2.7	-0.3	0.1
Objectives clearly stated	3.2	3.1	2.7	2.9	0.5	0.2
Suitability of content	2.7	2.2	1.4	2.0	1.3*	0.2
Appropriate teaching and learning resources	2.7	2.1	1.0	1.7	1.7**	0.4

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 3a. Instructional strategies
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Instruction strategies and skills (% of possible points)	84.2	86.2	67.6	74.3	16.6**	11.9**
Introduction (interest, focused links)	3.3	3.5	3.0	3.3	0.3	0.2
Lesson development (sequencing, levels)	3.5	3.6	2.8	3.0	0.6*	0.5*
Explanation (clear, appropriate)	3.7	3.7	3.3	3.5	0.4*	0.2
Illustrations and examples (clear, appropriate)	3.5	3.5	3.1	3.1	0.3	0.4*
Questioning (varied, levels, distribution)	3.3	3.4	3.0	3.2	0.4	0.3
Formative checks (appropriate, group, individual)	3.2	3.6	2.7	2.9	0.6*	0.7**
Use of students' ideas to promote child-led learning	3.2	3.1	2.6	2.6	0.6*	0.5
Learning materials (level, relevant, safe)	3.6	3.5	2.1	2.8	1.6**	0.7**
Learning activities (varied, interesting, suitable)	3.5	3.4	2.7	2.8	0.8**	0.6**
Student involvement during teacher-led activities	3.5	3.4	2.5	2.8	1.0**	0.6**
Time management	3.2	3.3	2.4	2.9	0.8**	0.4
Use of chalkboard and other resources for demonstration	2.9	3.3	2.3	2.8	0.6*	0.5*

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 3b. Instructional strategies by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Instruction strategies and skills (% of possible points)	76.2	80.2	61.1	67.6	15.1*	12.7*
Introduction (interest, focused links)	3.1	3.2	2.7	3.0	0.4	0.2
Lesson development (sequencing, levels)	3.3	3.3	2.6	2.8	0.6	0.5
Explanation (clear, appropriate)	3.5	3.6	3.2	3.3	0.3	0.3
Illustrations and examples (clear, appropriate)	3.2	3.3	3.0	2.8	0.3	0.5
Questioning (varied, levels, distribution)	3.1	3.4	2.7	3.1	0.3	0.3
Formative checks (appropriate, group, individual)	2.8	3.4	2.4	2.6	0.4	0.8*
Use of students' ideas to promote child-led learning	2.6	2.9	2.2	2.4	0.3	0.4
Learning materials (level, relevant, safe)	3.5	3.5	2.4	2.7	1.2**	0.8*
Learning activities (varied, interesting, suitable)	3.2	3.0	2.8	2.4	0.4	0.6*
Student involvement during teacher-led activities	3.1	3.0	2.3	2.5	0.9*	0.6
Time management	2.9	2.8	1.7	2.6	1.2**	0.2
Use of chalkboard and other resources for demonstration	2.3	2.9	1.4	2.2	0.9	0.7
Kilimanjaro (N=40)						
Instruction strategies and skills (% of possible points)	92.2	92.4	74.1	81.2	18.1**	11.1*
Introduction (interest, focused links)	3.6	3.7	3.4	3.6	0.2	0.2
Lesson development (sequencing, levels)	3.6	3.9	3.1	3.3	0.6	0.6
Explanation (clear, appropriate)	3.8	3.8	3.3	3.7	0.5	0.1
Illustrations and examples (clear, appropriate)	3.7	3.6	3.3	3.4	0.4	0.3
Questioning (varied, levels, distribution)	3.6	3.5	3.2	3.3	0.4	0.2
Formative checks (appropriate, group, individual)	3.6	3.8	2.9	3.2	0.8*	0.6*
Use of students' ideas to promote child-led learning	3.8	3.4	2.9	2.8	0.9**	0.6
Learning materials (level, relevant, safe)	3.7	3.5	1.8	2.9	1.9**	0.7*
Learning activities (varied, interesting, suitable)	3.8	3.7	2.6	3.2	1.2**	0.5*
Student involvement during teacher-led activities	3.9	3.8	2.8	3.2	1.1**	0.7**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Time management	3.6	3.8	3.1	3.2	0.5	0.6
Use of chalkboard and other resources for demonstration	3.5	3.7	3.2	3.3	0.3	0.4

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 4a. Classroom management and climate
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Classroom management and climate (% of possible points)	81.6	86.4	64.7	72.0	16.9**	14.4**
Classroom management	3.3	3.5	2.9	3.1	0.3	0.4*
Rules and expectations	3.1	3.2	2.3	2.2	0.8**	1.0**
Dealing with (in)appropriate behavior	3.0	3.5	2.7	3.1	0.4	0.3*
Conducive atmosphere to support inclusion (gender, disability)	3.6	3.7	2.5	3.1	1.1**	0.6**
Communication (voice, eye contact, movement)	3.6	3.8	3.2	3.6	0.4*	0.2*
Closure (sub and main closures)	3.2	3.4	2.4	2.8	0.8**	0.6**
Linkages, summaries, formative checks	3.2	3.1	2.2	2.2	0.9**	0.8**

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 4b. Classroom management and climate by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Classroom management and climate (% of possible points)	73.9	77.7	53.4	61.4	20.5**	16.3**
Classroom management	3.2	3.2	2.5	2.8	0.6	0.4
Rules and expectations	2.5	2.9	1.9	1.7	0.6	1.2**
Dealing with (in)appropriate behavior	2.9	3.2	2.4	2.8	0.4	0.4
Conducive atmosphere to support inclusion (gender, disability)	3.3	3.4	1.9	2.7	1.4**	0.8**
Communication (voice, eye contact, movement)	3.4	3.6	3.1	3.4	0.3	0.2
Closure (sub and main closures)	2.8	2.9	1.7	2.2	1.1*	0.7
Linkages, summaries, formative checks	2.6	2.6	1.4	1.6	1.2*	1.0*
Kilimanjaro (N=40)						
Classroom management and climate (% of possible points)	89.7	95.5	76.5	82.9	13.2*	12.5*
Classroom management	3.4	3.8	3.3	3.4	0	0.5
Rules and expectations	3.6	3.6	2.6	2.7	1.0**	0.8*
Dealing with (in)appropriate behavior	3.2	3.8	2.9	3.4	0.3	0.3
Conducive atmosphere to support inclusion (gender, disability)	3.9	4.0	3.1	3.6	0.8*	0.4
Communication (voice, eye contact, movement)	3.7	4.0	3.3	3.7	0.4	0.3*
Closure (sub and main closures)	3.6	4.0	3.1	3.5	0.5	0.5*
Linkages, summaries, formative checks	3.7	3.6	3.0	2.9	0.7	0.7*

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

Table 5a. Daily routine
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Daily routine (% of possible points)	71.8	74.8	45.1	46.6	26.6**	28.2**
Circle time	2.7	3.2	1.6	1.8	1.1**	1.4**
Bye-bye time	3.1	2.8	2.0	1.9	1.0**	0.9*

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 5b. Daily routine by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Daily routine (% of possible points)	60.0	69.1	40.5	38.4	19.4	30.7**
Circle time	2.4	3.0	1.9	1.8	0.5	1.2*
Bye-bye time	2.4	2.5	1.4	1.3	1.0	1.2*
Kilimanjaro (N=40)						
Daily routine (% of possible points)	83.4	80.9	49.5	55.2	33.9**	25.7*
Circle time	2.9	3.3	1.3	1.8	1.7**	1.5**
Bye-bye time	3.7	3.2	2.7	2.6	1.1*	0.6

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

Finding: Both in Mwanza and overall, compared to control teachers, FkW teachers continued to implementing a daily routine in the classroom, including circle time at the beginning of the day, and “bye-bye” time at the end of the day.

Table 6a. Child-led activities
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Child-led activities (% of possible points)	84.5	85.0	20.3	24.3	64.3**	60.7**
Learning materials - available, accessible	3.6	3.6	0.8	1.1	2.8**	2.5**
Learning materials - durable	3.6	3.6	1.2	1.5	2.4**	2.0**
Learning materials - sustainable, replicable	3.6	3.7	1.3	1.6	2.4**	2.1**
Learning materials - age appropriate	3.6	3.8	1.5	1.7	2.2**	2.1**
Learning areas - organized, ready for use	3.5	3.6	0.5	0.8	3.0**	2.8**
Learning areas - sufficient learning materials	3.4	3.3	0.4	0.7	3.0**	2.7**
Learning areas - utilized, not overcrowded	3.1	3.0	0.4	0.4	2.7**	2.6**
Student involvement - atmosphere	3.1	3.2	0.9	0.7	2.2**	2.5**
Student involvement - interaction during activities	3.2	3.3	0.7	0.7	2.6**	2.5**
Student involvement - respect for learning materials	3.1	3.0	0.7	0.7	2.4**	2.4**
Teacher engagement during child-led activities	3.3	3.4	0.6	0.9	2.6**	2.5**

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

Finding: Child-centered learning is the most significant difference between FkW and control classrooms. However, these differences have declined. While FkW teachers show some improvement, control teachers have also improved, possibly due to a spillover effect of FkW or the training implemented by the Tanzania Institute of Education.

**Table 6b. Child-led activities by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Child-led activities (% of possible points)	76.3	84.1	15.4	34.3	60.9**	49.9**
Learning materials - available, accessible	3.5	3.7	0.6	1.6	2.9**	2.1**
Learning materials - durable	3.6	3.6	1.0	2.1	2.6**	1.4**
Learning materials - sustainable, replicable	3.5	3.8	1.1	2.1	2.5**	1.7**
Learning materials - age appropriate	3.6	3.8	1.1	2.1	2.5**	1.7**
Learning areas - organized, ready for use	3.2	3.6	0.3	1.1	2.9**	2.4**
Learning areas - sufficient learning materials	2.9	3.3	0.3	0.9	2.6**	2.4**
Learning areas - utilized, not overcrowded	2.4	2.8	0.2	0.5	2.2**	2.3**
Student involvement - atmosphere	2.6	3.0	0.6	1.1	2.0**	2.0**
Student involvement - interaction during activities	2.6	3.1	0.6	1.1	2.0**	2.1**
Student involvement - respect for learning materials	2.7	2.7	0.6	1.0	2.1**	1.7**
Teacher engagement during child-led activities	3.0	3.4	0.5	1.3	2.5**	2.2**
Kilimanjaro (N=40)						
Child-led activities (% of possible points)	92.7	85.1	25.1	13.4	67.6**	71.6**
Learning materials - available, accessible	3.7	3.4	1.1	0.5	2.7**	2.9**
Learning materials - durable	3.7	3.5	1.5	0.9	2.2**	2.6**
Learning materials - sustainable, replicable	3.7	3.6	1.5	1.1	2.2**	2.5**
Learning materials - age appropriate	3.7	3.6	1.8	1.2	1.9**	2.5**
Learning areas - organized, ready for use	3.8	3.5	0.7	0.3	3.1**	3.2**
Learning areas - sufficient learning materials	3.9	3.3	0.6	0.4	3.3**	2.9**
Learning areas - utilized, not overcrowded	3.8	3.1	0.5	0.3	3.3**	2.8**
Student involvement - atmosphere	3.6	3.3	1.2	0.2	2.5**	3.0**
Student involvement - interaction during activities	3.8	3.3	0.7	0.3	3.1**	3.0**
Student involvement - respect for learning materials	3.4	3.3	0.7	0.3	2.7**	3.0**
Teacher engagement during child-led activities	3.6	3.3	0.8	0.5	2.8**	2.9**

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 7a. Teaching math and numeracy skills
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Teaching math and numeracy skills (% of possible points)	52.2	45.2	44.4	44.4	7.7	0.8
Teacher develops number concepts	2.4	2.6	2.3	2.6	0	0.1
Teacher develops understanding of the concept of time	1.7	1.5	1.3	1.0	0.4	0.4
Teacher develops understanding of shapes, colors, comparisons, quantities	2.2	1.4	1.7	1.8	0.5	-0.4

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 7b. Teaching math and numeracy skills by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Teaching math and numeracy skills (% of possible points)	58.1	35.2	38.3	34.7	19.8*	0.5
Teacher develops number concepts	3.0	2.4	2.2	2.4	0.7	0
Teacher develops understanding of the concept of time	1.7	1.1	1.0	0.6	0.7	0.6
Teacher develops understanding of shapes, colors, comparisons, quantities	2.3	0.7	1.4	1.2	0.9	-0.5
Kilimanjaro (N=40)						
Teaching math and numeracy skills (% of possible points)	46.9	55.5	51.4	54.4	-4.5	1.2
Teacher develops number concepts	1.8	2.9	2.5	2.7	-0.7	0.1
Teacher develops understanding of the concept of time	1.7	1.8	1.6	1.4	0.1	0.3
Teacher develops understanding of shapes, colors, comparisons, quantities	2.2	2.0	2.1	2.3	0.1	-0.3

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 8a. Teaching language and literacy skills
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Teaching language and literacy skills (% of possible points)	40.3	51.5	39.5	44.9	0.8	6.6
Teacher develops pre-reading skills	1.7	2.6	2.2	2.4	-0.5	0.2
Teacher develops pre-writing skills	1.9	2.8	2.1	2.3	-0.2	0.5
Teacher develops listening and speaking skills	1.3	0.8	0.5	0.6	0.8*	0.2

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 8b. Teaching language and literacy skills by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Teaching language and literacy skills (% of possible points)	32.9	35.2	26.2	33.9	6.6	1.2
Teacher develops pre-reading skills	1.7	1.8	1.3	1.9	0.3	-0.1
Teacher develops pre-writing skills	1.8	2.0	1.6	1.8	0.2	0.2
Teacher develops listening and speaking skills	0.5	0.4	0.2	0.4	0.2	0
Kilimanjaro (N=40)						
Teaching language and literacy skills (% of possible points)	48.3	67.9	53.4	55.9	-5.1	12.0
Teacher develops pre-reading skills	1.7	3.4	3.2	2.9	-1.4*	0.4
Teacher develops pre-writing skills	2.0	3.5	2.6	2.9	-0.5	0.7
Teacher develops listening and speaking skills	2.0	1.2	0.7	0.9	1.4*	0.3

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 9a. Water availability and handwashing
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Water availability and handwashing conditions (scaled 0-7)	2.4	2.4	2.2	2.1	0.2	0.3
Water availability						
Classrooms with no water available	23.3	33.4	21.1	38.4	2.2	-5.0
Classrooms with piped water	61.9	58.8	61.5	57.2	0.4	1.5
Classrooms with public tap	7.0	2.5	0.2	2.5	6.8	0
Classrooms with tubewell	5.1	3.1	9.8	1.8	-4.7	1.3
Classrooms with protected dug well	2.6	0	2.4	0	0.2	0
Classrooms with unprotected dug well	2.5	0	2.5	0	0	0
Classrooms with protected spring	-0.1	2.3	2.7	0.1	-2.8	2.2
Classrooms with unprotected spring	0	0	0	0	0	0
Classrooms with rainwater collection	0	0	0	0	0	0
Classrooms with bottled water provided by school	0	0	0	0	0	0
Classrooms with cart with small tank/drum	0	0	0	0	0	0
Classrooms with tanker truck	0	0	0	0	0	0
Classrooms with surface water	-0.2	0	2.7	0	-2.9	0
Classrooms with other source	0	0	0	0	0	0
Handwashing						
Classrooms with functional water source	85.6	93.4	91.5	86.9	-5.9	6.5
Classrooms where children can get drinking water by themselves	75.7	85.3	45.1	83.8	30.6*	1.6
Classrooms with water for handwashing	74.7	85.5	72.2	60.0	2.5	25.5
Classrooms with soap	4.8	5.1	6.0	11.0	-1.3	-5.8
Classrooms where all children wash hands after toilet	0	0.1	0	0	0	0.1
Classrooms where handwashing done with water only	99.2	92.0	86.7	72.6	12.5	19.4
Classrooms where handwashing done with water and soap	0.8	8.0	13.3	27.4	-12.5	-19.4
Classrooms where handwashing done with water and ash	0	0	0	0	0	0
Classrooms where handwashing done with water and disinfectant	0	0	0	0	0	0
Classrooms where handwashing done with water and other	0	0	0	0	0	0

* Statistically significant at the .05 level. ** Statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 9b. Water availability and handwashing in Mwanza (N = 41)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Water availability and handwashing conditions (scaled 0-7)	1.5		1.3		0.2	
Water availability						
Classrooms with no water available	41.5	66.5	41.5	65.2	0	1.3
Classrooms with piped water	34.0	22.4	29.5	26.3	4.4	-3.8
Classrooms with public tap	4.7	4.9	0.3	4.9	4.5	0
Classrooms with tubewell	9.9	6.2	19.2	3.7	-9.3	2.5
Classrooms with protected dug well	5.1	0	4.7	0	0.4	0
Classrooms with unprotected dug well	4.9	0	4.9	0	0	0
Classrooms with protected spring	-0.4	0	5.2	0	-5.6	0
Classrooms with unprotected spring	0	0	0	0	0	0
Classrooms with rainwater collection	0	0	0	0	0	0
Classrooms with bottled water provided by school	0	0	0	0	0	0
Classrooms with cart with small tank/drum	0	0	0	0	0	0
Classrooms with tanker truck	0	0	0	0	0	0
Classrooms with surface water	0	0	0	0	0	0
Classrooms with other source	0	0	0	0	0	0
Handwashing						
Classrooms with functional water source	69.0	99.2	86.7	88.1	-17.7	11.1
Classrooms where children can get drinking water by themselves	40.4	82.8	38.0	75.4	2.5	7.4
Classrooms with water for handwashing	68.2	77.8	24.6	11.1	43.6	66.7
Classrooms with soap	0	0	0	0	0	0
Classrooms where all children wash hands after toilet	0	0	0	0	0	0
Classrooms where handwashing done with water only	100.0	100.0	100.0	100.0	0	0
Classrooms where handwashing done with water and soap	0	0	0	0	0	0
Classrooms where handwashing done with water and ash	0	0	0	0	0	0
Classrooms where handwashing done with water and disinfectant	0	0	0	0	0	0
Classrooms where handwashing done with water and other	0	0	0	0	0	0

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 9b. Water availability and handwashing in Kilimanjaro (N = 40)
Collected July 2017 and November 2017**

Variable	Intervention		Control		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Water availability and handwashing conditions (scaled 0-7)	3.3		3.0		0.3	
Water availability (% of classrooms)						
Classrooms with no water available	4.5	-0.1	0.1	11.2	4.3	-11.3
Classrooms with piped water	90.9	95.6	94.5	88.7	-3.6	7.0
Classrooms with public tap	9.1	0	0	0	9.1	0
Classrooms with tubewell	0	0	0	0	0	0
Classrooms with protected dug well	0	0	0	0	0	0
Classrooms with unprotected dug well	0	0	0	0	0	0
Classrooms with protected spring	0	4.5	0	0.1	0	4.3
Classrooms with unprotected spring	0	0	0	0	0	0
Classrooms with rainwater collection	0	0	0	0	0	0
Classrooms with bottled water provided by school	0	0	0	0	0	0
Classrooms with cart with small tank/drum	0	0	0	0	0	0
Classrooms with tanker truck	0	0	0	0	0	0
Classrooms with surface water	-0.1	0	5.7	0	-5.8	0
Classrooms with other source	0	0	0	0	0	0
Handwashing (% of classrooms)						
Classrooms with functional water source	94.9	91.5	94.5	86.7	0.4	4.9
Classrooms where children can get drinking water by themselves	95.4	86.6	49.6	87.2	45.8**	-0.6
Classrooms with water for handwashing	80.2	87.9	91.7	71.0	-11.4	16.9
Classrooms with soap	7.0	6.7	8.8	13.8	-1.7	-7.1
Classrooms where all children wash hands after toilet	0	0.2	0	0.1	0	0.1
Classrooms where handwashing done with water only	100.0	89.8	83.3	70.4	16.7	19.4
Classrooms where handwashing done with water and soap	0	10.2	16.7	29.6	-16.7	-19.4
Classrooms where handwashing done with water and ash	0	0	0	0	0	0
Classrooms where handwashing done with water and disinfectant	0	0	0	0	0	0
Classrooms where handwashing done with water and other	0	0	0	0	0	0

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

Table 10a. Toilet facilities
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Types of toilet facilities (% of classrooms)						
Classrooms with no toilet facility	0	0	0	0	0	0
Classrooms with flush toilet	35.9	39.7	28.0	23.9	8.0	15.8
Classrooms with Ventilated Improved Pit (VIP) latrine	7.0	0.3	2.7	2.3	4.3	-2.0
Classrooms with pit latrine with slab	2.2	0	2.7	2.5	-0.5	-2.5
Classrooms with open pit latrine	59.5	60.3	66.7	73.6	-7.2	-13.3
Classrooms with composting toilet	0	0	0	0	0	0
Classrooms with bucket	0	0	0	0	0	0
Classrooms with hanging toilet/latrine	0	0	0	0	0	0
State of toilet facilities (% of classrooms)						
Classrooms with inadequate or no toilet facilities	5.0	0	2.7	0	2.4	0
Classrooms with clean toilets	27.2	42.1	24.7	31.5	2.5	10.6
Classrooms with toilets separated by gender	90.5	96.8	91.4	93.2	-0.9	3.6
Classrooms with child-sized toilets	21.6	42.1	11.8	36.7	9.8	5.4
Classrooms with toilets accessible to youngest children	16.0	40.3	25.9	28.3	-9.9	12.0
Classrooms with toilets accessible to disabled children	10.0	-0.2	0	5.8	10.0	-6.1

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 10b. Toilet facilities by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Types of toilet facilities (% of classrooms)						
Classrooms with no toilet facility	0	0	0	0	0	0
Classrooms with flush toilet	28.0	16.5	11.4	8.1	16.6	8.4
Classrooms with Ventilated Improved Pit (VIP) latrine	5.0	0.4	0	4.4	5.0	-4.0
Classrooms with pit latrine with slab	0	0	0	0	0	0
Classrooms with open pit latrine	67.4	83.5	83.5	91.9	-16.1	-8.4
Classrooms with composting toilet	0	0	0	0	0	0
Classrooms with bucket	0	0	0	0	0	0
Classrooms with hanging toilet/latrine	0	0	0	0	0	0
State of toilet facilities (% of classrooms)						
Classrooms with inadequate or no toilet facilities	9.8	0	5.2	0	4.6	0
Classrooms with clean toilets	9.2	31.7	5.8	7.9	3.4	23.9*
Classrooms with toilets separated by gender	91.1	93.9	88.9	86.8	2.3	7.1
Classrooms with child-sized toilets	13.9	65.8	11.1	46.8	2.8	19.0
Classrooms with toilets accessible to youngest children	4.3	61.2	15.7	51.2	-11.4	10.0
Classrooms with toilets accessible to disabled children	0	0.5	0	4.3	0	-3.8
Kilimanjaro (N=40)						
Types of toilet facilities (% of classrooms)						
Classrooms with no toilet facility	0	0	0	0	0	0
Classrooms with flush toilet	44.6	63.0	45.5	39.7	-0.8	23.3
Classrooms with Ventilated Improved Pit (VIP) latrine	9.1	0	5.5	0	3.6	0
Classrooms with pit latrine with slab	4.5	0.2	5.6	5.3	-1.0	-5.1
Classrooms with open pit latrine	50.8	36.8	49.0	55.1	1.8	-18.3
Classrooms with composting toilet	0	0	0	0	0	0
Classrooms with bucket	0	0	0	0	0	0
Classrooms with hanging toilet/latrine	0	0	0	0	0	0
State of toilet facilities (% of classrooms)						
Classrooms with inadequate or no toilet facilities	0	0	0	0	0	0
Classrooms with clean toilets	46.6	53.7	45.2	56.6	1.4	-2.8
Classrooms with toilets separated by gender	89.9	100.0	94.3	100.0	-4.4	0

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Classrooms with child-sized toilets	29.5	18.7	12.3	27.2	17.2	-8.5
Classrooms with toilets accessible to youngest children	28.6	18.8	37.0	4.8	-8.4	14.0
Classrooms with toilets accessible to disabled children	10.0	-0.2	0	5.8	10.0	-6.1

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 11a. Meal provision
Schools in Mwanza (n = 41) and Kilimanjaro (n = 40)
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Classrooms that do not serve meals to children	30.5	45.8	49.2	53.3	-18.6*	-7.5
Classrooms that serve meals to some children	5.1	2.1	4.8	2.9	0.3	-0.9
Classrooms that serve meals to all children	64.4	52.2	46.0	43.8	18.3*	8.4

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.

**Table 11b. Meal provision by region
Collected July 2017 and November 2017**

Variable	Intervention n=42		Control n=39		Between-group differences	
	(A)	(B)	(C)	(D)	(E)	(F)
	July	November	July	November	July [C-A]	November [D-B]
Mwanza (N=41)						
Classrooms that do not serve meals to children	59.6	80.6	90.9	99.4	-31.3*	-18.8*
Classrooms that serve meals to some children	6.0	0	3.8	0	2.3	0
Classrooms that serve meals to all children	34.4	19.4	5.4	0.6	29.0*	18.8*
Kilimanjaro (N=40)						
Classrooms that do not serve meals to children	-0.1	9.2	5.7	5.4	-5.8	3.9
Classrooms that serve meals to some children	4.2	4.2	6.0	6.0	-1.7	-1.7
Classrooms that serve meals to all children	95.9	86.5	88.4	88.7	7.5	-2.1

* Between-group difference is statistically significant at the .05 level.

** Between-group difference is statistically significant at the .01 level.

Source: Fursa kwa Watoto - Baseline and midline, July and November 2017

Note: Columns A, B, C, and D show regression-adjusted means for the intervention group and control group at baseline and midline, respectively. Columns E and F reflect the differences between the groups at each point in time.