



Play and Learning in Children's Eyes (PALICE) Final Overview Report

1 March 2023

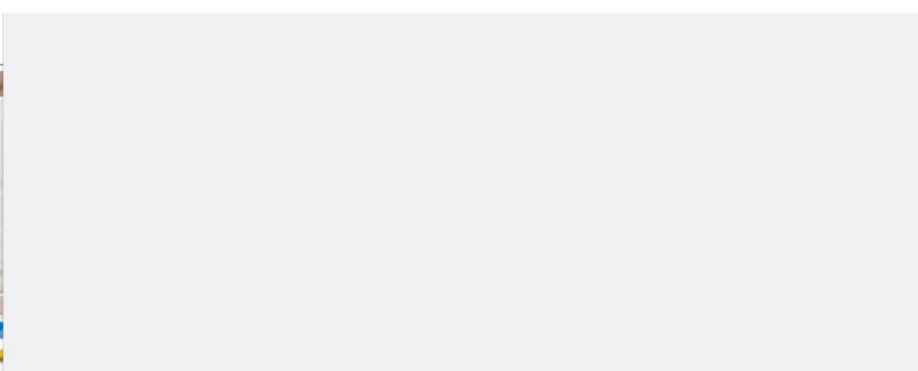
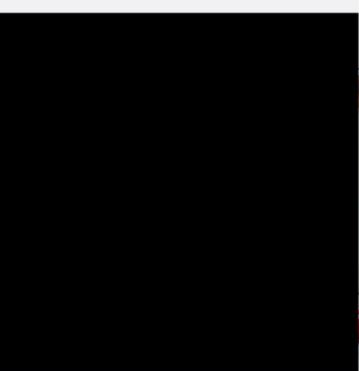


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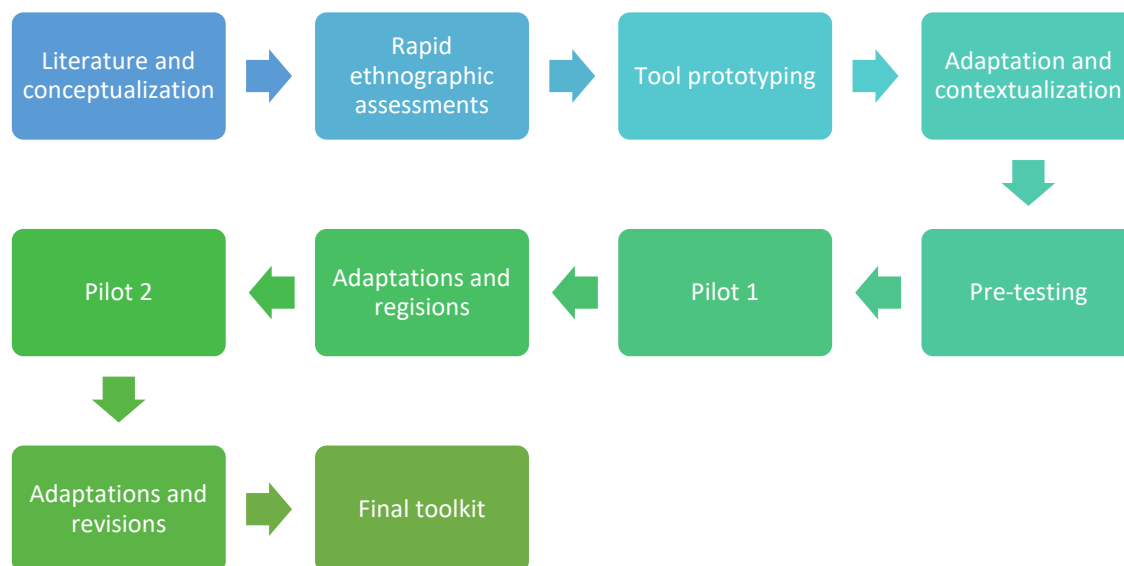
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Summary

The Play and Learning in Children’s Eyes (PALICE) project of the LEGO Foundation was launched in March 2021, implemented by an international research consortium led by FHI 360. The project sought to support the implementation of Learning through Play (LTP) in classrooms around the world by giving teachers the tools to better understand the perspectives of children and stimulating their self-reflection on how to create meaningful, joyful, iterative, socially interactive, and actively engaging learning environments.

Over the course of nearly two years (March 2021- December 2022), the PALICE research consortium developed, and pilot tested the tools in three countries in different parts of the world, with support of the local PALICE consortium partners. These countries were Bangladesh, Colombia, and Uganda, each with their own language versions. In each context, the PALICE tools included two modalities: 1) the Formative Observation and Reflection Assessment (FORA), a formative observation and reflection protocol for teacher use; and 2) the Children’s Experiences of Learning through Play (CELP) protocol, designed to capture children’s voices and relay their perspectives to teachers. The toolkit, subsequently rebranded as *Teacher RePLAY* (and the CELP protocol integrated under the label *Children ReACT*), was tested in two rounds of piloting, around 4 weeks each, over the course of 2022.

Box 1. PALICE Tool Development Process Map



The development of PALICE tools was a multistage process, as shown in Box 1. The work began with the development of the Learning through Play Experience Framework, which was informed by a review of relevant literature. The literature review also helped guide a series of initial decisions regarding the tools, particularly the length and the structure of the teacher’s observation protocol, and the approach to the photo-elicited focus group discussions with children.

Further, in each participating country – Bangladesh, Colombia, Uganda – PALICE partners, led by the University of Notre Dame, carried out Rapid Ethnographic Assessments (REA) to qualitatively examine the perceptions and beliefs about Learning through Play on the part of teachers and children of different

age ranges. In the context of the continuing pandemic and travel disruptions, REA's conducted by local country partners provided the necessary amount of ground-truthing to the framework and tool development process.

The tool prototype, informed by the framework, went through an extensive process of contextualization and adaptation based on the insights generated by the REAs and the workshops in each country with small groups of educators. A full version of the PALICE tools went into a small-scale pre-test in April 2022, and subsequently into two rounds of piloting with ~200 educators in each country. Each round of testing and piloting resulted in a series of revisions to the content and functionality of the tools, as well as the layout and design of the paper-based instruments for PALICE.

Response from teachers who have used the tools during the pilots was overwhelmingly positive. Teachers appreciated the opportunity to reflect on their practice and be provided with ways to see and engage their students differently. As the report below shows, for many teachers this was the first opportunity to be exposed to concepts of learning through play, and they were intrigued and interested to learn more. At the same time, the pressures on their day-to-day routines and the lack of systemic ways to engage in LTP professional development have prevented many from fully benefiting from the use of the PALICE tools.

This report presents an overview of the tool development and piloting process, as well as the results of the pilot analysis and final modifications to the tools.

Literature Review and Conceptual Framework

The Learning through Play Experience Framework (LEF), the conceptual core of the PALICE project, was conceived after an examination of the evidence available about how and what children learn and how teachers conceive both learning and play in their classrooms.

While there are various conceptualizations of what children should learn, one could think about learning outcomes across the physical, social, emotional, and cognitive domains (The LEGO Foundation, 2017, 2021). This approach moves beyond thinking about learning as a single concept (e.g., are children learning) and instead considers specifically what subskills children should learn, thus targeting those subskills explicitly in curricular design and instruction. It also considers subskills that go beyond "typical academic outcomes" like mathematics and literacy.

Once a teacher has determined a specific learning goal, the important work of determining how to provide instruction that supports that learning goal begins. For decades, a false dichotomy between play and learning has done a disservice to the field of education and the implementation of pedagogy in the classroom (Clements & Sarama, 2014; Hirsh-Pasek & Golinkoff, 2011; Weisberg et al., 2013a). This dichotomy is likely rooted in a narrow conceptualization of play that focuses solely on children having total agency and the supposition that play requires that there be no goal or purpose (Brown & Vaughan, 2009). While this view describes free play, other conceptualizations of play as a continuum or spectrum (Bergen, 1988; Pyle & Danniels, 2017a; Zosh et al., 2018a), focus on multiple types of play that better characterize the multiple ways play happens - with varying levels of adult support - and acknowledges that playing with the purpose of engaging with a learning outcome is still play.

Critically, when thinking about play as a spectrum, **children's agency is central and required**. What varies is the level of **adult facilitation** (Jensen, Pyle, Zosh, et al., 2019) and whether or not there is a learning goal. In **free play** there is no specified learning goal, nor adult scaffolding or control (Brown & Vaughan, 2009). Children maintain agency, decision-making, and direction. Children are free to play, or not play, with whatever materials are available. **Guided play and games** (Hassinger-Das, Hirsh-Pasek, et al., 2017; Hassinger-Das, Toub, et al., 2017; Weisberg et al., 2013b, 2016) still maintain children's agency, but adults scaffold and support the play and there is an intended learning outcome. **In teacher directed play** (Pyle & Danniels, 2017a), children maintain limited agency, but adults have a heavier hand in both directing and supporting the play context.

Research suggests that not all types of instruction support children's learning equally. For instance, guided play methods have been found to outperform direct instruction methods for obtaining a variety of outcomes. In exploring why guided play is so beneficial across learning outcomes, Hirsh-Pasek, Zosh, and colleagues (2015) reviewed the science of learning literature and argued that there are pillars of learning - or characteristics that maximize learning. When humans are **active** (minds-on), **engaged** (not distracted), learning **meaningful** content (connects to the larger world, their previous understanding, and potentially their passion), and **socially interactive**, learning is maximized. A few years later, Zosh and colleagues (Zosh et al., 2018b; Zosh, Hopkins, et al., 2017) expanded this model to specifically examine how play naturally leverages these characteristics and also supports learning via **iterative** thinking in a **joyful** context. They argue that play naturally leverages the characteristics that lead to learning, and that guided play is so effective because it engages these characteristics during a purposefully designed activity with a specified learning goal.

A key challenge is that these characteristics are not in a present/absent concrete state. Similarly, even play types exist along a continuum where there are stronger and weaker ways of facilitating free play, guided play, and teacher-directed play. While this creates a challenge for measurement, it also provides a benefit for implementation. By viewing these characteristics as a continuum of their own, teachers can facilitate in a variety of ways - for example, ways that are suitable for their context, the lesson at hand, the children's age and educational needs, and their own strengths.

The conceptual discussion presented above informed key design decisions during the creation of the Learning through Play Experience Framework (LEF). For instance, the LEF includes Foundational and Extension levels of learning through play for each type of play and characteristics, allowing teachers to be more nuanced in their approach to implementing learning through play in the classroom. Additionally, the LEF considers the type of play when considering engagement with each of the characteristics. For an extended version of the literature review and details about the design decisions, please consult the Literature Review and Learning through Play Experience Framework (2021) document submitted to the LEGO Foundation.

Box 2. PALICE Learning through Play Experience Framework

		LEARNING THROUGH PLAY EXPERIENCE FRAMEWORK					
		LEGO Foundation Play and Learning in Children's Eyes (PALICE) Project					
		TEACHER FACILITATION	JOYFUL	ACTIVELY ENGAGING	ITERATIVE	MEANINGFUL	SOCIALLY INTERACTIVE
 FREE PLAY high child agency, limited or no adult involvement	Foundation	Provision of space, time, and materials	Children happily interact with materials or with others.	Children move quickly from activity to activity, with no clear links between activities.	Children's play is repetitive, with the same ideas being done over and over.	Children's play is based in the here-and-now.	Children share space and materials with others without collaborating on ideas.
	Extension	Observing children's interest, knowledge, and skills and using that to inform the design of the playful experience	Children's interaction is marked by shared excitement, surprise, and intrinsic motivation.	Children are engaged in the play experience, resisting distraction, and staying on-task	Children are evolving their play, based on their own ideas or ideas of others.	Children's play connects with other ideas from other lessons, the outside world, or their own lives.	Children interact with peers, building off of each other's ideas, using perspective-taking, and sharing knowledge and ideas (social negotiation).
 GUIDED PLAY high child agency, teacher scaffolded or supported	Foundation	Educators design the play activity based on curriculum standards. Educators initiate the play experience and ask skill-based questions in the context of play.	Children happily interact with each other, the educator and the play experience.	Children engage with the material and activity in the manner that is expected, required and presented and are easily redirected to stay on task.	Children's thinking is limited to obvious next steps and solutions.	Children's play connects with what is in front of them and their previous play narratives.	Children follow directions and demonstrate expected or modeled interactions.
	Extension	Educators design a high-quality play experience based on children's needs and observed interests. Educators initiate observe, ask open-ended questions, build off of the play experience in the moment to extend learning, while children direct the play experience.	Children's interaction is marked by shared excitement, surprise, and intrinsic motivation.	Children are contributing to the design, process, and ideas of the playful experience and exhibit self-sustained attention.	Children have the opportunity to shift and change the play experience while engaging with the learning goal.	Children's play takes inspiration from previous experiences, new ideas, others' ideas, and personal meaning.	Children's interactions are central to the play experience and become the center of learning.
 TEACHER DIRECTED PLAY lower child agency, teacher controlled	Foundation	Educators design the play activity based on curriculum standards. Educators ask planned questions and facilitate as intended.	Children happily interact with the playful activity.	Children are engaging with the play experience and learning goal and are easily redirected to stay on task.	Children's thinking is limited to what was presented by the teacher.	Children's play is done as modeled and does not reflect previous knowledge or use new ideas.	Children's social interactions are limited to the rules of the activity.
	Extension	Educators thoughtfully design the play activity also based on student needs, interests, and knowledge. Educators ask questions and support and build on knowledge as needed.	Children's interaction is marked by excitement, surprise, and intrinsic motivation.	Children are engaging with the play experience and learning goal, and engagement transfers from teacher to child.	Children build off of their own or other's ideas, trying out new solutions and ideas.	Children's play integrates with other academic skills, concepts, and strategies.	Children share their own perspectives, collaborate and perspective-take.

Rapid Ethnographic Assessments

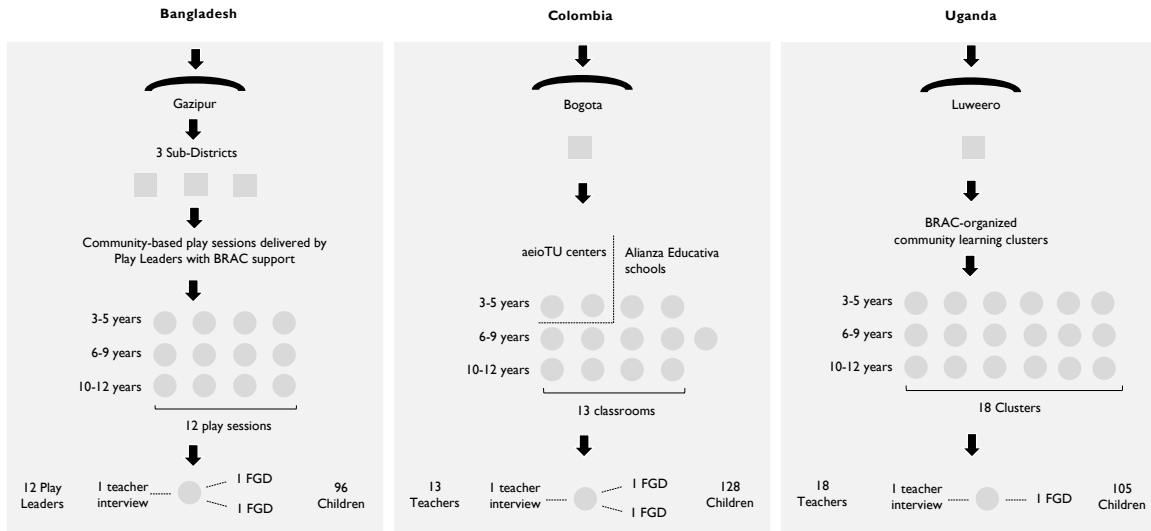
At the start of the tool development process, the PALICE team developed the Rapid Ethnographic Assessment (REA) to capture children's and teachers' experiences and perspectives of LtP in a sample of schools/learning centers in Bangladesh, Colombia, and Uganda. Given the limited research on how children and teachers understood and perceived LtP in the three countries that were the focus on the PALICE, the team wanted to collect preliminary information that would (a) inform the design and adaptation of the LEF, (b) inform the design of the FORA and CELP, and (c) allow us the opportunity to test out data collection protocols with young children. Additionally, the REA was designed to help the team understand alignments and misalignments between teachers' and students' conceptualizations of LtP. The alignments and misalignments would affect the design of the CELP and of the FORA, i.e., what data we should be collected through each modality and how we connect them.

Photo-elicitation was the primary data collection technique for REA. Photo elicitation (PE) is a qualitative research method used in anthropology and education that aims to involve children or research participants directly in data collection and analysis. Unlike a traditional semi-structured interview or group discussion, PE uses photographs during individual or focus group interviews to produce responses from participants. PE in the REA followed a structured protocol, according to which the researcher took photos of the classroom at predefined time intervals and subsequently conducted FGDs with children and interviews with teachers showing the images taken. After pilot testing the PE protocol in each

country through the REA, the team amended the approach in each study context and used the second iteration in our scaled Pilot 1 data collection.

In each country, the plan was to collect data in 12 classrooms: 4 classrooms from each of the three age categories in our study—3-5, 6-9, and 10-12 years (see Figure 1). In each classroom, the team planned to interview the teacher and conduct 2 FGDs with children.

Figure 1. Overview of classroom/cluster sample across study sites



As the REA commenced, the country research partners modified this recruitment and sampling strategy to better suit the current COVID-19 situation, the possibility of accessing functional school classrooms, and enrollment numbers. Figure 1 illustrates the sampling strategy used in each study site. Each country research partner followed a slightly different data analysis approach, drawing on overall guidance to use a phenomenological coding approach with a predesigned data analysis Excel workbook. Research teams looked at emerging themes per question, and paid attention to similarities and differences in children’s and teachers’ responses to the same questions across the FGDs and interviews.

Overall, the REAs indicated found strong alignment with how children and teachers discussed playing, learning, or a combination of playing and learning in the classroom. Table 1 provides a brief summary of the main themes that emerged regarding playing and learning.

Table 1. Summary of themes of children and teacher's perspective of playing and learning (blank cells represent lack of alignment; BA=Bangladesh, CO=Colombia, UG=Uganda)

Playing and learning					
Children's perspective			Teachers' perspective		
Content	Learning activities include clear academic concepts and "new" or "unique" concepts. Playing and learning happen when the type of activity is "new"	BA, CO, UG	Content	Play can be used to help children learn specific academic content; play can be a "springboard" for students to acquire knowledge	BA, CO, UG
Location	Physical boundaries of the classroom define learning versus play. The location could be micro (space within the classroom), macro (school versus outside school), or temporal (recess time)	CO, UG			
Modality	Learning is associated with "study" behaviors (like writing) and materials being used (e.g., an abacus). Playing and learning are blended when study behaviors occur in the presence of "fun"	CO, UG	Modality	Learning is associated with "attention" behaviors (like memorization and focus) and materials being used	UG
Physicality	Learning is associated with stillness while play is associated with physical movement	BA, CO, UG			
Utility	Activities that benefited children beyond the classroom session were defined as learning activities as compared to play that was viewed as having limited long-term utility	BA, UG	Utility	Play can be used to support children's recall of useful information/knowledge as well as make academic concepts more practical and approachable	BA, CO, UG
Fun	Learning associated with play if children found the activities to be fun or if they were enjoying what they were doing	BA, CO, UG	Fun	A combination of learning and playing is effective because it is enjoyable for children	CO, UG

The majority of children believed that the activities that they were taking part in included a combination of playing and learning, and teachers agreed with this perspective. Additionally, children and teachers had similar perspectives when it came to the importance of group activities. Both sets of participants focused on how group activities instilled a sense of "togetherness" in the classroom by encouraging positive social interactions and having everyone take part in a "communal experience". When we asked children and teachers about the role of the teacher in play, both teachers and children explained that the teacher's role was to provide instructions to the children, help them in conducting the activity, and provide play opportunities when the children needed an energizer to break the monotony or boredom.

The findings helped add to our understanding of how children and teachers discuss the five characteristics of LtP and their implications for the design of the LEF. We found strong support for these characteristics of LtP—Joyful, Meaningful, and Social Interactive—the themes that emerged from the child and teacher data, albeit to varying degrees. Actively engaging and Iterative were not discussed with as much depth by participants and this could result in challenges in teachers and children reflecting and observing these characteristics through the FORA and CELP (as we witnessed in Pilot 1 and 2). These findings confirmed that these characteristics of play should be focused on in the forthcoming FORA and CELP, while also giving the research team a contextualized vocabulary and a more nuanced understanding of application in each context.

In terms of logistics, the REA highlighted the importance of proper preparation and time for data collection with tools like the FORA and CELP. It also highlighted the need for more focused support on the use of PE protocols, from taking and choosing photos in the classroom to conducting FGDs with children. These logistical and training considerations helped us better prepare for Pilot 1 and 2.

More information on the entire REA study and the findings can be found in the REA report submitted to the LEGO Foundation in January 2022 titled *“Playing is about becoming happy but studying has both learning and becoming happy”*: Understanding children’s and teachers’ perspectives of learning through play in Bangladesh, Colombia, and Uganda.

Tool Development, Contextualization and Pretesting

Following the development of the LEF, the PALICE team began the development of the tool prototype, expanding the behavioral descriptors for each of the combination of characteristics of play and teacher facilitation styles into a list of possible behaviors that children may exhibit. The prototype items were structured in a way that was theorized to follow the foundation and extension levels of LtP, e.g., behaviors that teachers should observe more easily, as opposed to those that would require greater mastery to elicit a deeper level of children’s experience with LtP.

As the REA results became available from the three countries, the research team reviewed the prototype items and conducted a series of internal revisions and adaptations with each country partner and with all the partners collectively, taking into account the context around LtP and perceptions of the role of play from teachers and children. The revised set of items and coaching tips was then taken by country partners into in-depth Adaptation workshops with a select group of teachers and ISS in each country, for further contextualization and cognitive testing in February and March 2022. Each country team conveyed proposed revisions and questions to the PALICE US-based team for a final set of items to be ready for pre-testing in April 2022.

Pre-testing took place with smaller groups of teachers, many of whom were involved in the adaptation workshops and contextualization. The objectives of pre-testing were to try out the full instrument in a real-world classroom environment, assessing the intuitiveness and clarity of the internal logic, and the compatibility of the FORA and CELP modules administered by teachers and ISS.

As a result of pre-testing, the team made a decision to introduce a teacher self-administered CELP component, which allowed teachers who did not have the opportunity to have an external observer in

their classrooms to lead focus group discussions with their own students. The subsequent module was later piloted at larger scale in the three participating countries.

More detail on tool development, contextualization and pretesting can be found in the May 2022 PALICE Progress Report.

Piloting and Adaptations

The PALICE tools went through two rounds of piloting in the three countries: Bangladesh, Colombia, and Uganda. Pilot 1 took place over the period of May 4- June 13, 2022, and Pilot 2 from August 28 through o/a October 11, in three countries: Bangladesh, Colombia and Uganda. In total, 411 educators participated in the first pilot, providing over 2,500 Digital FORA observations and over 1,000 observations on Paper FOR A, and 842 teachers and instructional support staff were part of the second pilot, providing over 2,500 observations. Altogether, 1,253 educators participated in the two pilots and provided over 6,000 observations.

The tools had undergone a series of revisions between the two pilots. These included: a) a series of fixes for the digital app, making the experience smoother and more streamlined for the users; and b) full reimagining of the paper tools, making them more user friendly and in line with the experience on the digital app. In addition, the research team worked on revamping the training content, devoting more time to the conceptual framework and the characteristics of play during the training, working from the realization from Pilot 1 that many of the teachers recruited for the pilots had little to no prior exposure or knowledge of Learning through Play.

Training duration ranged from 5 hours in Colombia, to two days split over two weeks in Bangladesh, to three consecutive days in Uganda. This was determined by the availability of teachers to participate in professional development, and the agreements with organizations that had the primary responsibility of working with teachers in each country (e.g., BRAC in Uganda and Bangladesh, aeioTU in Colombia).

Pilot participants differed across the country contexts. In Bangladesh, the pilot involved teachers and play leaders from BRAC schools, and teachers and headteachers from government primary schools. In Colombia, teachers and supervisory coaches from some schools participated as ISS. In Uganda, teachers worked in pairs, implementing both the teacher observation and the CELP protocols, acting in both capacities.

Overall, pilot participants responded positively to the tools, with a higher satisfaction level in Pilot 2 compared to Pilot 1 in Uganda and Bangladesh (for Colombia, the number of pilot participants in Pilot 1 was not sufficient for a comparison). Teachers indicated that the tools helped them reflect on their practice, learn more about Learning through Play, and gain a greater appreciation for children's voices. Teachers who used both the digital and paper tools preferred the digital app; both sets of tools were rated highly on their intuitiveness and ease of use. Overwhelmingly, teachers who used the tools several times appreciated the breadth of coaching tips and the ability to focus on different aspects of Learning through Play during their lessons.

The greatest challenge across both pilots was time. Teachers reported struggling to find time to administer the FORA tool alongside their practice, and even less time to have the reflection conversations with their CELP observer. ISS in each country reported not having enough time for the

CELP discussion with children and for the debrief with the teacher. Many teachers would have liked to spend more time with the tool but felt that their routine responsibilities prevented them from focusing their attention to it. After a slow start, observations picked up pace in the month of September, as more teachers became comfortable with the tools; however, almost no observations continued after the formal end of the pilots.

Training

The Master training slides from the FHI 360 research team were shared with country teams, who then translated and adapted the content to the length of the training sessions in their country. The shortest training window was in Colombia, with multiple workshops taking place in multiple locations at the same time, and 636 teachers and ISS trained; followed by Bangladesh, with a two-day training for 214 teachers and ISS, and three-day training in Uganda for 179 teachers trained in both FORA and CELP protocols.

Training in Bangladesh took place in collaboration with BRAC staff, who received a training of trainers and were able to act as master trainers for participating teachers across the pilot. This collaboration expanded the capacity of the PALICE research team and allowed the project to benefit from the prior expertise held by BRAC staff on the general principles of Learning through Play and the characteristics of play.

Training in Colombia involved substantially greater number of teachers and ISS, recruited through collaboration with 27 educational institutions in 8 cities, who provided for a time for teachers to attend training during a workday. A broad call was shared encouraging teachers interested in Learning through Play to attend workshops. The call incentivized teachers to participate in the pilot through a raffle of scholarship to the Universidad de Los Andes School of Education courses (two scholarships of \$900 value contributed by the University) and certificates of completion.

Training in Uganda was also, similarly to Bangladesh, done in collaboration with BRAC, where some of the BRAC staff acted as master trainers, supporting the delivery of the training workshops, and working closely with the LGIHE team on planning and execution of the training.

Across all countries, teachers participating in the training wished for more hands-on demonstrations, videos, and examples of LtP practice that would allow them to better understand the Learning through Play Experience framework and the five characteristics of play. In contexts where teachers have little opportunity for professional development, training on the PALICE tool was insufficient to address the general need for coaching and support on LtP, with practical examples and follow up. In Colombia, teachers reported being somewhat disappointed that the training did not offer specific LtP practices and “games” or activity ideas, and rather focused on deepening reflection for what was already going on in the classroom. Teachers in Colombia lamented the lecture style of the training and wished that the training workshop itself could have been more playful and modeled on Learning through Play activities.

During training for Pilot 2, participants were asked to complete a pre-pilot survey asking them to reflect on their Learning through Play practice, which was followed by a post-pilot survey on the same questions. The results of this analysis are presented below in this report.

Pilot Statistics

This section will provide an overall summary of the pilot administration: how many teachers, dates of the pilot and locations, and number of observations. A substantially higher number of teachers participated in Colombia in Pilot 2, compared to Bangladesh and Uganda. This is explained by the extensive recruitment efforts of the Universidad de Los Andes research team, to offset the lower numbers participating in Pilot 1, which happened to take place at the very end of the academic year in Colombia. In Bangladesh and Uganda, relatively similar numbers of participants – both teachers and ISS – participated in Pilot 2 compared to Pilot 1. The post-pilot survey participants are also presented below in Table 2. A relatively small number of users completed the post-pilot survey in Colombia (22%) compared to the other countries. Additional information on country specific recruitment efforts can be found in the Country Reports.

Table 2. Summary statistics of Pilot 1 and Pilot 2 participants

Statistic	Bangladesh		Colombia		Uganda	
	Pilot 1	Pilot 2	Pilot 1	Pilot 2	Pilot 1	Pilot 2
Number of teachers, % Female/ Male	143 (80% F, 20% M)	142 (72% F, 28% M)	48 (88% F, 12% M)	521 (85% F, 15% M)	174 (79% F, 21% M)	179 (82% F, 18% M)
Number of ISS, % Female/ Male	73 (60% F, 40% M)	72 (57% F, 43% M)	14 (93% F, 7% M)	115 (92% F, 8% M)	174 (79% F, 21% M)	179 (82% F, 18% M)
Age range	20-52	22-59	22-64	18-61	22-98	20-61
Experience range	Primary-Masters/PhD	Primary-Masters/PhD	Secondary-Masters/PhD	Primary-Masters/PhD	Primary-Bachelors	Primary-Bachelors
Locations	Gaibandha Sadar, Palashbari, Gobindagonj and Shaghata in Gaibandha district	Gaibandha, Rangpur	Bogota	Bogotá, Bucaramanga, Cali, Cartagena, Cúcuta, Florencia, Medellín, and San Vicente del Caguán	Kampala, Luwero, Wakiso	Kampala, Luweero, Wakiso
Average number of times administered FORA	3x per week	3x per week	1x per week	1x per week	1x per week	1x per week
Teacher CELP observations	120	39	50	37	116	135
% administered Digital FORA	59%	33%	93%	93%	31%	30%
% Paper FORA	96%	67%	20%	21%	83%	82%
Number of CELP	267	72	27	21	31	32
Number of participants in post-pilot survey	132 teachers, 62 ISS	131 teachers, 72 ISS	26 teachers, 6 ISS	115 teachers, 21 ISS	120 teachers, 42 ISS	106 teachers, 8 ISS

Information in this report draws from two sources of data: 1) Country reports from each participating research team; 2) Data from the Digital and Paper observations entered into the PALICE database; and 3) Direct data from post-pilot surveys completed and entered into the PALICE database. The country reports draw on the research team’s hands-on experience in pilot implementation, continuous engagement with pilot participants, post-pilot surveys, and post-pilot qualitative interviews. In addition, paper FORA entries completed during the pilot were entered digitally by partner research staff and integrated with Digital entries. The CELP section draws on country reports, data from post-pilot surveys and interviews, and the summary CELP report prepared by the University of Notre Dame.

Successes

Overall, in the post-pilot survey, nearly all users of the FORA protocol were either “very satisfied” or “reasonably satisfied” with the tool. In Bangladesh and Uganda, where larger numbers of teachers participated in both Pilot 1 and Pilot 2, while lower percentages of teachers rated the overall tool as very satisfied in Pilot 2 (Table 3), slightly higher percentages rated the tools’ intuitiveness and look and feel as “exceptional” in Pilot 2 compared to Pilot 1

Teachers in Colombia showed the highest levels of satisfaction with the tool in Pilot 2, with nearly 60% of survey respondents reporting being “very satisfied”, despite several challenges with the download and installation of the Digital FORA tool and managing the time needed to administer the tool in the classroom. In Uganda, 35% of teachers were “very satisfied”.

Table 3. How satisfied are teachers with the FORA tool?

	Bangladesh		Colombia		Uganda		Total	
	Pilot 1	Pilot 2	Pilot 1	Pilot 2	Pilot 1	Pilot 2	Pilot 1	Pilot 2
Very satisfied	67%	48%	70%	57%	50%	35%	60%	47%
Reasonably satisfied	33%	49%	30%	43%	50%	63%	40%	52%
Slightly dissatisfied	0%	2%	0%	0%	1%	2%	0%	2%
Very dissatisfied	0%	0%	0%	0%	0%	0%	0%	0%

In interviews, teachers shared that the tools helped them to reflect on their practice and better understand how children are experiencing their learning.

After administering the tool for a month, I am now more knowledgeable about designing play activities that would lead to better learning for my students I also like to think that the use of the tool also made me more observant as a teacher I now know more ways to observe my students' learning. (Teacher, Bangladesh)

Every time I teach using the tools it makes me feel I should continue teaching because children are happy and also understand well. This motivates me to teach. (Teacher, Uganda)

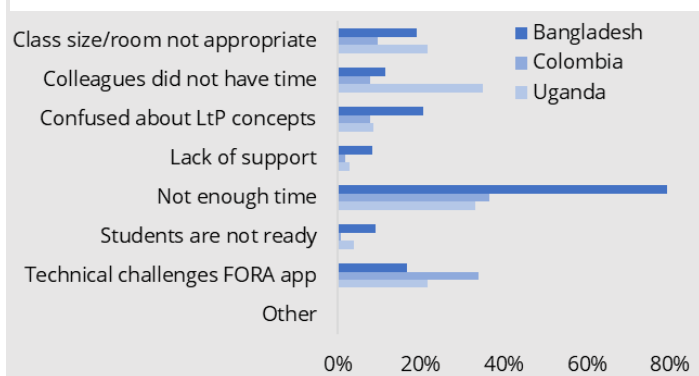
“I was able to innovate more, create more. Not limited to what I normally did in the activity, but to do it in a different way, to see it from a different concept, in a different way. And to integrate myself as well to play because one also participates” (Teacher DPP211145, 6 to 9 years).

Teachers commented that the tools allowed them a way of structuring their lessons and activities that they had not had before. Almost uniformly, teachers appreciated the Coaching Tips, which provided them with suggestions on how to improve their practice.

Challenges

Among the challenges, teachers and administrators alike noted **the lack of time and institutional space** in which to administer the tools on a regular basis, whether it is the teacher’s own FORA protocol or the

Figure 2. Reported challenges with implementing PALICE tools



CELIP protocol and reflection. Teachers felt that it was a task that they were asked to do on top of their regular workload, and while they appreciated the tools, it was difficult to ensure they were administered systematically alongside their other tasks.

Secondly, some teachers had challenges with **technology and access to the internet**. Partners reported that installing the Digital FORA app was a laborious process, and difficult in low-bandwidth situations. In Uganda, a majority of

teachers used Paper FORA due to the lack of access to technology; a subset of teachers was provided with smartphones to share for the administration of the PALICE tools during the pilot. In addition, some smartphones experienced glitches with the My Data page that would close the app upon accessing My Data. This issue was addressed during the pilot, but it took up to two weeks to install the updates. Deployment of bug fixes and updates to the app after the training was difficult as teachers did not have stable access to Wi-Fi, and otherwise the app required a substantial amount of data.

What is challenging, because I have a class of about eighty learners and most of the time I do it alone, it makes it a bit challenging because sometimes learners tend to be so excited and there is a way how young children behave; sometimes learning through play is difficult especially on the side of class control. (Teacher interview, Uganda)

Finally, teachers that have not been trained in Learning through Play and had large classrooms have found it difficult to integrate the LtP activities that the tools sought to measure. While this challenge is not specific to PALICE tools, it raises questions about its application to low-resource, large class size contexts. This challenge was clear during the in-person visit by FHI 360 and LEGO Foundation representatives to Ugandan schools and was raised by teachers during the training.

Reflections on Learning through Play

As noted above, in Pilot 2 the research team took specific intention to explore the changes in teacher practice and their perceptions of learning through play before and after participating in the pilot. Training participants were asked to complete a short questionnaire before completion of the training workshop, and then responded to the same questions as part of the post-pilot survey.

Teachers were asked how much experience they had with Learning through Play before they started the pilot. Most teachers reported having experience with learning through play or playful practices in their classroom, particularly among teachers in Colombia (Figures 3 and 4).

Figure 3. Have you had experience with learning through play in your classroom?

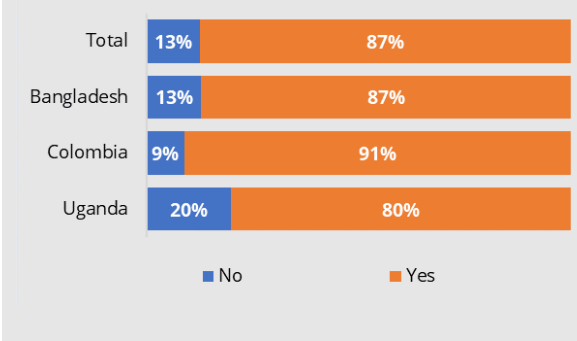
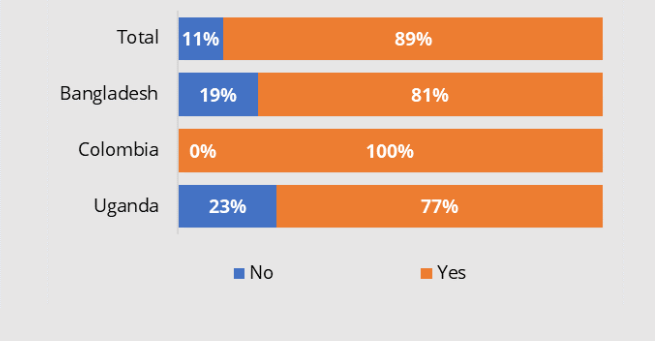


Figure 4. Do you use playful practices in your classroom?

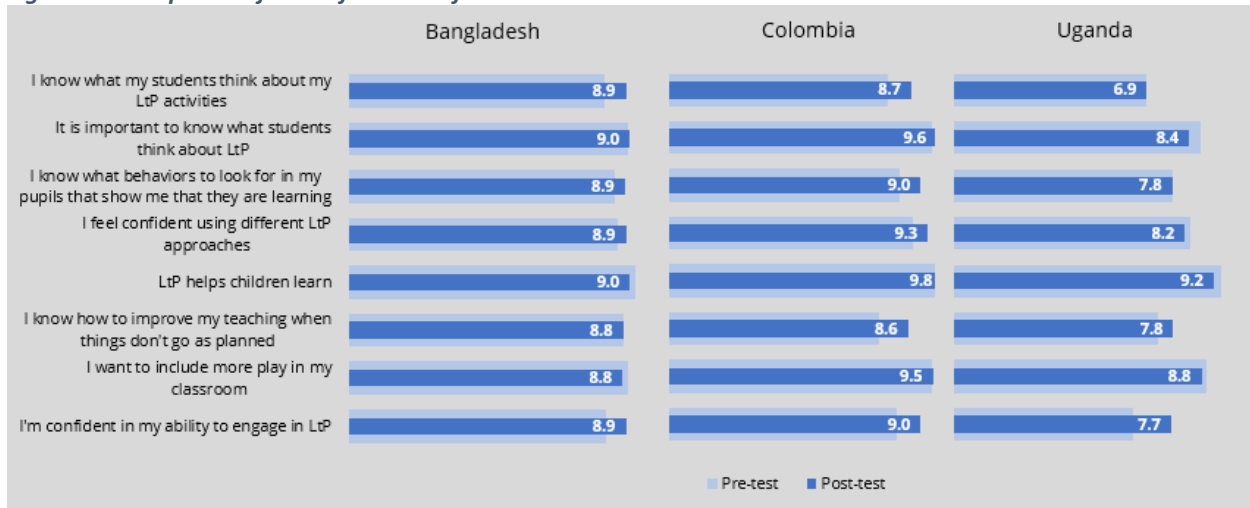


“It was my first time using the LtP approach in my classroom, or at least, my first time doing it in a structured way. That is why I was very unsure about my participation in the pilot in the beginning. But after having experienced it for a month, I am now capable of carrying out this practice in the future.” (Teacher, Bangladesh)

“Personally, it has helped me a lot to implement play in my experiences and especially free play and guided play. Because we previously organized and proposed games, but this seems to be directed play, from what we have learned. So, implementing free play and guided play through the FORA platform, has strengthened us a lot and I feel that children like it, they have fun and they have learned in these days the topics that we want to propose with it” (Teacher, Colombia 3 to 5 years old).

The differences in the response rates and resulting composition of the samples between the pre-pilot and post-pilot survey make it difficult to draw direct conclusions from the before-and-after survey responses. As Figure 5 notes, post-survey samples were substantially lower than that at pre-survey, and it is likely that the samples reflect selection bias. Many of those who struggled the most, particularly in Colombia, were less likely to respond to the survey (which was distributed as a self-paced link for electronic completion).

Figure 5. Perceptions of LtP before and after Pilot 2



Note: Scale ranges from 1 = strongly disagree to 10 = strongly agree. N=718 for the pre-test survey (N=211 in Bangladesh, N=358 in Colombia, and N=149 teachers in Uganda). N=352 for the post-test survey (N= 131 in Bangladesh, N=115 in Colombia, and N=106 in Uganda).

As Figure 5 shows, positive reflections on LtP and perceptions of the importance of LtP were quite high in Bangladesh and Colombia, and moderately high in Uganda, even before the pilot. These levels measured slightly higher in Colombia after the pilot implementation, and slightly lower in Uganda, indicating only a small difference for teachers who took the post-pilot survey. Notably, confidence in their own ability to implement LtP in their classrooms was markedly higher in all three countries post-pilot implementation. Because teacher ID were not collected at either stage (following the approved IRB protocol), a direct panel analysis could not be performed at the individual level. However, it may be interesting in the future to explore how the use of the tools affects individual practice, and over what period of time one can expect a meaningful change in behaviours.

The next section provides more detail on the use of the FORA and CELP protocols in Pilot 2.

Pilot Results

Use of Digital and Paper FORA

Both modalities of the FORA protocol, paper and digital, were used across the three country contexts. As shown in Table 4, a majority of teachers in Bangladesh used both paper and digital tools. In Colombia the vast preference was towards the digital modality, whereas in Uganda, due to a lack of access to technology, the majority used only paper. However, it is notable that despite this lack of access to devices, users in Uganda by far prefer the digital tool over the paper (77% vs 8%). In Colombia a slight majority preferred digital, and in Bangladesh it was split between those who preferred digital and those who liked both modalities equally. Only in Colombia did a sizable proportion of respondents (14%) indicate they did not like either of the versions.

It is important to keep in mind that the survey respondents represent about 60% of pilot participants in Uganda, 92% of participants in Bangladesh, but only 22% of participants in Colombia, due to a lower

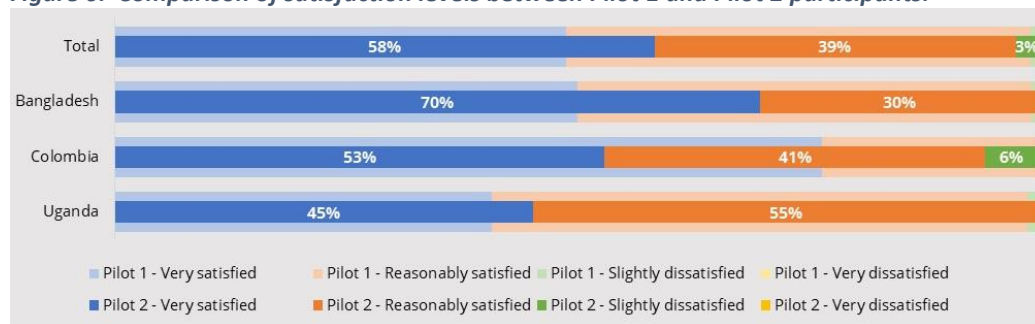
response rate to the usability survey among Colombia participants.

Table 4. Use of PALICE modalities in Pilot 2

Country	What version of the tool have you used?			Which version of the tool do you prefer to use?			
	Digital	Paper	Both	Digital	Paper	I like both	I do not like either
Bangladesh (n=131)	5%	42%	54%	44%	14%	41%	0%
Colombia (n=115)	78%	5%	15%	43%	7%	36%	14%
Uganda (n=106)	18%	70%	13%	77%	8%	15%	0%
Total	29%	40%	30%	48%	12%	37%	2%

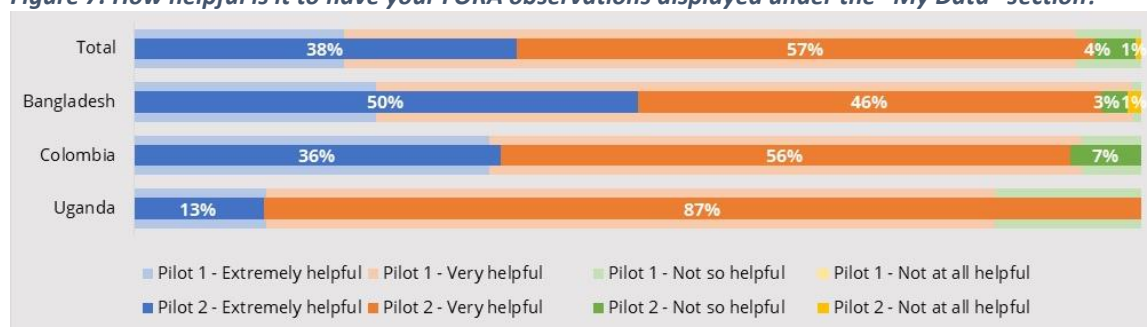
Participants who used Digital FORA in Pilot 2 seemed to be more likely to be “Very satisfied with the app than participants in Pilot 1 (Figure 6), which appears to be a testament to the simplification and streamlining that was done in response to participant feedback between the pilots. In Colombia, due to the low number of participants at Pilot 1 this was difficult to assess; however, there is a small proportion of users who reported being “slightly dissatisfied” in Pilot 2 in this country. As noted above, this can be attributed to the challenges facing Colombian teachers in terms of time availability, as well as a perception that the tool was too repetitive.

Figure 6. Comparison of satisfaction levels between Pilot 1 and Pilot 2 participants.



As a special feature found only in the digital version of the FORA, teachers continued to rate the My Data section for reviewing their data and viewing coaching feedback tailored to their data as very or extremely helpful in Pilot 2 (Figure 7). This was most notable in Bangladesh where the percentage of teachers rating this section as extremely helpful doubled from 24% in Pilot 1 to 50% in Pilot 2. In Colombia, the distribution of teacher responses showed little change. In Uganda, all teachers reported My Data as either very or extremely helpful in Pilot 2 compared to 14% of teachers in Pilot 1 reporting this section as not so helpful.

Figure 7. How helpful is it to have your FORA observations displayed under the "My Data" section?

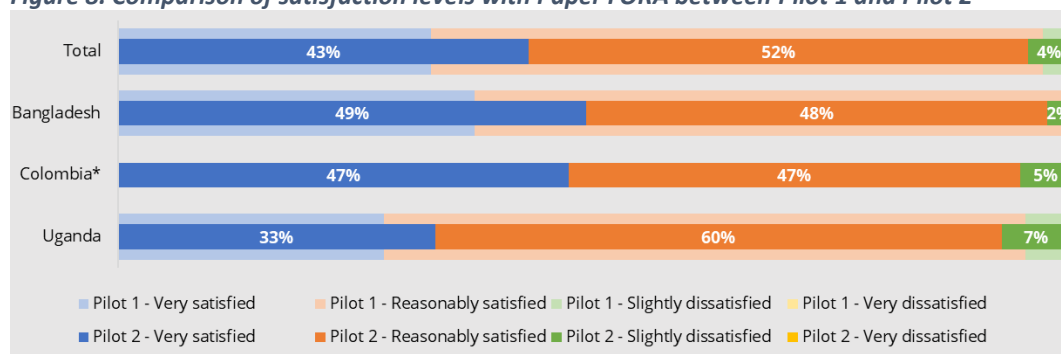


Teachers reported that being able to see progress on their implementation of the FORA in the “My Data” section was encouraging as they participated in Pilot 2.

“It was rather very satisfying to look at the ‘My Data’ section – seeing all the information laid out neatly in one place. It also kind of encouraged me to keep going. Not to mention, this section is very informative and convenient to get a grasp of all the information about my submissions. But with the paper version, I had to go through all the pages if I wanted to take a look.” (Teacher, Bangladesh).

Similarly to the Digital FORA, the revisions and updates to the paper FORA forms also has had an effect with markedly higher numbers of teachers in Uganda and Bangladesh reporting being “very satisfied” with the Paper FORA tools. In Colombia, only a small fraction of teachers used paper tools, and generally, the paper version of FORA was not widely promoted.

Figure 8. Comparison of satisfaction levels with Paper FORA between Pilot 1 and Pilot 2



When asked about the differences in their experiences between the two modalities of using the PALICE tools, teachers shared the advantages and disadvantages of each.

“I found the paper FORA and digital FORA very similar. However, I prefer the app version because when I was administering the tool through the app, I didn’t have to carry anything except my smartphone. – Teacher, Government Primary School, Bangladesh

“Normally one only dedicates oneself to everything written, let's say to use pen, pencil to plan something. This is like a more current tool that welcomes us to the digital, since normally one does not use tools like that for learning” (Teacher DPP211145, 6 to 9 years old, Colombia).

Overall, the success of the digital PALICE app seemed to rely largely on the excitement of teachers about using an innovative, digital tool, whereas the paper version seemed to be a place of comfort for those who were not comfortable with technology in general and more used to keeping paper records. Teachers in Colombia particularly noted the “wastefulness” of the paper FORA forms, noting that using a lot of paper with a separate observation on a separate sheet was creating a lot of paper that may be difficult to keep track of.

“The tool is a bit functional and at the same time is not. Because what I really don't like about the tool is the part of the documentation that we have to fill out because it is a lot of paper that is really wasted” (ISS IPP211143, 3 to 12 years old).

A lesson learned for the PALICE research team was the difficulty of addressing bugs discovered in the process of the pilot once teachers already left the training sites. Despite the relative efficiency of addressing digital issues, it requires an update to the app on each individual device. In situations without easy access to Wi-Fi, this poses a barrier for teachers requiring mobile data to reinstall a new version of the app to debug issues. In the future, mobile data may be needed as part of the logistics of pilot implementation, for each participating device.

For Paper FORA, the visual and esthetic updates to paper forms were well received; however, the printing of forms presents a sustainability challenge for teachers. A more sustainable form may be considered for record keeping in teacher's notebooks, or a laminated sheet that can be reused each academic term.

Some teachers shared that they were happy using FORA Paper as they do all types of schoolwork on paper. Moreover, they claim that paper FORA is convenient, can be filled up easily, everything is organized well on one page and data can be put down manually which is the traditional method. Furthermore, the paper FORA gave the teachers an overall idea of the tool in one page which helped them to set the pre-observations and observations conveniently.

What's really nice about the paper version [of FORA] was that I could see all the items under each of play characteristics on one page. So, it was really helpful for me to set the pre-observation goals and observe the characteristics of the play. Not to mention, I prefer the pen-and-paper method. It simply feels much more organic to me than a digital screen.” (Teacher, Bangladesh)

Record keeping is much better since you can always see what was filled unlike the app where you only see a summary. (Teacher, Uganda)

“I've used both versions [of FORA] and I'd always go with the paper version as it's more natural for me to look at papers for a longer period. In fact, I often felt

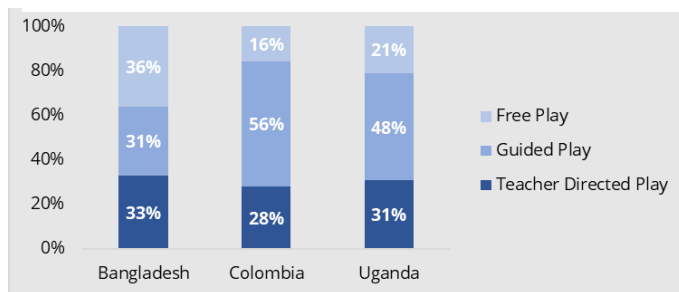
discomfort in my eyes when I was using the app version of the tool.” (Teacher, Bangladesh)

Finally, further digitization of CELP came up as a request in several teacher and ISS interviews. While the current version of PALICE includes a digital CELP triangulation protocol, it currently does not allow for ISS-observed CELP to be entered into the tool digitally

Teacher Facilitation Styles

Across the three countries, users tried out different teacher facilitation styles, with a slight preference for Guided play in Colombia and Uganda. Teachers in Bangladesh were encouraged to use all facilitation styles equally over the course of the pilot, which explains the more evenly distributed responses in the figure below.

Figure 9. Teacher Facilitation styles across the three countries



In general, the distribution of facilitation styles in contexts where traditional didactic teaching methods predominate, as is the case in Uganda, should be interpreted with caution. Country partner experience, as well as visits during Pilot 2 to Ugandan schools implementing the pilot, indicate that the majority of classroom activities, if play or active methods are ever integrated, are

extremely teacher directed. In some cases, free play also takes place, but usually outside the classroom and generally is not part of the learning process.

The concept of learning through play has somewhat of a deeper grounding in Colombia, where play is formally recognized as an important element of instruction at pre-primary levels. This is evident in the comments of some teachers, who wish to expand upon their experience in LtP, moving from teacher-directed towards guided and free play:

“Personally, it has helped me a lot to implement play in my experiences and especially free play and guided play. Because we previously organized and proposed games, but this seems to be directed play, from what we have learned. So, implementing free play and guided play through the FORA platform, has strengthened us a lot and I feel that children like it, they have fun and they have learned in these days the topics that we want to propose with it” (Teacher DPP213115, 3 to 5 years old, Colombia).

Across all countries, teachers noted that more examples and practical activities in LtP would be most helpful to their practice, with particular emphasis to each facilitation style. Teachers in Bangladesh reported that they would like to receive more guidance in terms of activities they could implement under each facilitation style, so they are relevant to the local context:

“As we don’t have LtP activities like these in our curriculum, sometimes it was difficult for me to pick and choose a game for the tool administration. Sometimes, I had to struggle a bit to understand which facilitation style a particular game would fall under. And there are other times, I simply couldn’t think of a new game, which would be exciting for the children. So, it would’ve made my life

a lot easier if a list of games were provided to me along with the tool before the pilot.” (Teacher, Bangladesh)

Teachers in Colombia showed openness to the implementation of free play, yet tend to implement activities in which play is guided or directed, as this quote shows:

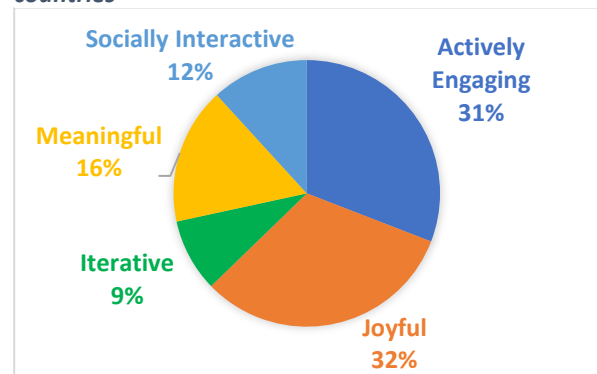
“Sometimes it is good to guide them because leaving them free can turn into something else and I don't know how much they learned (inaudible), sometimes it is good that they are guided, not all the time, but it is good that I am there directing or contributing to them so that they don't lose the focus”. (Teacher, Colombia).

During the course of the in-person visit to Uganda, it became clear that selecting a facilitation style as the first step of the tool administration is difficult for teachers who are not well versed in LtP and do not have a range of LtP activities to draw from for each lesson. Therefore, a future version of PALICE should introduce teachers to different styles of facilitation gradually, starting from teacher-directed and based on their plans for the activity, leading users to guided and free play. See next steps on Digital FORA for more specifics on what this will entail.

Characteristics of Play

When administering the tool, teachers were invited to observe one or two characteristics of play for each LtP activity. Figure 10 presents a distribution of characteristics observed by participating teachers in Pilot 2, across the three countries. As the chart shows, **Actively Engaging** and **Joyful** continued to be the most popular characteristics to observe, while **Iterative** was the least popular. This was true in Bangladesh and Uganda, while **Meaningful** captured as many observations as **Actively Engaging** in Colombia. Discussions with teachers during training and in follow up visits by the teams indicate that **Actively Engaging** and **Joyful** are seen as the “easier” characteristics, with the other ones requiring a deeper level of understanding of the conceptual underpinnings of LtP.

Figure 10. Distribution of the characteristics of play observed by Pilot 2 participants across three countries



Dedicated pages on the [PALICE dashboard](#) (p. 6-7) allow for an examination of behavioral items, by characteristic of play, showing a distribution of the most popular to the least popular, least often selected items. Further, p. 7 of the dashboard presents all items color coded as “Foundation” and “Extension” as they were initially conceptualized in the Learning through Play Experience Framework (PALICE, 2021). Table 5 below provides a quick snapshot of the least and most observed behaviors, as reported in FORA. The item analysis sheds further light on to why **Iterative** characteristic was the least observed across all contexts.

Table 5. Most and least observed behaviors, as registered in FORA during Pilot 2

Country	Most observed item	Least observed item
Bangladesh	Joyful: Extension - Children willingly continued the activity (N=386)	Socially Interactive: Extension - Children took turns, negotiated narratives or rules and settled disagreements during play activities (N=7)
Colombia	Joyful: Extension - Children demonstrated enthusiasm (sustained or moments of enthusiasm) about what they were learning (N=141)	Iterative: Foundational - Children followed and put into practice what the teacher explained Iterative: Extension - Children's play changed based on their own preferences/ideas (e.g., new narratives, new rules, roles or processes) Socially Interactive: Extension - Children took turns, negotiated narratives or rules and settled disagreements during play activities (N=0)
Uganda	Meaningful: Foundational - Children engaged with the skill or concept in the way it was demonstrated (N=145)	Iterative: Extension - Children tried out new ideas within the context of the play activity (e.g., new ways of doing the activity or solving a challenge) Iterative: Extension - Children's play changed based on the preferences/ideas of other children (e.g., new rules or roles) (N=1)
Total	Joyful: Extension - Children willingly continued the activity (N=609)	Socially Interactive: Extension - Children took turns, negotiated narratives or rules and settled disagreements during play activities (N=14)

The PALICE research team reviewed closely at these items, under each characteristic, with an eye towards potential comprehension issues, and revised the wording of these items for the final version of the tools, to be rolled out to other pilots.

In addition to data directly from the database on the FORA use, participants were asked in post-pilot surveys to report where they had experienced difficulties in understanding or observing the behavior items. Overall, a large majority of teachers reported the items were very easy to understand; however,

nearly one-third of teachers in Uganda still reported items as somewhat difficult to understand (Figure 11). Notably, the version of PALICE used in Uganda did not go through translation; rather, the original English language items were used. This may indicate a need to further adapt the wording of the items to Ugandan context, making it sound more familiar to teachers operating with English as an official, but not necessarily first language.

Figure 11. How easy is it to understand the behavior items in the FORA tool?

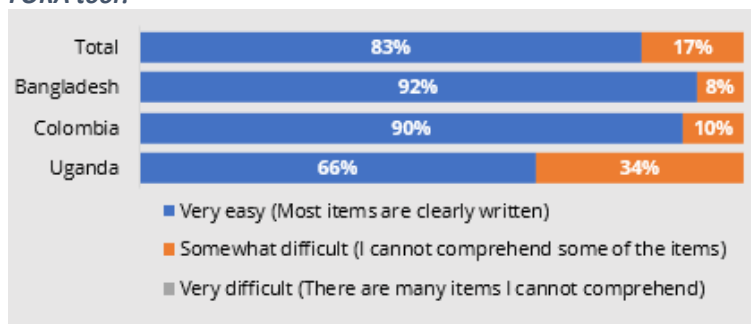


Table 6 presents a list of items that were difficult to understand. Out of 352 survey responses received, the highest number of times an item was marked “difficult to understand or to observe” was from 11 teachers in Bangladesh and Uganda for the Iterative characteristic, “Children tried out new ideas within the context of the play activity (e.g., new ways of doing the activity or solving a challenge).”

Table 6. Items marked as "Difficult to understand or observe" in post-pilot survey for teachers.

Country	Characteristic	Behavior Item	# times selected
Bangladesh	Iterative	Children's play reflected previous knowledge or play experiences	4
	Iterative	Children's play changed based on the preferences/ideas of other children (e.g., new rules or roles)	3
	Iterative	Children tried out new ideas within the context of the play activity (e.g., new ways of doing the activity or solving a challenge)	3
	Iterative	Children engaged with familiar content/ideas/processes	3
Colombia	Iterative	Children's play was repetitive (e.g., children repeated the same actions or sequences of actions over and over)	2
	Actively Engaging	Children engaged with the learning goal in their play	2
	Actively Engaging	Children engaged in the activity but changed to a new unrelated activity quickly	2
Uganda	Iterative	Children's play changed based on their own preferences/ideas (e.g., new narratives, new rules, roles or processes)	8
	Iterative	Children tried out new ideas within the context of the play activity (e.g., new ways of doing the activity or solving a challenge)	8
	Iterative	Children tried out new approaches based on what other children suggested	7
	Joyful	Children demonstrated enthusiasm (sustained or moments of enthusiasm)	7
	Actively Engaging	Children's contributions were used to design or change the activity	4
	Joyful	Children demonstrated enthusiasm (sustained or moments of enthusiasm) about what they were learning	4
	Iterative	Children changed what they were doing in response to teachers' suggestions, questions, or feedback	4

The wording of the items underwent a revision between the two pilots. It must be noted that in many cases, items were not marked because they may not have been observed – as is the case with items under the Socially Interactive characteristic, which focuses on the interaction between students, generally less common in traditional classrooms.

Coaching Feedback

One of the core features of the PALICE tools is the feedback loop between the instrument and the teacher’s practice. Whether it is FORA on paper or digital, or CELP, each tool administration concludes with coaching feedback and opportunity for reflection on the part of the teacher. Feedback is mapped to the behavioral items that teachers did not observe in the classroom, and/or marked as wanting to

improve upon in a future practice. In Bangladesh, teachers paid additional attention to coaching tips related to characteristics of play which they found more difficult to observe. For other characteristics, teachers only needed to see the coaching tips once or twice to benefit from them.

“I didn’t have to use the coaching tips all that often after consulting it a couple of times in the beginning. However, I found some of the tips given in there to be really helpful, especially the ones given for ‘Meaningful’ and ‘Iterative’ characteristics – as I was having trouble observing those characteristics.” (Teacher, Bangladesh).

Teachers in Colombia mentioned that FORA feedback allowed them to recognize aspects that worked well during their LtP activities, but more importantly, it allowed them to identify areas improve and, crucially, how.

“I thought it was very nice (...) because there were some things that I said, “but how can I do it?” and then, I think it’s interesting when the app gives feedback and tips on how one can approach children in certain things” (Teacher, Colombia).

While teachers in Colombia were less likely to rate coaching feedback as extremely helpful in Pilot 2, they were nonetheless most likely to incorporate the coaching feedback into LtP planning across the three countries (Figures 12-14).

Figure 12. How helpful is the feedback provided by the FORA to improving your Learning through Play practice?

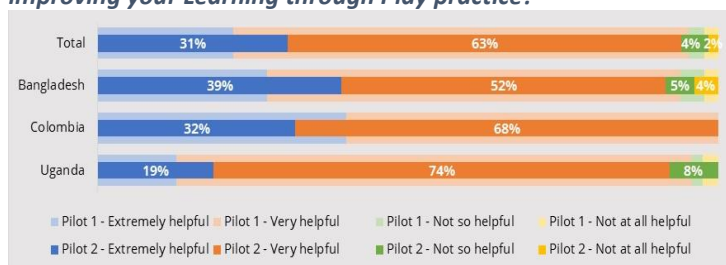
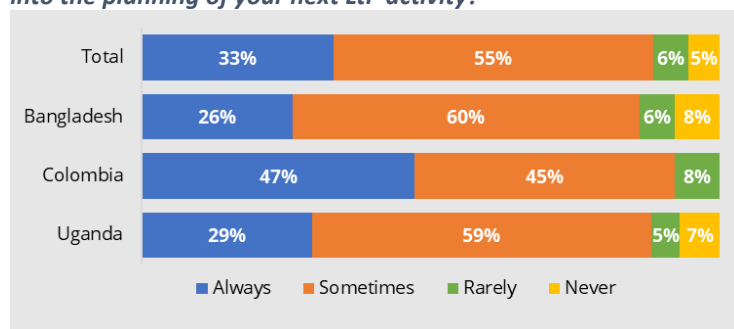


Figure 13. How often do you incorporate feedback from the FORA into the planning of your next LtP activity?

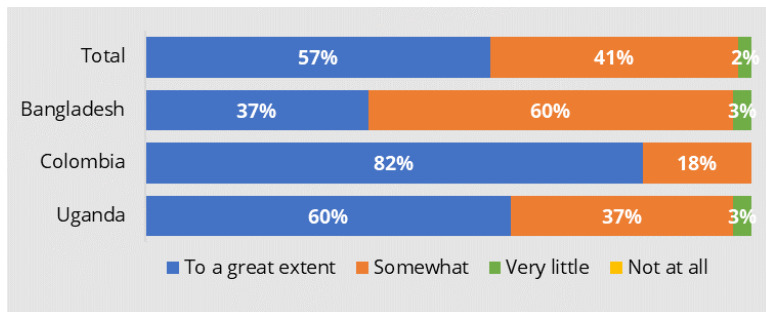


Nearly half of teachers in Colombia reported always incorporating FORA’s coaching feedback in planning their LtP activity while approximately one-fifth of teachers in Bangladesh and Uganda reported always using this feedback.

FORA Feedback

Overall feedback from teachers showed nearly all teachers (92%) reported the FORA tool as making them somewhat interested or interested to a great extent in using Learning through Play in their classroom (Figure 13). Teachers in Colombia were most interested in using FORA (82% being interested to a great extent) followed by teachers in Uganda (60%) and teachers in Bangladesh (37%).

Figure 14. To what extent has using the FORA tool made you more interested in using Learning through Play in your classroom?



In general, coaching tips were one of the most popular features of the digital tool, and many teachers commented in interviews and in qualitative responses on the value that they gained from receiving feedback and suggestions based on their observations and their reflections on what they would like to improve upon.

“I really like the feedback the app gives because in a way it is like looking at what can be strengthened, what can be taken into account in the next LtP activity so that things go better” (Teacher DPP276171, 6 to 12 years old, Colombia).

“I thought it was very nice, I mean, because there were some things that I said, “but how can I do it?” and then, I think it’s interesting when the app gives feedback and tips on how one can approach children in certain things” (Teacher DPP211148, 6 to 9 years old, Colombia).

Yes, the moment the app evaluates me or gives me feedback. It makes me remember that there are things that... some objective that I did not meet. That makes you realize that you must strengthen or not overlook things that sometimes we think that the group has already assimilated” (Teacher DPP2111101, 6 to 12 years old, Colombia).

“When I don’t observe some behaviors in the activity, I refer to the coaching tips I found the coaching tips useful.” (Teacher interview, Uganda)

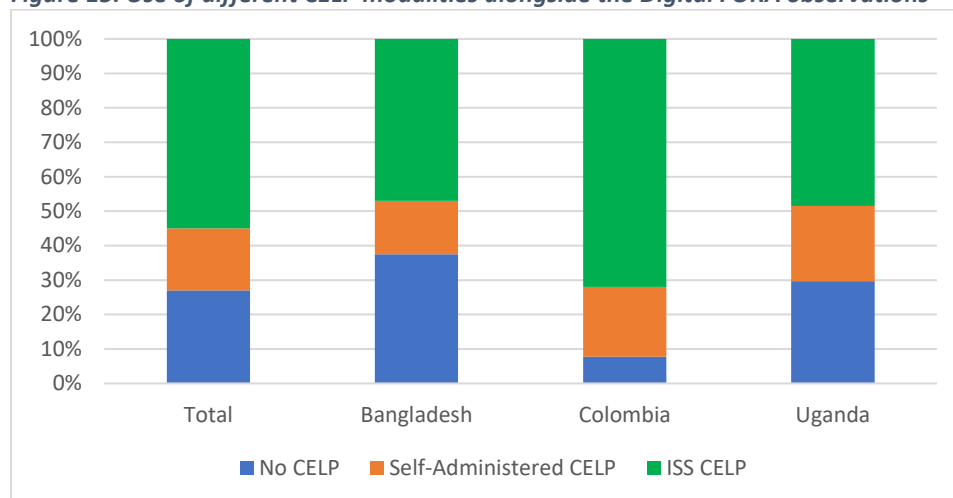
“With the paper version of the FORA, if I wanted to consult the tips, I had to go through the entire document and find the right tips for the right behavioral items. But I really liked how the tips are given automatically after the observations. This certainly was more convenient. (Teacher, Bangladesh).

In sum, the coaching tips were the greatest benefit and selling point of the PALICE tools for teachers who used both modalities but was especially valued by those that used the digital version. Teachers appreciated having direct suggestions for their practice – indicating that the tools were fulfilling their objective as formative tools that teachers can own. The reflective element was further reinforced by the voices of children, captured through the CELP protocol.

CELP

During Pilot 2, as in the previous pilot, research teams could make decisions on whom to recruit for Instructional Support Staff (ISS) role, which carried out the third-party observation and focus group with children alongside a FORA administration by the teacher. In addition, teachers were trained on a self-administered CELP protocol, where teachers use an FGD protocol after their own FORA administration, in their classroom. This was offered in response to the feedback during pretest that CELP was too disruptive and difficult to implement in many regular classrooms, and that there weren't existing practices where such an observation and reflective discussion with an observer could be integrated.

Figure 15. Use of different CELP modalities alongside the Digital FORA observations



As Figure 15 above shows, the majority of digital FORA observations submitted by teachers reflected that someone else had done an observation of the classroom and a focus group with children. However, based on the experience of the Colombia team, only a few ISS were able to administer the CELP protocol, and there was some confusion on how it should have been completed. It is possible that some of the CELP observations reported as administered by ISS were, in fact, self-administered by the teachers. Of the 323 teachers surveyed, approximately 40% of teachers reported self-administering the CELP to conduct focus group discussions with their students (Table 7).

Table 7. Did you use the Teacher CELP integrated into the FORA digital app (i.e., conducted focus group discussions with your students after you applied the FORA)?

Country	No	Yes	Total
Bangladesh	91	39	130
Colombia	54	37	91
Uganda	43	59	102
Total	188	135	323

Only a small number of teachers in Colombia responded to the post-pilot survey question on whether they used the self-administered CELP; among the respondents, roughly 40% of teachers in Colombia did so. In Uganda, it was nearly 60% of

teachers, despite the fact that teachers were paired up to administer the CELP protocol to each other. In Bangladesh, only about 25% of teachers reported conducting discussions with their students, while the rest had an external observer provide feedback from CELP.

Similar to what was observed in the first pilot, teachers and ISS noted the value that the CELP brought to their teaching. Particularly in Colombia and Uganda, some of the teachers who had an ISS observe their class expressed feeling uncomfortable having an observer in the classroom. Despite this discomfort, teachers were overwhelmingly receptive to the children’s feedback collected through the CELP. Additionally, all of them acknowledged that the feedback collected through CELP is helpful for the improvement of teachers’ LTP practice.

The CELP cultivated a practice of self-reflection and evaluation among the teachers. They noted improvement in their lesson planning and an overall improvement in the quality of their teaching.

"It gives me elements for planning and evaluating activities, the tool has given me a slightly different look at everything pedagogical. It has referred me to the importance of play and play in learning. Play is something that we have to keep very present. [It] has made me think a lot about play and the use of materials that we have, and they did not remember that they were in school" (Colombia)

"I learned a new and dynamic way of teaching I could plan an efficient teaching process for my students. Moreover, the teaching process has become easier with both-way participation in the learning process of the children" "(Bangladesh)

"It has improved my teaching." (Uganda)

By and large, the uncovering of children’s perspectives provided a lot of value for teachers that were able to apply the protocol in their classrooms or have an observer ISS provide them feedback based on their discussion with children.

CELP administration by ISS

The ISS-driven administration, where a third-party observer comes into the classroom to support the teacher’s PALICE administration of the FORA protocol, continued to be the main modality on which teachers were trained and encouraged to use. The observer ISS could be a school coach or administrator, or a peer teacher from another primary classroom. The visit began with a discussion with the teacher about their intention for the LTP practice, and agreement on what characteristics of play to focus on, and what teacher facilitation style to select for the focus group discussion with children. Following a photo-elicitation protocol, the ISS would then take photos of the LTP activity, selecting a small group of children to observe. After the activity, the children were asked to share their thoughts on the activity, in response to guiding questions posed by the observer/ facilitator.

As shown in Table 8, there were 101 CELP observations administered by an Instructional Support Staff (ISS) in Pilot 2 (72 in Bangladesh, 21 in Colombia and 8 in Uganda). The overwhelming majority (97%) of ISS in Bangladesh reported applying the CELP twice per week, similar to in Pilot 1. Half of the ISS users in Colombia reported using CELP twice per week followed by one-fifth of ISS reporting using CELP once per week. As only 8 ISS users applied CELP in Uganda, feedback on the frequency of using CELP was more variable ranging from once in the past four weeks to daily (Figure

Table 8. Total ISS observations received

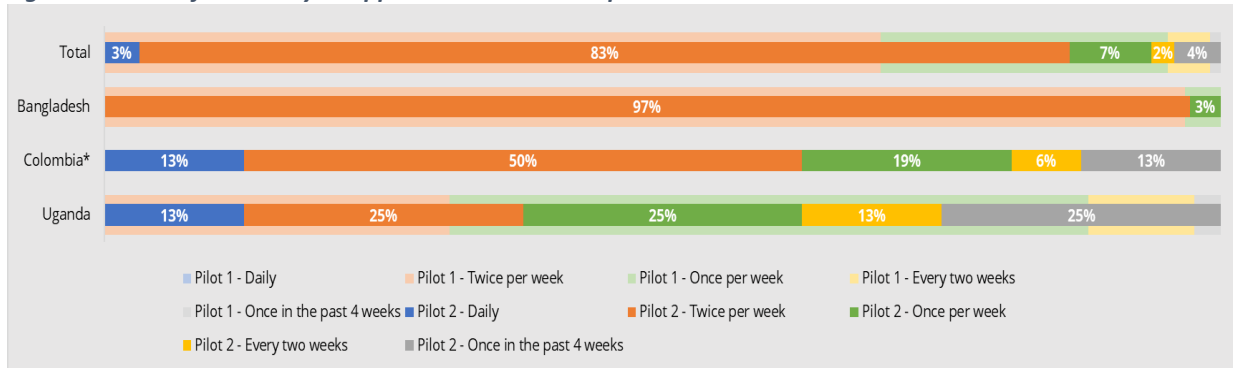
Country	n
Bangladesh	72
Colombia	21
Uganda	8
Total	101

16). Cross-checking observations created spaces for reflection for teachers, which in turn allowed them to plan better lessons.

The [post-observation] conversations I had with my colleagues were always very helpful – both for me and the teacher. These discussions allowed us to cross-check our observations and reflect on children’s perspectives. Essentially, this led to planning better lessons for the students. (Teacher, Bangladesh)

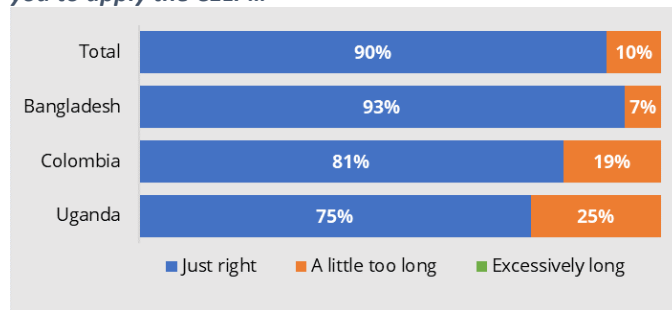
“All [Teacher CELP and ISS administered CELP] are better because when I discuss with the children, I get to know my weakness and strength. And when somebody else comes in, he can also help me. For me, I can ask where I was just targeting, where my objectives are. Another person can come in and bring in other views which I had not known. (Uganda)

Figure 16. How often have you applied the CELP in the past 4 weeks?



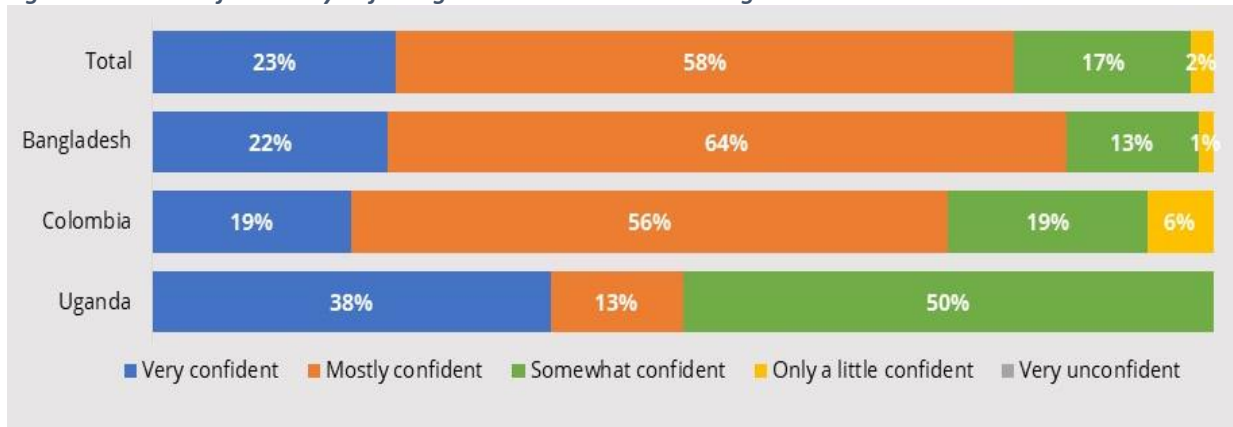
*Note: Insufficient number of observations for Colombia in Pilot 1

Figure 17. Do you consider the amount of time that takes you to apply the CELP...



In terms of the length of time to apply CELP, most users found the amount to be appropriate. ISS users in Colombia and Uganda were more likely to say the amount of time was a little too long. None of the users reported CELP as being excessively long (Figure 17). Most ISS users were also confident in administering CELP though four of the eight participants in Uganda reported feeling only somewhat confident in administering it (Figure 18).

Figure 18. How confident do you feel right now about administering the CELP?



On the question about the CELP content, feedback was overwhelmingly positive. Nearly all ISS users reported teachers were receptive or extremely receptive to children’s feedback collected through CELP. Moreover, all ISS users reported that feedback collected through the CELP to improve teachers’ LtP practice was very or extremely helpful (Figures 19-20).

Figure 19. How receptive are most teachers to the children’s feedback collected through the CELP?

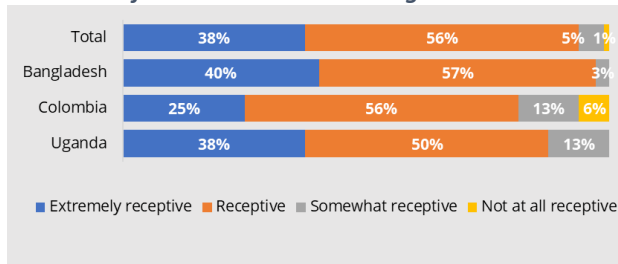
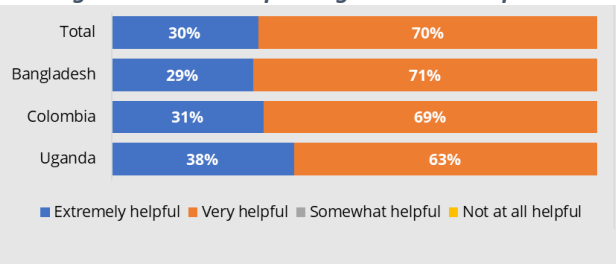
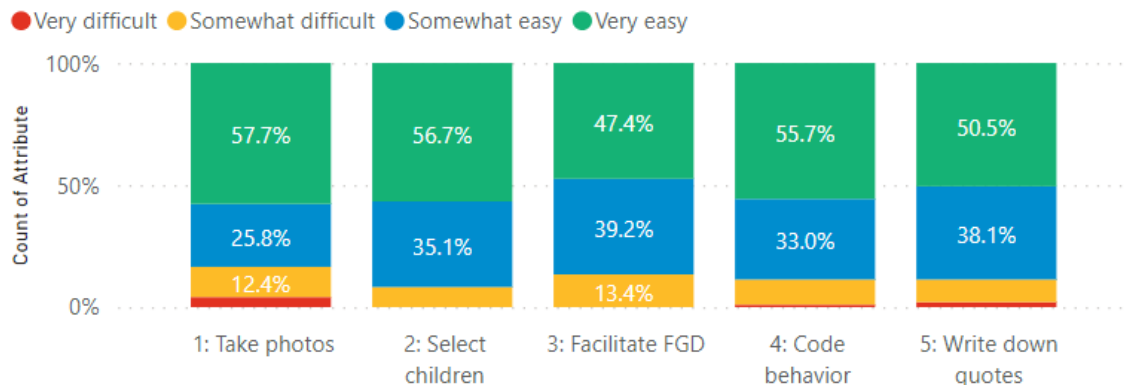


Figure 20. How helpful is the feedback collected through the CELP to improving teachers’ LtP practice?



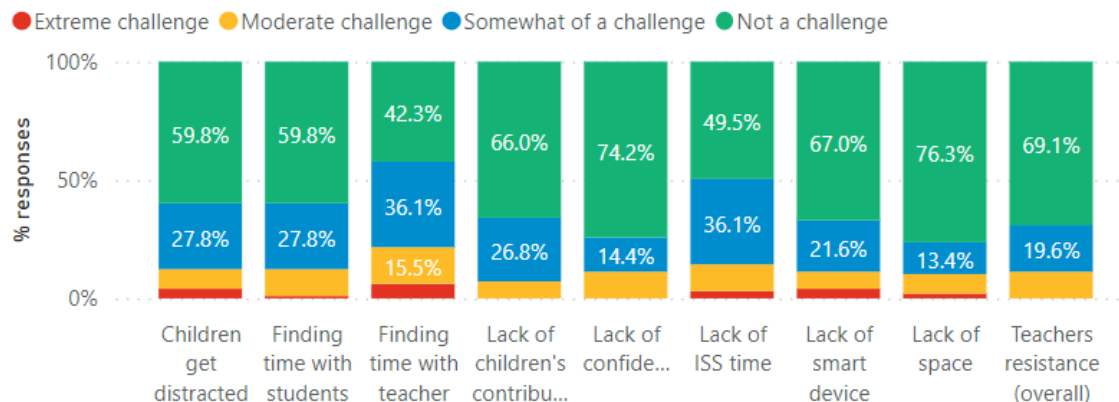
When asked about the level of difficulty in the CELP steps (i.e., taking photos, selecting children, facilitating focus groups, coding behavior, and writing quotes), about 90% of ISS users reported the steps as somewhat or very easy (Figure 21). A few users noted that taking photos, coding behavior, and writing quotes were very difficult. These findings were similar to results in Pilot 1.

Figure 21. How easy are the CELP steps?



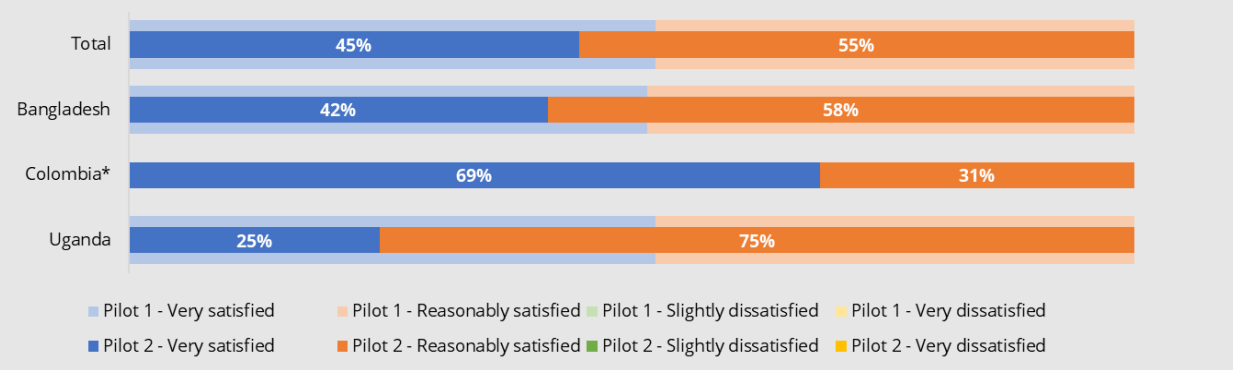
ISS users also reported similar challenges in using CELP from Pilot 1 and Pilot 2. Specifically, the lack of time, either for the teacher or ISS member, were noted as the main challenges in both pilots. Lack of space or confidence in using CELP continued to be the least challenging barriers for ISS. However, teachers' resistance increased slightly from 11% in Pilot 1 to 31% of users in Pilot 2 reporting this as a challenge (Figure 22).

Figure 22. What challenges do ISS face?



Altogether, ISS staff were very satisfied with CELP with all users reported being reasonably or very satisfied with the CELP. While no users reported being dissatisfied with CELP, compared to Pilot 1, the percent of users reporting being very satisfied with CELP declined slightly in Bangladesh and declined by half in Uganda (Figure 23).

Figure 23. Overall, how satisfied are you with the CELP?



*Note: Insufficient number of observations for Colombia in Pilot 1

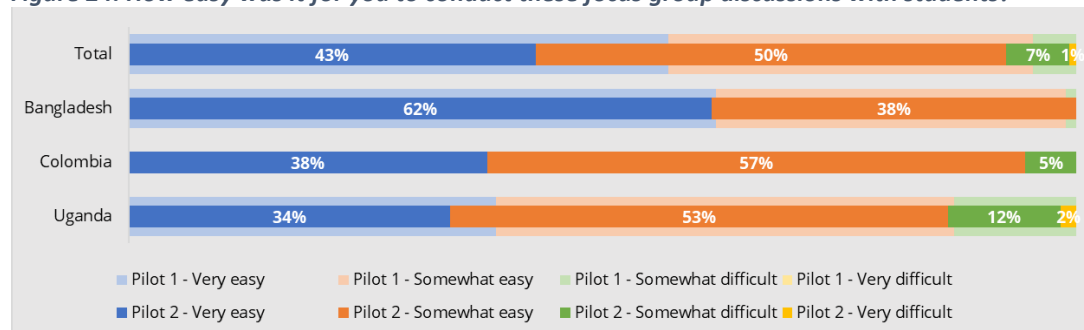
Self-Administered CELP

Many of the teachers who administered the CELP in their own classrooms appreciated being able to get feedback directly from children, without having to have the ISS as an intermediary.

"I found the conversation with the children very interesting because this way I was able to make the connection or find the gap between my observations of FORA and the children's perceptions. Some of the feedback I got from the children was surprising to me and made me realize what things I should notice more during my next FORA observations." (Teacher, Bangladesh)

When asked about the ease of conducting the focus groups, overall teachers in Uganda rated this as more difficult in Pilot 2 than in Pilot 1 while teachers in Bangladesh rated it similarly across the two versions (Figure 24).

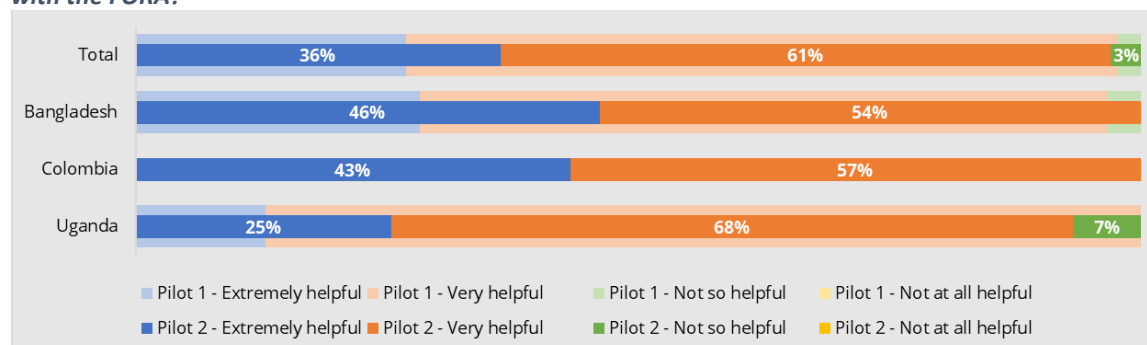
Figure 24. How easy was it for you to conduct these focus group discussions with students?



*Note: Insufficient number of observations for Colombia in Pilot 1

However, when asked about the perspective of children, overall teachers in Pilot 2 rated this as more helpful than in Pilot 1. All teachers in Bangladesh and Colombia rated the perspective of children as very or extremely helpful while one-fifth of teachers in Uganda rated this as extremely helpful (Figure 25).

Figure 25. How helpful was it to have the perspective of children collected through the CELP and triangulated with the FORA?



*Note: Insufficient number of observations for Colombia in Pilot 1

Particularly in Colombia and Uganda, some of the teachers who had an ISS observe their class expressed feeling uncomfortable having an observer in the classroom. Despite this discomfort, teachers were overwhelmingly receptive to the children’s feedback collected through the CELP. Additionally, all of them acknowledged that the feedback collected through CELP is helpful for the improvement of teachers’ LTP practice.

The CELP cultivated a practice of self-reflection and evaluation among the teachers. They noted improvement in their lesson planning and an overall improvement in the quality of their teaching.

"It gives me elements for planning and evaluating activities, the tool has given me a slightly different look at everything pedagogical. It has referred me to the importance of play and play in learning. Play is something that we have to keep very present. [It] has made me think a lot about play and the use of materials that we have, and they did not remember that they were in school" (Teacher, Colombia)

“I learned a new and dynamic way of teaching I could plan an efficient teaching process for my students. Moreover, the teaching process has become easier with both-way participation in the learning process of the children” (Teacher, Bangladesh)

“It has improved my teaching.” (Teacher, Uganda)

Teachers who implemented the CELP themselves also noted the value of triangulating the information from the two tools. As one teacher shared:

“I found the conversation with the children very interesting because this way I was able to make the connection or find the gap between my observations of FORA and the children’s perceptions. Some of the feedback I got from the children was surprising to me and made me realize what things I should notice more during my next FORA observations.” (Teacher, Bangladesh)

Challenges in the implementation of CELP

Lack of time to organize FGD with students and feedback sessions with teachers

As we observed in Pilot 1, in all three countries, ISS identified the logistical challenge of adding the CELP activities to their already busy schedule. The CELP requires ISS to organize a classroom visit with the teacher, attend a lesson, and take photos, organize and facilitate an FGD with students, and organize a feedback session with teachers. On average, the FGD with students took 17 minutes and the feedback session with teachers took 13 minutes. This was within the original time allocations that were built into the assumptions for the design of the CELP. However, the preparation and organization of the CELP can be burdensome given the overall schedule of the ISS, something that was highlighted in the qualitative feedback in the post-pilot interviews.

“I [am] busy with the administrative works beside my regular class as a head of the school. So, time management for CELP administration was difficult.” (Bangladesh)

“Providing feedback to the teacher and discussing together was somehow rushed. I did not have enough time, but she came when she brought it, I talked to her, but we did not go into details because of the time.” (Uganda)

After Pilot 1, teachers requested more guidance on conducting CELP themselves right after the FORA on some occasions to reduce the logistical burden on the ISS; this resulted in us redesigning the Teacher-CELP and providing clearer guidance and data collection protocols for teachers. In Pilot 2, the use of ISS changed depending on the country because of the formalization of the Teacher-CELP. For example, in Uganda, ISS-led CELP decreased from 92% to 25% in favor of Teacher-CELP. Continuing to highlight the value and flexibility of these two CELP options is a way to continue to mitigate the time challenge around ISS facilitation of CELP.

The pressure on ISS could also be an artifact of the pilot process. Because of the short time for testing the tools, ISS were requested to use the CELP as often as possible; indeed, 82% of ISS noted that they used the CELP at least twice a week. If the tools were to move from piloting the tools to regular use, the burden on ISS might be lighter, as they could determine their own frequency of use.

While the inclusion of the Teacher-CELP and guidance on using the ISS-CELP when necessary, could reduce the overall burden on ISS, the challenge is a structural issue rather than an issue with the tool itself; adding any new tool or data collection protocol to the busy schedules of ISS and teachers is prohibitive unless it is woven into their daily routine. Future applications of CELP will need to consider how the tools can be woven into the daily practices and structural components of the work that ISS and teachers are conducting in their context, and where teachers and ISS can both be supported in this practice. This may be done as part of a coaching program, or a peer learning structures at the school level.

Access to mobile devices, digital literacy, and photography

In all three implementing sites, teachers and ISS cited challenges with having access to appropriate mobile devices to take pictures. This was particularly a challenge in Colombia where several teachers did not have an Android OS device or enough memory on it to download the application to conduct the Teacher-CELP. For others, navigating the digital tool was a challenge. One teacher in Bangladesh shared:

*“I am not very tech savvy. I only had problem with operating the touchscreen of the mobile”
(Bangladesh)*

For several teachers and ISS across the countries, the process of taking good photos for the Photo Elicitation FGD was also a challenge:

“The first photos that I took, I discovered that they were faint and what I did was to change position. And in the changing of the position also, it interrupted the children, they were, ‘eh the teacher has a phone and as if he is taking a photo’. So, I thought that was also another challenge to them.” (Uganda)

“Children were running everywhere, and I failed to get good photos. Most of the photos were blur.” (Bangladesh)

The research team tried to pre-empt the issue of photo capture in Pilot 2 (based on feedback in Pilot 1) by asking partners to incorporate more time for practice and including more detailed guidance and examples for photo capture during the training. While the photography issues were not as persistent in Pilot 2 as they were in Pilot 1, the fact that this issue reemerged (along with similar issues related to digital literacy), it is critical that future trainings focus more time on practice. For example, it would be beneficial if ISS could take photos in a real classroom during the trainings and then get feedback from the trainers and peers in their group.

Lack of digital CELP for ISS can be cumbersome

Across the countries, ISS requested a fully mobile version of the CELP. Especially when comparing the ISS-administered CELP to the teacher-CELP, the contrast between the digital and paper versions is clear. ISS shared that the paper version of the tool can be daunting, and clumsy compared to its digital counterpart.

(...) Well, what seems complicated to me, and to all of us who have commented that we are in the role of ISS, is that when it is digitalized, it is much faster for us. Our tool is on paper. So, when one makes many observations, one also has a lot of paper,

spending more time. In short, a series of things that I think it would be worthwhile to think about the possibility of also digitalizing all the observation tools" (ISS, Colombia).

The provision of a digital ISS-CELP was discussed by the design team before Pilot 1. The ISS need to take a photo using a smart device and then show the photos to the children. Because of this, having a digital ISS-CELP would require one of three options:

1. ISS uses two smart devices, one to show the photos to children and one to collect the data in a digital form. This solution is too resource-intensive and was determined to not be viable given that the tools were meant to be used in low-resource contexts.
2. The digital app allows ISS to take photos and then annotate the photos with data so that they can show the photos to children and collect data at the same time on the same device. The design team determined that this was a technically heavy ask that would require considerable resource allocation to develop. It would also require a lot of storage on the smart devices of ISS. Based on these issues, this solution was determined to be beyond the scope of the project.
3. Develop a protocol that does not use photo elicitation so that ISS can use their smart devices to collect data. This protocol already exists—Teacher-CELP. However, we did not recommend ISS using it with children because the ISS may be new to the classroom and not know the children. Literature on photo-elicitation provides a strong justification for it as a methodology to allow children to feel more comfortable in a focus group by allowing them to recall components of the activity by directing their attention toward the photos rather than the ISS. This may not be as much of an issue for teachers who are much more familiar to the children and so can help them elicit their feedback without the use of photos.

Given these technical and methodological constraints, the research team will discuss the feasibility of introducing a non-photo elicitation protocol for external observers in the classroom, with potential exploration through subsequent pilots (as opportunity arises)¹.

Appropriateness of FGD questions for the youngest children

A few of the teachers and ISS noted that some of the CELP questions continue to be challenging for younger age groups.

Some of the children I chose, they could not answer clearly. So, getting a clear answer from them sometimes could be a tug of war. Some others are a little bit shy. (Teacher/ISS, Uganda)

Since I was conducting FGDs with very young children, I had to be really patient to get the responses out of the children. Oftentimes, the children couldn't understand my questions or took a long time to respond. In situations like this, I had to ask the same question over and over again. Other times, they [children] would get so distracted that I'd have to pause the conversation simply to get their attention back. (ISS, Bangladesh)

To address this problem, the research team will consult with colleagues in each of the country teams to identify which FGD questions were the hardest for the younger children to identify. The team will then

¹ The final toolkit includes a cull Children ReAct protocol with photo elicitation, and a non-photo elicitation protocol for teachers self-administration (without an external observer).

consider further revising these questions to make them easier to use with younger children during the FGDs.

Adaptations for the Final Version of PALICE tools

Following the completion of the second pilot, the PALICE research team embarked on a series of final revisions aimed at taking the learning from the two pilots and applying it towards greater usability of the tools. These include the following:

Digital and Paper Tools

Rebranding the tools. While the abbreviations FORA and CELP have worked for the pilot phase of PALICE, the toolkit needed a more easily accessible and intuitive name, that would convey the meaning of the tools and make it easy to search and find it in a digital library. The research team explored different options that will be easy to pronounce and translate in different languages, and settled on *Teacher RePLAY*, which is a catchy and playful name that is easy for teachers to remember and refer to, even without translation. The FORA and CELP tools will be integrated as part of a single whole, and marketed as such to prospective users, with the FORA observation section labeled as *Record*, the reflection section remaining as *Reflect*, the My Data section labeled as *Results*, and the CELP module integrated under the label *Children ReAct*.

Revisions to the items. A number of items, both behavioral and coaching tips, were revised to ensure comprehension and simplicity of use. Additional behavioral and practical examples will be solicited from each country team to include in the range of coaching tips offered by the toolkit.

Rewiring the logic of teacher facilitation styles. Rather than having teachers select a facilitation style – teacher-directed, guided, or free play – the digital tool asks teachers questions about their intended practice. Based on the answer to the question, the user is funneled to the appropriate PALICE protocol. Teachers with less experience with LtP will receive guidance during the training to start with teacher-directed play on both the paper and digital tools, and gradually move towards other forms of LtP facilitation.

Transitional page to introduce teacher facilitation styles and characteristics to the Paper tool. While the digital app had an intention setting step where the teacher had to select their facilitation style, the paper tool immediately started with the forms structured by facilitation style. This was addressed in the final version of the paper tool, which now includes an intermediate page describing the facilitation styles and the characteristics and inviting teachers to choose what they would like to focus on during their LtP activity.

Multiple users per device for the Teacher RePlay app. The final version of Teacher RePlay app allows for multiple users on the same device to create their own profiles and use the device for observations within their profile. Each independent user will have their own *Results* aggregation within their profile and continue to track their own progress while sharing a device with their colleague.

Planning multiple observations ahead of time. The *Results* page allows users the possibility of browsing their records by date and type of activity observed. A number of teachers have asked for a possibility to

plan their LtP observations ahead of time, setting an intention for several different practices, allowing them to save time during the actual activity. This option is enabled for a final version of PALICE.

Generating printable versions of observations. Some teachers have expressed a desire to share their observations with colleagues or superiors, to provide evidence of their own progress in LtP. This feature is enabled in the final version of PALICE, with a short report available as a PDF for download, save, and potential email or messaging app sharing.

Children ReAct. Following the pilot, Children ReAct was fully integrated into the Teacher RePlay toolkit, as a module that allows for focus group discussions with children, with or without photo elicitation. The revised version has clearer wording and is laid out in a similar look and feel as the main Teacher RePlay toolkit.

iOS and web versions of Teacher RePlay. Following completion of the latest round of revisions to the PALICE tools, the team will render an iOS and web version of the *Teacher RePLAY* app.

Reflections on Future Use

The two PALICE pilots were useful demonstrations of the power of the formative tools for motivating and exciting teachers to engage with and reflect on their LtP practice. A number of considerations must be taken in order to take these tools truly to scale within the context of Global South programs interested in expanding Learning through Play:

Videos for training. As many teachers have noted, current training does not provide enough practical examples and fully unpack the conceptual elements of PALICE, including the teacher facilitation styles and the five characteristics of play. Creation of contextually grounded, specific examples shown on video, alongside examples of how a particular LtP practice would be coded, would be of utmost value during training and as a resource teachers can use as refreshers. These will need to include both full length videos of class activities (up to 20 minutes) and shorter clips focusing on specific elements of an activity.

Modular approach to training. As training in each country continues to vary in length and depth, a modular approach to training, with separate elements (modules) will continue to be the modality in which training will need to be offered to programs. In addition, a more in-depth module on the essence of Learning through Play, particularly in the words and practice of teachers in the Global South, will be important in introducing new cohorts of teachers to the tools.

Self-paced training. In some contexts, it is feasible for teachers and ISS to follow training remotely or at their own pace, or to mix self-paced learning with a workshop in person with their peers. A future version of the PALICE tools will need to incorporate the option of a self-paced course, using one of the existing platforms for e-courses.

Situating the tools within LtP capacity building programs. The pilots showed that offering the tools in isolation from a comprehensive training and professional development program on LtP has its limitations. Teachers are not sufficiently prepared to fully benefit from the tools, and require substantial coaching and support, that the PALICE partners were able to provide to a limited extent.

Truly grounding these tools within an LtP program would allow teachers to internalize the philosophy of LtP while continuously drawing on an instrument that allows them to reflect on their own practice.

Translating the tools. Translation and contextualization are essential elements of adapting the PALICE tools. Investing in adaptation to several core languages would be a wise contribution towards future uptake of the tools.

Continuous contextualization. The PALICE tools have the potential to be used indefinitely, IF new content – such as coaching tips and suggestions – are provided anew, on a regular basis. If the tools were fully embraced as part of the LEGO Foundation’s offering to its partners, a continuous flow of coaching tips could be rolled out to teachers that are already using the tools.

Aggregating observations on Paper PALICE tools. The paper version of the tools should allow for the same kind of aggregation as is allowed by the digital tools. A future version of the Paper PALICE tools may need to include a chart that teachers can replicate in their own notes, that will allow them to track the number of observations completed, the codes for reflecting coaching feedback, and noting the characteristics of play observed.

Exploring the effect on teacher practice. The validation pilots did not allow for an in-depth exploration of how the use of PALICE tools over an extended period of time may affect teacher practice – whether or not regular use results in greater mastery of LtP, and better outcomes for children. Additional research, if the PALICE tools were integrated into programs, may allow to better link formative tools with observational classroom-level instruments, and ultimately, with children’s experiences of LtP.

In sum, the development and empirical validation of the PALICE tools indicated **that the tools can be powerful in stimulating teacher reflection and introspection, as well as their ability to see and understand the children in their classrooms.** It is important that this opportunity not be missed – and that teachers be provided with more agency and more independence in choosing their pathways towards LtP. If situated within programs that support teachers in deepening their practice in LtP, and continuously enriched with practical examples from their contexts, the PALICE formative tools can truly create transformational change completely owned by teachers – and therefore, with much greater potential of lasting impact on the learning experiences of children, than a traditional set of summative or evaluative tools.