Lego Creative Solutions
Process Evaluation - Detailed Report

Presented to: Learning Equality, Hopelink Action Foundation Uganda, Amal Alliance

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Innovations for Poverty Action

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Executive Summary

This Process Evaluation (PE) assesses progress against the early steps in the theory of change (ToC) for Learning Equality, Hopelink Action Foundation Uganda and Amal Alliance's "Flying Colors" program **to identify what elements of the program are being implemented successfully as expected, and which ones need further iteration and refinement.**

The PE's main objective is to serve as a tool to support program learning during early stage implementation. The findings are intended to support decision making to iterate and refine each innovation within the program. To do so, the PE focuses on measuring the program's assumptions, outputs, and early outcomes, such as knowledge, skills, or attitudes that are expected to change in the short term. As final outcomes or impact are most credibly measured when experimental design is incorporated, the PE does not aim to measure final outcomes or impact (e.g children's learning levels). It focuses on early signs of positive trends, trajectories and risks that pose great opportunities and risks for an innovative program model.

The PE is structured around three evaluation criteria, specifically tailored to the purpose of the Creative Solutions initiative. Each of these criteria is tied to sub-criteria evaluation questions, listed below and further analyzed through partner-specific indicators detailed in the report:

Evaluation Criteria	Description	Sub-criteria evaluation questions
1. Relevance	Targets an important and demonstrated constraint for vulnerable out-of-school children's (OOSC) access to educational opportunities in refugee contexts	To what extent is there evidence of this being an important need in the community?
		Is the intervention model appropriate to respond to the identified need?
		If relevant, do the project's targeting criteria allow to reach the group that needs the intervention the most in the community?
2. Results	Delivers essential outputs at high quality	Has the pilot produced measurable outputs?
		How satisfied are the participants with the intervention?
	Achieves immediate and early outcomes	Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the interventions?

Evaluation Criteria	Description	Sub-criteria evaluation questions
3. Sustainability and Scalability	Sustainability: Intervention's expected effect on early or later outcomes is feasibly sustainable on the beneficiaries in this context, particularly through continued implementation	Does the program show promise for providing persistent benefit to the community through pathways to continued implementation after the intervention is done?
	Scalability: Intervention has a reasonable pathway to scaling to greater reach	Is the intervention scalable to greater reach based on technical, administrative, and human resource requirements?

To illustrate what the findings imply for a given area of the program or intervention, the process evaluation used a traffic light system to score each of these criteria and sub-criteria questions, and represent how much adaptation may be required for the different program elements to be ready to be replicated towards scale:

Green	Few or no adaptations to address potential risks are suggested
Yellow	Some adaptations to address potential risks are suggested
Red	Significant adaptations to address potential risks are suggested

The tables below present the summarized results of the PE at the criteria and sub-criteria level, with color coding corresponding to the scale described above for scoring. Each of the sub-criteria is linked to the corresponding section within the report, where the specific key findings and indicator results can be referenced for further details.

CRITERIA 1: Relevance

Few or no adaptations to address potential risks are suggested

1.1. **To what extent is there evidence of this being an important need in the community?**	**1.1. Few or no adaptations to address potential risks are suggested** The needs scoping exercises confirmed that prospective learner challenges are aligned with the program's theory of change. The following conditions are especially relevant: ● **Enrollment/retention challenges**: School dropout rates are high in the region (9%) and higher in the four selected schools where the program is implemented (20%). ● **Students SEL needs:** Over 50% of prospective refugee learners at baseline encountered challenges in establishing social connections. While over half of the refugee learners responded positively on their grasp of other social emotional competencies, in all instances this was systematically lower than host community learners. ● **Academic needs aligned with Flying Colors design:** Incoming learners to the program demonstrated under-developed numeracy and literacy skills during baseline assessments. ● **Facilitators' Skills for Context:** Facilitators perceived gaps for educating in this context, especially in *understanding out-of-school and refugee needs* and *operating in a multicultural context*. Facilitator Needs Assessments surveys, performed before implementation, identified low-to-moderate need for capacity building as helpful to support play-based learning and understanding SEL needs of learners.
1.2. **Is the intervention model appropriate to respond to the identified need?**	**1.2. Few to some adaptations to address potential risks are suggested** Existing research for Ed-Tech education programs with SEL integration in emergency settings is limited and shows mixed results, although the Flying Colors program implements practices associated with promising evidence over integrating play-based learning. Facilitators are attempting to adapt to learners' linguistic challenges. ● **Ed-Tech and SEL:** Despite mixed evidence with regards to both Ed-Tech and SEL programs in emergency settings, the Flying Colors program design is aligned with promising practices prevailing in both fields. In a previous pilot in Bangladesh, with refugee and host community children, findings point to a 16.5% increase in the SEL skills of the children following exposure to Colors of Kindness; similarly, in Greece, the EASEL Lab of Harvard Graduate School of Education identified a statistically significant increase in the development of SEL skills seen in children. Despite these increases, without a counterfactual, it is not yet conclusive how much of these increases can be fully attributed to the program. Comparably in Uganda, training and coaching methods intended for Flying Colors have also been found to improve delivery of SEL and Ed-Tech. ● **Blended Learning's Role in Ed-Tech:** Trends in the literature indicate that tying Ed-Tech with face-to-face instruction is a consistent enabling factor for linking to student learning outcome improvements. This blended learning approach is core to Flying Colors. Further dedicated research is needed for the refugee-specific contexts to determine its efficacy. ● **Play-based Components in learning and development:** Literature indicates that play-based activities can be beneficial to help refugee learners better interact with peers, through enhanced coping, communication and relationship building skills developed. Several studies identify associations in children who were exposed to play-based learning methodologies and positive effects in literacy, numeracy and SEL development. ● **Linguistic Barriers:** Facilitators perceive that some learners continue to face linguistic barriers, especially with the English language content. This is partly addressed in facilitators' employed mitigation strategies, but limited by government restrictions on language of materials. Tailored approaches to cohorts with more challenges in comprehension, promoting peer-learning approaches further, exploring methods to accommodate learners with a local-language barrier with peers and their facilitators, and continued adjustment of multimedia content to become more

	localized, simplified and engaging for learners.
1.3. Do the project's targeting criteria allow it to reach the group that needs the intervention the most in the community?	**1.3. Few or no adaptations to address potential risks are suggested** The program targeted learners who were out of school and above the age threshold for P3 and P4. It was successful in registering more than the targeted number of students who met this criteria. ● **Targets Exceeded:** Cohort 2 enrolled 266 learners against a target of 250 ● **Importance of community support:** Initial self-enrollment in cohort 1 was lower than expected, but iteration on the approach to include community mobilization and sensitization of age eligibility led to improved enrollment in cohort 2.

Relevance: Implications and Next Steps Identified:

On reflection of the key findings, Learning Equality, Hopelink Action Foundation and Amal Alliance have identified the following opportunity areas to be administered in future iterations of the model, which have scope to improve the program's relevance for its context

1. Flying Colors will seek opportunities for continued advocacy for a slower transition from mother tongue to English language instruction for primary school learners and in particular in refugee-specific contexts.
2. Beyond this pilot, Flying Colors will continue to contribute to the research and evidence base on the need for SEL and Ed-Tech in refugee-specific contexts, and what works.

CRITERIA 2: Results

Some adaptations to address potential risks are suggested

2.1. Has the pilot produced measurable outputs?	**2.1: Some adaptations to address potential risks are suggested** The program demonstrated positive outputs in facilitator training attendance, learner attendance, presence of teaching materials, and consistently functional hardware. Learners show encouraging signs of engaging with the Flying Colors' Kolibri Ed-Tech platform with minimal assistance. Future iterations can improve facilitator classroom observation support and slight improvements in student independence in Kolibri and community engagement. ● **Learner attendance high:** Learner attendance was consistently high, with over 75% attendance in almost all Kolibri sessions. ● **Resource, Hardware Available:** All complementary learning materials to administer Flying Colors delivery were present by the end of the program, with only some missing headphones sets. ● **Learners' foundational familiarity with Kolibri Ed-Tech:** Two-thirds of observed sessions identified independent learner navigation of Kolibri, Flying Colors' Ed-Tech platform. In a live demonstration, 80-85% of students displayed skill to navigate content beyond logging in, factoring in minimal assistance from the facilitators. Scope exists to identify how further independence among learners can be achieved. ● **Community/Government engagement needs attention:** Attendance of the student end-of-cohort showcase fell below target levels of 200 community members and 20 government stakeholders , with 93 and 17 community and government members respectively in attendance. The timing coincided with a peak farming season and other conflicting events, which may have reduced engagement. ● **Facilitator Support:** 8 program facilitators were not observed as frequently as intended, at an average of 2.4 visits per facilitator, falling short of the targeted 5 observations per facilitator, limiting the opportunity for providing feedback on facilitation.
2.2. How satisfied are the participants with the intervention?	**2.2: Few or no adaptations to address potential risks are suggested** Facilitators reported high levels of satisfaction with the training content, timing, and pace. ● **Training timing and pace:** Facilitators were broadly satisfied with the pace of facilitator training and its timing. ● **Training content:** Facilitators reported positive attitudes regarding the training content on SEL, playful learning, and blended learning. All facilitators responded to the teacher-endline feedback survey agreeing that the training content was helpful to them.
2.3. Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the interventions?	**2.3: Few to some adaptations to address potential risks are suggested** The implementation of the program shows positive signs of practices aligned with Flying Colors' pedagogical approach and attitudes of facilitators in the schools. The following are among the most relevant changes: ● **Sessions frequency:** Sessions were delivered regularly in most schools averaging 2.5 sessions weekly against the targeted 2, with one school less consistent than the remaining three. ● **Facilitators Adopting the Ed-Tech component:** Facilitators were consistently employing Kolibri during Flying Colors sessions. Despite increased confidence with technology, facilitators highlighted challenges around troubleshooting, implementing learner differentiation via the platform's coaching tool and accommodating differences in learners' competencies to use the platform, which may have affected some teachers' ability to make full use of the technology.

	● **Quality of Sessions:** More than 70% of partner observations of Flying Colors sessions met an 'excelling' standard. ● **Attitudes to SEL, Blended Learning and Flying Colors:** Facilitators perceive great value in the SEL component as it addresses challenges related to the trauma that have affected the students and have overall positive attitudes towards Blended Learning and Flying Colors.

Results: Implications and Next Steps Identified:

On reflection of the key findings, Learning Equality, Hopelink Action Foundation and Amal Alliance have identified the following opportunity areas to be administered in future iterations of the model, which draw on key learnings of the early project results observed

1. In future student showcases, we can consider hosting them on multiple days and/or ensuring there are no other major community events or peak farming season going on simultaneously that may limit barriers to community and government members attending. In the future, with additional budget, we can also consider allocating additional resources to community mobilization efforts ahead of the showcase events.
2. Through the implementation of this project, we realized that we needed to recruit staff with more skills and experience in formal classroom observations. Moreover, due to health issues and competing MEL responsibilities, our observers were unable to conduct as many observations as intended. In the future, budget permitting, we will try to hire additional staff with the requisite experience necessary.
3. Given that one school had a slightly lower number of sessions per week than expected, in the future we will use the Kolibri Data Portal to monitor implementation more closely alongside Weekly Implementation Logs, and work with technical support staff to conduct site visits and 1-1 teacher support where gaps are identified.
4. In order to troubleshoot tech-related issues, we can try to encourage more visits by HAF's tech support personnel. In addition, we can encourage that person to be in a WhatsApp group with teachers to answer any time-sensitive questions easily.
5. In the future, we would like to introduce more of the coach tools on differentiation earlier in the program, and offer more guided practice. The LE Product team is also reviewing feedback in this area to identify potential improvements to the coach tools to better enable differentiation, such as automated grouping of students, which may be triaged into a future release.

CRITERIA 3: Sustainability and Scalability

Some adaptations to address potential risks are suggested

3.1. **Does the program show promise for providing persistent benefit to the community? (after the intervention is done)**	**3.1: Some adaptations to address potential risks are suggested** There was a strong desire from some facilitators to continue teaching approaches of Flying Colors in the future, including play and SEL elements. However, school leadership perceived some barriers to continued application of Flying Colors programming beyond the pilot if there were no further external programmatic support from the implementing partners. ● **Moderate likelihood of continued hardware usage:** School leadership perceived logistical barriers to continuing use of, and wider scaling of tablet and solar panel use, such as power source reliability, theft prevention, and maintenance. The implementing partners note that many of these are factors that are taken into account in the current implementation, so next steps could include planning for integration of those hardware management components into standard school management practices with school leaders to ensure sustainability beyond direct implementer involvement. In addition, Head and Deputy Headteachers perceived that training more teachers within implementation schools to use the technology, providing additional tablets, ensuring reliable power sources, protection against theft/damage, and maintenance could support continued use of the hardware beyond the pilot implementation period. ● **Continuation of the software-based curriculum:** School leaders shared perceived concerns about future use of the Flying Colors curriculum and would need sensitization to better understand the experiences of the students and teachers before supporting integration into mainstream education plans for longer term benefits.
3.2. **Is the intervention scalable to greater reach based on technical, administrative, and human resource requirements?**	**3.2: Some adaptations to address potential risks are suggested** Many components of the program have strong knowledge management for replication and local stakeholder support for continuation and adoption in scaled form. To facilitate scalability, future iterations of the program will need to address open challenges related to resources, funding and infrastructure needs for implementing Flying Colors in more schools. ● **Program Knowledge Management:** Flying Colors training materials are developed and available for use by the partners, facilitating the expansion of both the Kolibri Ed-Tech toolkit as well as the Colors of Kindness curriculum elements of the program. These materials will be included in the Kolibri Edtech Toolkit with an open license to support its reuse without cost and ability to be contextualized following additional inputs by the Kolibri community so they can be accessed by wider stakeholders. Intentions are present to engage local stakeholders to use these materials in future iterations of Flying Colors. ● **Infrastructure and Funding Challenges to Scaling:** Despite local support for the Flying Colors program, there are concerns about 1) availing sufficient funding for scaling hardware components of the program into new schools and 2) the quality of general schooling infrastructure across the schooling system in similar contexts required to deliver the program with quality. It is worth noting that the Partner has limited agency on solving some structural issues, including who should bear costs for upgrading regular schooling infrastructure; these are important considerations however to raise given the intended model of Flying Colors being heavily tied to the use of technology assets. ● **Alignment of Flying Colors components with Government Policies:** Existing government strategies and priorities align with the program design in terms of equitable access to education for disadvantaged groups, importance of SEL in these contexts for wellbeing and education delivery outcomes, incorporating play as a strategy. Proof of an abridged curriculum by the government due

	to Covid-19 shows alignment with the priority to accelerate education for those who missed schooling years.

Sustainability and Scalability: Implications and Next Steps Identified:

On reflection of the key findings, Learning Equality, Hopelink Action Foundation and Amal Alliance have identified the following opportunity areas to be administered in future iterations of the model, which may support the program's viability to remain sustainable and progress to scale:

1. The program will continue to monitor the usage of the existing hardware to assess its sustainability. To date, only the headphones needed to be replaced, and we had initially only purchased cheaper headphones due to budgetary constraints. If there continues to be ongoing use of the devices with limited issues, we will add the hardware identified to the Kolibri Edtech Toolkit to ensure others know that this is a sustainable solution. We will also add in a description of the hardware setup, including storage containers and solar panels, to support setting up new hardware in schools.
2. Beyond this, the program will continue to seek additional funding for sustainability in Palabek and scalability in other localities. When considering scaling, Implementing partners will be supported to lower costs by identifying schools with existing hardware infrastructure that can be leveraged.
3. Alongside of this, the educators will be engaged in an East Africa Community of Practice of educators to ensure ongoing development and support related to blending technology into the learning environment with Kolibri that is no- to low-cost. (This CoP has already started.)
4. The program will continue to build on the initial buy-in from the Office of the Prime Minister (OPM) and other interested community and government parties by inviting them to observe Flying Colors classes and encouraging them to see the curriculum, explore the Kolibri platform, and talk to the teachers, students and parents engaged. In future iterations, we will also invite headteachers and deputy headteachers to participate beyond the initial training, such as attending additional training sessions and participating in classroom observations. This will also ensure stakeholders, such head teachers, deputy heads and government actors have a good understanding of the model and its core components (specifically touching on points of confusion from the pilot such as that solar panels were installed in each of the schools, that the program supports digital safety as here is no need for the Internet so learners aren't able to access inappropriate content on the Internet; etc.).

Introduction

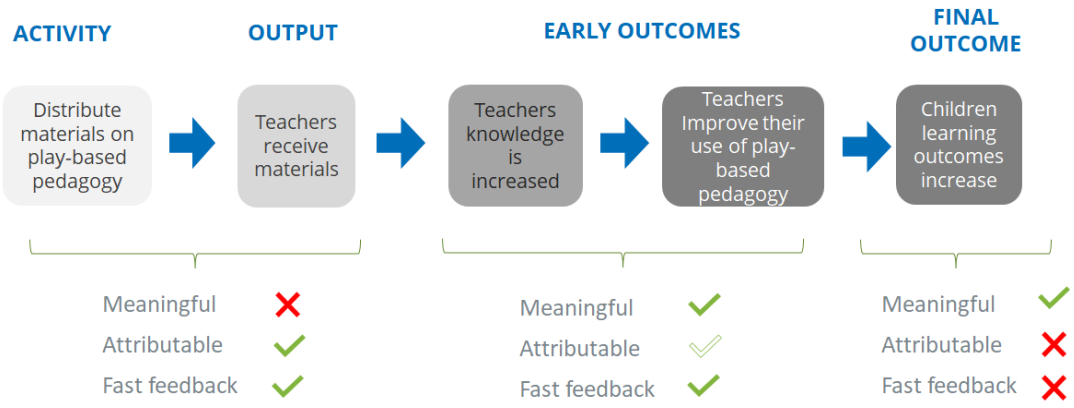
This document presents the results of a Process Evaluation (PE) carried out for the program **Flying Colors** by Innovations for Poverty Action (IPA)**.** Flying Colors is implemented by the partner consortium of **Learning Equality, Hopelink Action Foundation (HAF) and Amal Alliance** and it is funded by LEGO Foundation as part of the Creative Solutions initiative.

The Creative Solutions initiative supports implementing partners to test scalable non-formal and informal education innovations that aim to improve access to educational opportunities for vulnerable refugee and host community out-of-school children (OOSC) at primary school level. The programs supported, including Flying Colors, were encouraged to test out new ideas or interventions that have not yet been implemented and to actively learn and embrace challenges as an opportunity to iterate.

Goal of the IPA Process Evaluation (PE):

The PE assesses progress against the program's theory of change and evaluation criteria targets to identify what successes should be replicated towards scale and what aspects need further iteration. This analysis aims to guide what the next stage of implementation and learning progression might look like to advance or refine each innovation within the program.

IPA's PEs aim to measure progress along the theory of change by measuring outputs but also changes on early outcomes. IPA defines early outcomes as knowledge, behaviors, skills, or attitudes that are expected to change in the short term as a direct result of program outputs.



This PE does not aim to go further than early outcomes to measure final outcomes (e.g children learning levels), because there are many factors that could greatly influence these later outcomes, requiring a more rigorous method with a control group, such as a randomized control trial (RCT), to be confident that effects observed changes are at all attributable to the program. RCTs and similar studies are still an important tool but require larger scale investments and are therefore better suited once an intervention has been refined enough to ensure that it is at least generating its intended early outcomes.

Ultimately, this PE aims to be a useful tool to identify activity design and implementation challenges that represent a risk to the program's theory of change in its earlier stages. The program will be unlikely to achieve any final outcomes with these early links broken, as they often are in initial pilots, so these are critical to identify and address in a program's path to scale.

Scope of the Process Evaluation

The PE covered three evaluation criteria, as detailed in this PE Matrix: 1) Relevance, 2) Results, and 3) Sustainability and Scalability. Within each of these, IPA and the Flying Colors team aligned on sub-criteria evaluation questions, listed below.

Evaluation Criteria	Description	Evaluation questions
1. Relevance	Targets an important and demonstrated constraint for vulnerable OOSC access to educational opportunities in refugee contexts	1.1. To what extent is there evidence of this being an important need in the community?
		1.2. Is the intervention model appropriate to respond to the identified need?
		1.3. If relevant, do the project's targeting criteria allow to reach the group that needs the intervention the most in the community?

2. Results	Delivers essential outputs at high quality	2.1. Has the pilot produced measurable outputs?
		2.2. How satisfied are the participants with the intervention?
	Achieves immediate and early outcomes	2.3. Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the interventions?
3. Sustainability and Scalability	Sustainability: Intervention's expected effect on early or later outcomes is feasibly sustainable on the beneficiaries in this context, particularly through continued implementation	3.1 Does the program show promise for providing persistent benefit to the community through pathways to continued implementation after the intervention is done?
	Scalability: intervention has a reasonable pathway to scaling to greater reach	3.2. Is the intervention scalable to greater reach based on technical, administrative, and human resource requirements?

This led to a collaboratively defined set of program-specific learning questions and indicators, along with indicator-level targets.

Process Evaluation Results Analysis

To understand what the findings imply for that area of the program or intervention, the evaluation uses a traffic light system to score each of the criteria, where:

- RED means that significant adaptations to address potential risks are suggested
- YELLOW means that some adaptations to address potential risks are suggested, and
- GREEN means that there are no, or very minor, adaptations to address potential risks are suggested

The PE followed a three-stage process led by IPA, with substantial contributions and collaborations from the implementing partner:

1. **Evaluation Design:** IPA designed a process evaluation matrix in collaboration with the implementing partner to build out the specific measurement of the evaluation questions and sub-criteria, referencing the program's Theory of Change and learning/MEL plan. The matrix contains learning questions relevant to each of the three evaluation criteria and focuses on different program elements that are crucial for the performance of the model. Each learning question is matched with at least

one indicator and a target value/condition to provide an indication of how well these program elements are working against desired levels.

2. **Data Collection:** Each indicator was measured using quantitative data, qualitative data, or mixed methods. These were collected by IPA, the implementing partner, or collaboratively between both parties as needed. IPA planned the data collection procedures carefully with the implementing partners by sharing data collection instruments in advance of the collection, agreeing on sample sizes and locations, and setting up other logistics to assure smooth collection. Where feasible, to assure the correct use and quality of the data collected by the implementing partner, IPA conducted spotcheck visits to assess how the data was collected and identify any conditions under which the data should not be used for analysis in the PE.
3. **Data analysis and results drafting**: After the data was collected by IPA or shared with IPA by the implementing partner, the information was subjected to different stages and processes of review depending on the source and nature of the data, as follows.

Process Evaluation Data Collection and Analysis

This section describes the approach that IPA put in place to collect and analyze the PE including the selection of data sources, the roles of IPA and the partner organizations, and the quality assurance procedures for both quantitative and qualitative data. It also presents the potential limitations that the data and the analysis have and its implications for the results presented in the report.

Data Sources

The data used in the PE was collected either by the partner organization or by IPA, aiming to balance logistical efficiency and the credibility of the data. The PE references partner data when it existed in their records or when it was already part of ongoing Monitoring & Evaluation (M&E) objectives within the organization. IPA prioritized additional collection of data to cover any remaining indicators in the PE design, or whenever a particular indicator required an environment where participants felt more comfortable sharing information with an external research team, which had minimal impact on their benefits or relationship with the program.

The distribution of data collection efforts was defined on a case by case scenario co-devised by IPA and the partner organization. For the particular case of Learning

Equality, Hopelink Action Foundation Uganda and Amal Alliance, the below table shows the data collection activities led by IPA or by the partner.

	Qualitative data	Quantitative data
IPA-led	● 3 KIIs with HAF staff ● 3 KIIs with technical staff (1-OPM, 1-DEO, 1-Lumi Solar personnel) ● 4 KIIs with Deputy Headteachers ● 3 KIIs with Head teachers ● 1 FGD with 6 facilitators ● Document review	● 4 classroom observations
Partner-led	● Learner Kolibri live-demonstration (with IPA present) ● Classroom observations	● Enrollment numbers from spreadsheet entitled Enrollment Database. ● School attendance logs ● Resource checklist ● Infrastructure checklist ● Logs of working tablets at end of program ● Kolibri Data Portal ● Learner showcase attendance logs ● Facilitator training attendance logs ● Facilitator training content logs ● Teacher endline survey ● Training exit survey data ● Classroom observations

Quality Assurance

IPA implemented the following standard research quality-assurance processes:

1. Quantitative data *(applicable to both partner and IPA led data collection unless stated otherwise)*:

1.1 Sample selection (for IPA-led data collection)

- **Representative sample for lesson observations:** For lesson observation data collected by IPA, IPA defined the sample size depending on the total number of lessons, classrooms and locations of implementation to achieve a sufficiently representative sample. In instances where this was not possible, feasibility was a key consideration to plan the sample. All the plans for lesson observations were done in agreement with the partner.
    - *In the case of Flying Colors, IPA acknowledges the small sample size (4) from its own observations with potential for margin for error to be high, with up to 9 eligible partner-collected lesson observation data points for*

comparison. Concerns raised over the representativeness of the samples are disclaimed under the limitations section.

1.2 Data collection and cleaning

- **Development of survey tools with partner organization**: IPA developed data collection tools in close consultation with the partner and incorporated partner feedback to adjust language and length to context (for IPA-led data collection).

- **Protocols to assure a responsible data collection:** IPA followed its internal guidelines for responsible and ethical data collection which consisted of:

    - The presence of at least one field staff to coordinate logistics with field staff from partner organizations.
    - Included a consent statement in each instrument to formalize respondent willingness to participate in the study.
    - All questions were optional and had options for “Doesn’t answer” or “Doesn’t know”
    - Participants were invited to participate in a venue and location that was of easy access for them and for the partner field teams.

- **Double entry of data:** Where applicable, for data collected in paper-based forms and through tablets, IPA actioned double entry of the data to backcheck the quality of the data entry.

- **Detailed checks to identify inconsistencies in data:** IPA ran high-frequency checks on quantitative data to identify and manage inconsistencies in the data such as outlier values in continuous variables, duplicates, observations with incomplete data, and to analyze key statistics.

- **Final cleaning of data:** IPA adjusted values or inconsistencies in the data depending on the outputs from the previous step as needed and depending on the nature of the data. This includes tasks including but not limited to reviewing and cleaning string variables, assigning value labels, deleting duplicates.

2. Qualitative data:

2.1 Sample selection (for IPA-led data collection)

- **Purposeful sampling:** IPA employed a purposeful sampling approach:
    - The initial sample selection was co-devised with the partner organization based on logistical feasibility and considerations, drawing heavily on the local knowledge of the partner team.
    - IPA suggested a number of Focus Group Discussions (FGDs) such that at least 50% of the population of study and at least one FGD per location were included (if the program operated in more than one location)

        - In the case of large populations, *e.g. caregivers* participating in focus groups, a minimum of two sessions were held.
    - A minimum of three Key Informant Interviews (KIIs) per each stakeholder profile that was interviewed, unless the population was fewer than three, in which case maximum coverage was strived for.
    - Each FGD had between six to eight participants to support enhanced depth of information, ease of interactions and facilitation.

2.2 Data collection

- **Development of survey tools with partner organization**: IPA developed interview or focus group instruments in consultation with the partner organization and incorporated feedback to adjust language and framing to context and interviewees.

- **Protocols to assure responsible data collection:** IPA collected data in the field and kept record of the discussions using audio recordings concurrently with field-notes recorded by the research team. The IPA team also followed its internal guidelines for responsible and ethical data collection which consisted of:
    - Assuring the presence of a field manager and at least one qualitative researcher to ensure sufficient staff were present to collect data, take notes, organize all audio recording equipment, and address any needs faced by the respondents.
    - Distributing consent forms to participants to formalize their willingness to participate in the study and to be recorded.
    - Offering fit-for-context compensation for their time and participation. The compensation was determined in collaboration with the partner organization.
    - Asking participants to participate voluntarily but probing and explicitly asking each respondent if they had different views or thoughts other than what had been shared by their peers.
    - Offering space to vocalize any other reflections, thoughts, suggestions or complaints that participants had about the program and their experience in it.

- **Audio transcription and cleaning:** IPA transcribed audio files using professional transcribers with requisite language skills and contextual background, and qualitative transcription research software. The team then cleaned the transcription files as needed before data analysis and added contextual information using the field notes that researchers compiled.
- **Data backchecks:** IPA performed backchecks on a small and random subsample of audio files to contrast transcription data against original audio files to assure quality and consistency of the transcription.

- **Thematic analysis of data:** IPA used a thematic approach to analyze the data under which:
    - Initial codes were assigned to segments of the text that conveyed relevant information pertaining to the learning questions, and then grouped under thematic areas.
    - The team then selected and organized quotes according to the respective themes to showcase the diversity of perspectives and experiences expressed by participants.
    - Using the above, the team drew finding statements as well as complementary information and contrasted it against the target for each indicator.
- **Final Proofreading:** The research team did a final review of the data analysis by contrasting findings against source materials and proof-reading findings by external team members.

Limitations of the data worth considering

a. Sample reach and selection: There were several challenges from both IPA and the partner with regard to changing timelines of the IPA field visit for data collection.

    i. **Partner led sampling:** IPA collaborated with field staff from the partner organization to mobilize respondents for each of the data collection activities for convenience. There are two potential limitations stemming from this. The first is that, in some instances, it was not possible to reach the planned number of respondents and the IPA team had little room to mobilize other respondents to fill in for those absent or adjust the data collection timeline or venue to increase attendance. This resulted in a narrowing of the sample size and potentially influencing the variability of profiles and the representativeness of the collected data. The second limitation is that, since IPA didn't select the respondents, this could have introduced bias, as the involvement of implementing partners may influence the selection of participants in a way that is not objective.

    ii. **On lesson observations**: The partner has identified several mitigating circumstances that could affect the representation of IPA observed findings when carrying out data collection and classroom observations. These include 1) Observations taking place on sessions after the program had been completed; 2) At least one facilitator running a session with little prior notification; 3) One observer facing language barriers; and 4) Inaccessibility to tablets in one observation as the headteacher who was holding keys to the tablet cabinet was not present (as the program had ended, pre-planning for tablet access had not taken place as usual). As observations were held separately from the partner, with challenges for

interrater reliability being present and the small number of observation samples **from both partner and IPA data**, IPA has resolved to maintain both sources in the report but refer to both separately.

iii. **Holding of mock lesson observations:** IPA's data collection commenced following completion of the regular Flying Colors curriculum; this resulted in the need to hold lessons after regular programming purely for observation. This practice is not as desirable as doing observations during the regular course of delivery as the findings would not be as representative of program conditions; likewise potential exists for the observations to over and understate the abilities of teachers to deliver the program and learners to engage (on the one hand delivering sessions that have already been delivered could be confusing, and on the other both learners and teachers have been exposed to the entire curriculum by the period of observation).

iv. **Fewer Respondents than Intended**: While all 8 active facilitators were intended to join in FGDs, only 6/8 attended, implying some viewpoints will have been missed. Where it has been possible to draw on quantitative data collected by the partner (Teacher Feedback surveys), this information has been triangulated to enrich the findings of qualitative indicators. In similar lieu, only 3 out of 4 head teachers attended Key informant interviews.

b. Iteration of tools and data collection processes: Ideally, all the tools would have been piloted in the partner-specific context before deploying the final tools in the field, and the data collection activities would have been spot-checked at least once prior to rollout to assure adherence to field protocols. However, the IPA team had limited opportunities to pilot and spotcheck, especially in scenarios when maximum conceivable samples of populations were small.

c. The above may have affected the validity of the tools and could have posed challenges to the smooth application of data collection protocols.

Approaches to Rating

A minimum of two representatives from IPA who are familiar with the partner's program and the PE methodology analyzed and reviewed the interpretation of each indicator, learning question, sub-criteria and criteria-level ratings of performance against targets set.

Indicator targets were set in collaboration with the implementing partner during the course of co-creating the PE matrix, *although perceptions of success (targets) prior to the start of a pilot program were challenging to set without an existing benchmar*k. For

consistency and in the lack of better benchmarks, IPA has sought to measure model performance according to these target reference points. In some instances, where a partner has been close to reaching, but has not quite attained a targeted level, IPA has favorably upgraded its rating as there is no significant action point for improvement; vice versa, this approach is applied to downgrade achievements if targets appear to be met but nuanced interpretation identifies important caveats or concerns for reflection.

Level	Rating Process
Indicator/ Learning Question Level	1. Contrast indicator versus target (green: exactly met, yellow: close to target but not exactly met, red: not met) 2. Analyze implication of findings to program adaptation (green: does not imply major adaptations, yellow: requires some level of adaptation or attention, red: implies major changes to the program or urgent attention) 3. Compare '1' vs '2' and define a rating (this led to the borderline, upgraded or downgraded scores verses targets in some cases)
Sub-Criteria Level & [Criteria Level]	1. Compare learning question **[sub-criteria]** findings for the corresponding sub-criteria **[criteria]** 2. Analyze implication of findings collectively[1] for program adaptation (green: does not imply major adaptations, yellow: requires some level of adaptation or attention, red: implies major changes to the program or urgent attention). 3. Assign the rating according to '2'

[1] Given the potential variations in the implications of different indicators on each sub-criteria, the scoring model does not employ an equal weighting of learning-question or indicator level findings to assess performance at the sub-criteria level.

PE Results Structure

In the following sections of the report, IPA shares the results of the PE in detail. This is structured as follows:

- **Criteria 1: Relevance**
  - Overview
  - 1.1. Sub-Criteria Evaluation question
    - Overview
    - Learning question 1
      - indicator 1
      - …
    - Learning question 2
      - indicator 1
    - …
  - 1.2. Sub-Criteria Evaluation question
    - Overview
    - Learning question 1
      - indicator 1
    - …
- **Criteria 2: Results**
  - *same structure as above*
- **Criteria 3: Scalability and Sustainability**
  - *same structure as above*

Evaluation Results for Criteria 1: Relevance

Overview

What do we mean by *relevance*?

An intervention is considered relevant when it targets an important and demonstrated constraint. In this case, the programs within the Creative Solutions initiative target constraints specific to vulnerable OOSC in order to access educational opportunities in refugee contexts. The intervention should be conceptually suited for its intended purpose and must effectively reach the specific groups it was designed for. This criterion is divided into three macro evaluation questions:

> **1.1.** To what extent is there evidence of this being an important need in the community?
> **1.2**. Is the intervention model appropriate to respond to the identified need?
> **1.3**. Do the project's targeting criteria allow it to reach the group that needs the intervention the most in the community?

The following section will cover a summary across the Relevance findings, followed by three sub-sections addressing evaluation questions 1.1, 1.2, and 1.3 to break down the key findings within each question and planned adaptations based on those findings. Within each of those evaluation question sub-sections, the key findings are followed by more detailed analysis at the learning question level and indicators referencing the data that led to the key findings.

Summary of Relevance Criteria Findings

Few or no adaptations to address potential risks are suggested

Key successes:

- **School targeting and Enrollment:** The program successfully targeted schools with high learner dropout rates, at an average of 20% compared to the regional average of 9%. Learner enrollment exceeded the targeted number for Cohort 2.
- **Academic needs aligned with Flying Colors Design**: 45% of learners enrolled in Cohort 2 of the program reported that they had not attended formal schooling since 2020. Foundational Literacy and Numeracy capabilities assessed indicated poor skill levels for

the majority of prospective learners, with half of the learners unable to identify a single letter of the alphabet and half unable to perform single digit addition indicating the need for this type of learning in the community.

- **SEL Requirements**: Over 50% of prospective refugee learners at baseline encountered challenges in establishing social connections. While over half of the refugee learners responded positively on their grasp of other social emotional competencies, in all instances this was systematically lower than host community learners.
- **Play Based Learning Incorporation:** Literature indicates that play-based activities can be beneficial to help refugee learners better interact with peers, through enhanced coping, communication and relationship building skills developed. Several studies identify associations in children who were exposed to play-based learning methodologies and positive effects in literacy, numeracy and SEL development.
- **Facilitator support systems:** Teacher training and coaching methods intended for Flying Colors have been found to improve quality implementation in SEL, Ed-Tech, and emergency context education programs in other contexts.
- **Facilitators' Skills for Context:** Facilitators perceived gaps for educating in this context, especially in understanding out-of-school and refugee needs and operating in a multicultural context. Facilitator Needs Assessments surveys, performed before implementation, identified low-to-moderate need for capacity building as helpful to support play-based learning and understanding SEL needs of learners.

Path to scale opportunities:

- **Ed-Tech and SEL:** Even though there is mixed evidence with regards to both Ed-Tech and SEL programs in emergency settings, the Flying Colors program design is aligned with promising practices prevailing in both fields. More rigorous evaluations could support the evidence around these components in future.
- **Linguistic Barriers:** Facilitators perceive that some learners continue to face linguistic barriers, especially with the English language content. This is partly addressed in facilitators' employed mitigation strategies, but limited by government restrictions on language of materials. Opportunities exist to explore how to mitigate some of these further.
- **Enrollment Strategy and Importance of community support:** Self-enrollment in cohort 1 was lower than expected, but iteration on the approach to include community mobilization and improved information to caregivers more about the age limits for enrolling in the program led to effective enrollment. This revised approach to encouraging enrollment needs to be critically analyzed to be assured of sustainability in future model iterations.

1.1. To what extent is there evidence of this being an important need in the community?

Result	Summary
 *Few or no adaptations to address potential risks are suggested*	The needs scoping exercises confirmed that prospective learner challenges are aligned with the program's theory of change. The following conditions are especially relevant: ● **Enrollment/retention challenges:** School dropout rates are high in the region (9%) and higher in the four selected schools where the program is implemented (20%). ● **Students SEL needs:** Over 50% of prospective refugee learners at baseline encountered challenges in establishing social connections. While over half of the refugee learners responded positively on their grasp of other social emotional competencies, in all instances this was systematically lower than host community learners. ● **Academic needs aligned with Flying Colors design:** Incoming learners to the program demonstrated under-developed numeracy and literacy skills during baseline assessments. ● **Facilitators' Skills for Context:** Facilitators perceived gaps for educating in this context, especially in understanding out-of-school and refugee needs and operating in a multicultural context. Facilitator Needs Assessments surveys, performed before implementation, identified low-to-moderate need for capacity building as helpful to support play-based learning and understanding SEL needs of learners.

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Confirmed challenge in retention and enrollment support: School dropout rates are reported at an average of 9% among primary level students within the area, rising to 20% in the 4 schools selected for the program.	
Student SEL Needs: More than 50% of prospective learners who participated in baseline assessments encountered challenges in establishing social connections. While over half of the refugee learners responded positively on their grasp of other social emotional competencies, in all instances this was systematically lower than host community learners.	
Student Academic Needs aligned with Flying Colors Curriculum Focus: 45% of learners enrolled in cohort 2 of the program reported that they had not attended formal schooling since 2020. Foundational literacy and numeracy capabilities assessed at the baseline of cohort 2 indicated poor skill levels for the majority of prospective learners, with 49% of the learners not able to identify a single letter of the alphabet and 52% unable to perform single digit addition indicating the need for this type of learning in the community.	
Facilitator Needs are Mixed: Facilitators self-reported needs in understanding refugee and Out of School learners but were mixed in their perceived need for support around SEL practices in the classroom.	

Learning Question: Are there SEL and academic needs/gaps for out of school refugee learners at the P3 and P4 levels that prevent entry into school?

Indicator: Extent of SEL and academic needs for P3 and P4 out of school refugee learners in the community

***Target:* Needs scoping (and any other relevant documents) demonstrate a compelling case for the SEL and academic needs for P3 and P4 out of school refugee learnings in the community**

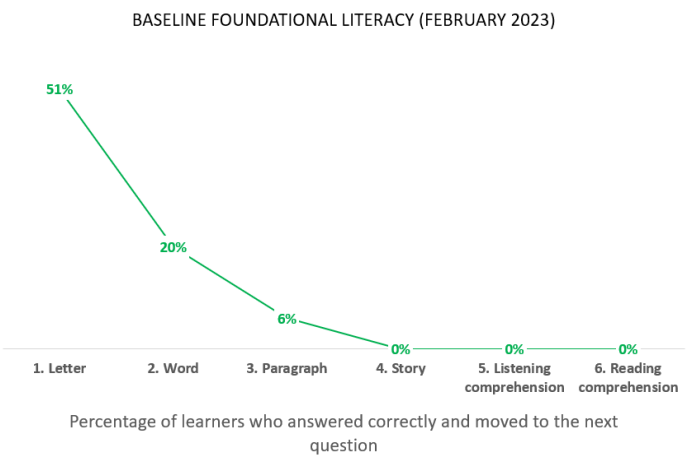
GREEN - School attendance and retention are critical issues, with an average of 20% dropout rate in the four primary schools selected and a 9% dropout rate in the wider community where the partners operate. The need for SEL support among learners is also evident, as baseline data from the partner indicates that over 50% of potential refugee learners face some challenges in establishing social connections. While over half of the refugee learners responded positively on their grasp of other social emotional competencies, in all instances this was systematically lower than host community learners. In terms of academic needs and gaps, 45% of learners enrolled in cohort 2 of the program reported that they had not attended formal schooling since 2020. Foundational literacy and numeracy needs of this profile of learners are well captured and confirmed through the low performance of incoming students during the Baseline assessment of cohort 2.

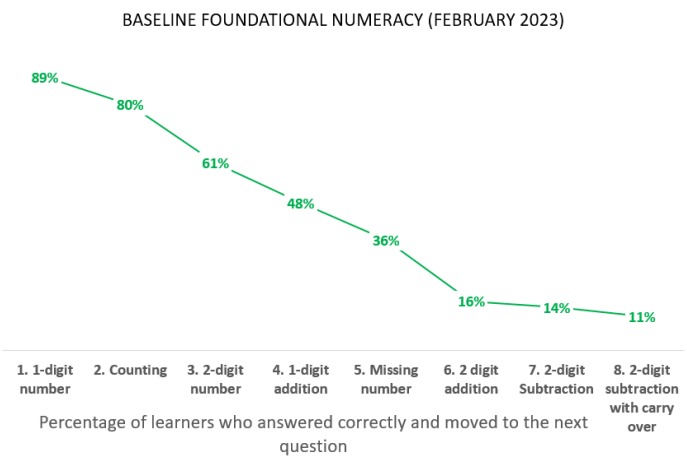
- Source: Partner - Needs Scoping Documents Review; Partner - Enrollment Data Cohort 2
- **Need for general enrollment/retention support:** The implementing partners used a data-driven approach to select schools based on number of student dropouts (prevalence) in their regions of operation based on 2021 term 2 data. The partner engaged with the Office of the Prime Minister (OPM) and Windle International Uganda (WIU) to synthesize the data and make selections of the schools with highest incidence based on dropout prevalence. Schools selected struggled with 26% dropout rates on average, while the overall average in the region was 12%. These trends are similar for both national and refugee students.
- **Needs of students for SEL support:** The results obtained from the baseline survey carried out by the partner indicate that a significant proportion of refugee learners participating in the program (exceeding 50%) encountered challenges in establishing social connections and less than 60% perceived they could calm themselves down or have dreams for the future. Nevertheless, it is noteworthy that the majority of these learners exhibited favorable responses when assessed for their social emotional competencies, however less than host community learners.
  Upon conducting an in-depth look at the shared quotations derived from the qualitative data collection activities, specifically from the learner and teacher Focus Groups, IPA has identified anecdotal evidence that suggests there were gaps in social-emotional learning (SEL) needs among learners in grades p3 and p4 within the community at program inception.
    - These are illustrated further in the report under indicators under Sub-criteria 2.3: *Percentage of facilitators with positive attitudes about SEL by endline; Percentage of facilitators with self-efficacy about blended learning, play based pedagogies, SEL, and use of Kolibri by endline*.

Additionally, mental health issues such as anxiety and depression are prevalent among refugee learners, as is well documented by literature[23]. These challenges highlight the need for targeted interventions and support systems that address the unique needs of refugee learners in order to foster their social emotional development.

- **Academic Needs:** The partner conducted an assessment of baseline academic capabilities for foundational literacy and numeracy (FLN) for cohort 2 learners. Learners demonstrated low levels of foundational literacy, with 80% of learners unable to progress in assessments beyond foundational word questions, and only 6% progressing reaching foundational standards for paragraph literacy skills. Foundational numeracy was more successfully answered in sequential difficulty, with learners broadly able to count (80%) but with 52% of learners not being able to perform single digit addition. This affirms the academic gaps of this profile of learners. Of enrolled learners in cohort 2 of Flying Colors in 2023, 45% of students had not attended formal schooling since 2020.

Figure: Baseline Foundational Literacy and Numeracy Assessments for the cohort, derived from partner records





Learning Question: Do facilitators currently have insufficient tools and support to address SEL and academic needs/gaps at the P3 and P4 levels?

Indicator: Extent of existing tools and support for facilitators to address SEL and academic gaps for refugee learners in the community

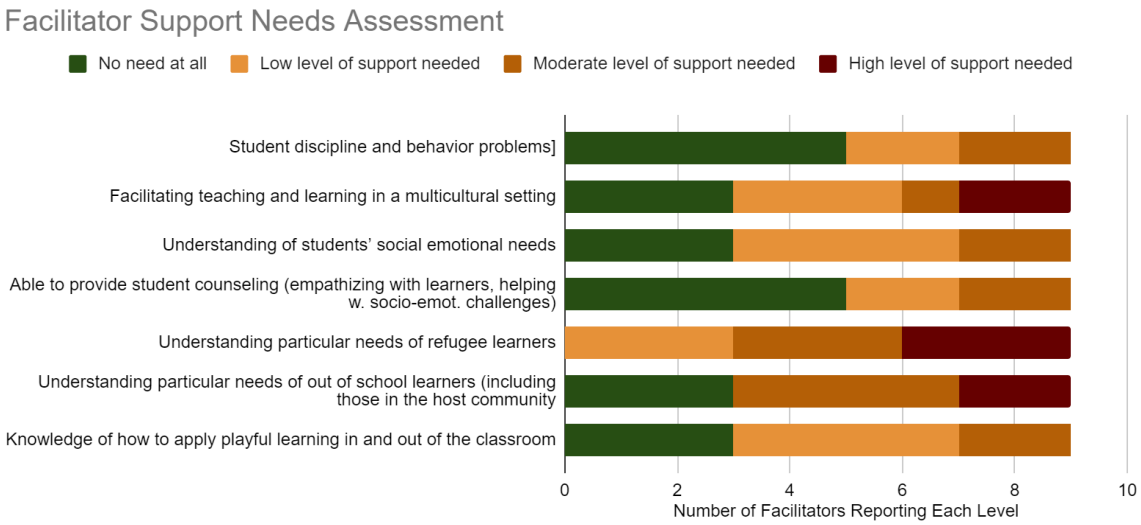
Target: ***Needs scoping (and any other relevant documents) demonstrate a compelling case for facilitators' need for additional tools and support to address SEL and academic gaps for refugee learners in the community***

GREEN - Facilitators acknowledge an overall gap in understanding the diverse needs of learners, in particular for out of school and refugee children. However, facilitators opinions differ on the degree of support they require when it comes to SEL-specific practices, such

[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7673909/
[3] https://www.unicef.org/media/114636/file/SOWC-2021-full-report-English.pdf

as student discipline, recognizing students' social emotional needs, playful learning, and student counseling. Note that this indicator was measured from the self-identified needs of facilitators.

- Source: Flying Colors Scoping Needs Assessment Survey and Participant Baseline Survey (May 2022) provided by partner



- **Need for facilitator support to better understand learner needs:** All facilitators reported some level of support needed; 6 out of 9 facilitators reported a need for better understanding OOSC needs; and 6 out of 9 also reported some level of need for facilitating in multicultural settings.
- **Mixed need for SEL support:** Facilitators reported mixed levels of need for support in applying SEL-related practices, although these are self-reported and not verified as skills. Specifically, the partner-led scoping tool found that facilitators reported mixed need for support on **playful learning** (5/9 reported low-moderate support needed), **student counseling** (4/9 reported low to moderate need), and **student discipline** (4/9 reported low to moderate need) and understanding **students' social emotional needs** (6/9 reported low to moderate support needed).

1.2. Is the intervention model appropriate to respond to the identified need?

Result	Summary
 *Few to some adaptations to address potential risks are suggested*	Existing research for Ed-Tech education programs with SEL integration in emergency settings is limited and shows mixed results, although the Flying Colors program implements practices associated with promising evidence over integrating play-based learning. Facilitators are attempting to adapt to learners' linguistic challenges. • **Ed-Tech and SEL:** Despite mixed evidence with regards to both Ed-Tech and SEL programs in emergency settings, the Flying Colors program design is aligned with promising practices prevailing in both fields. In a previous pilot in Bangladesh, with refugee and host community children, findings point to a 16.5% increase in the SEL skills of the children following exposure to Colors of Kindness; similarly, in Greece, the EASEL Lab of Harvard Graduate School of Education identified a statistically significant increase in the development of SEL skills seen in children. Despite these increases, without a counterfactual, it is not yet conclusive how much of these increases can be fully attributed to the program. Comparably in Uganda, training and coaching methods intended for Flying Colors have also been found to improve delivery of SEL and Ed-Tech. • **Blended Learning's Role in Ed-Tech:** Trends in the literature indicate that tying Ed-Tech with face-to-face instruction is a consistent enabling factor for linking to student learning outcome improvements. This blended learning approach is core to Flying Colors. Further dedicated research is needed for the refugee-specific contexts to determine its efficacy for refugee-specific contexts. • **Play-based Components in learning and development:** Literature indicates that play-based activities can be beneficial to help refugee learners better interact with peers, through enhanced coping, communication and relationship building skills developed. Several studies identify associations in children who were exposed to play-based learning methodologies and positive effects in literacy, numeracy and SEL development. • **Linguistic Barriers:** Facilitators perceive that some learners continue to face linguistic barriers, especially with the English language content. This is partly addressed in facilitators' employed mitigation strategies, but limited by government restrictions on language of materials. Tailored approaches to cohorts with more challenges in comprehension, promoting peer-learning approaches further, exploring methods to accommodate learners with a local-language barrier with peers and their facilitators, and continued adjustment of multimedia content to become more localized, simplified and engaging for learners.

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Ed-Tech and SEL: Even though there is mixed evidence with regards to both Ed-Tech and SEL programs in emergency settings, the Flying Colors program design is aligned with promising practices prevailing in both fields. Teacher training and coaching methods intended for Flying Colors have been found to improve quality implementation in SEL, Ed-Tech, and emergency context education programs in other contexts.	
Blended Learning's Role in Ed-Tech: Trends in the literature indicate that tying Ed-Tech with face-to-face instruction is a consistent enabling factor for linking to student learning outcome improvements. This blended learning approach is core to Flying Colors.	

Play-based Components in learning and development: Literature indicates that play-based activities can be beneficial to help refugee learners better interact with peers, through enhanced coping, communication and relationship building skills developed. Several studies identify associations in children who were exposed to play-based learning methodologies and positive effects in literacy, numeracy and SEL development, especially for resource-constrained contexts.	
Linguistic Barriers: Facilitators perceive that some learners continue to face linguistic barriers with the English language content, although this is the mandated language by the government. Facilitators have accommodated this with live adaptations using peer support, local props, and live accent or direct translation.	

Learning Question: To what extent is there evidence that Flying Colors has the potential to deliver curriculum to target SEL gaps and academic needs for learners at the P3 and P4 levels and age groups?

Indicator: Extent of documented effectiveness of Ed-Tech solutions like Kolibri and Colors of Kindness content for SEL and academic learning for refugee learners at the P3 and P4 level in similar contexts

Target: Relevant documents and data show that Ed-Tech solutions like Kolibri and Colors of Kindness content are effective in increasing SEL and academic learning for refugee learners in P3 and P4.

YELLOW/GREEN - Even though there is mixed evidence with regards to both Ed-Tech and SEL programs in emergency settings, Flying Colors' program design is aligned with promising practices in both fields. However, play-based learning approaches have positive implications in Flying Colors' context of operation for facilitating learner integration and cooperation with peers, laying positive foundations for improved SEL and academic engagement opportunities.

While Ed-Tech components broadly show promise in developed countries, its effectiveness and cost-efficiency in developing nations is mixed. According to the literature, one of the most promising areas for raising learning outcomes in the region are related to Ed-Tech's role in instruction improvement, which is aligned with the methodology from Flying Colors. In emergency settings, limited rigorous research is available pertaining to Ed-Tech's efficacy but quasi-experimental literature shows promise and suggests the importance of considering teacher perspectives and local adaptation. On the other hand, findings are mixed regarding SEL programs in conflict-affected areas, with some programs showing positive impacts on student academic learning but no overall impacts on student wellbeing or mental health; in spite of this inconclusive evidence, Colors of Kindness displays

increases in SEL outcomes across multiple programs, however without a counterfactual, it is not conclusive how much of this increase can be attributed to the program approach. Additionally, there is abundant and relevant evidence related to learning through play that shows the effectiveness of play to promote cohesion and cooperation in children mainly through improved self-regulation and communication with peers. For refugee learners in particular, literature shows that play activities can be beneficial to help them integrate better in community and with peers through enhanced coping, communication and relationship building skills; positive associations are present in literature for play-based learning approaches and their role in academic achievement for younger learners. Finally, Ed-Tech SEL programs in emergencies are rarely studied, highlighting the need for further research and the opportunity for Flying Colors to contribute to the body of evidence in the field.

- Source: Literature review conducted by IPA (references provided throughout)
- **There is very limited rigorous research available regarding Ed-Tech in emergency and displaced settings,** nevertheless, some studies have shown effectiveness. A review of trends in findings across literature for effectiveness of Ed-Tech in emergency and displacement settings identifies 20 themes across findings. The Flying Colors bundle is designed to apply practices related to all of the themes identified, such as providing curriculum along with hardware, tying software to curriculum, using teacher led scaffolding and use tech to supplement teaching, etc. There is one area that may be more fully addressed in future iterations of the project: responsiveness to learners level. Flying Colors does have the intention to more fully address this area in longer programming and began to roll out this differentiation near the end of this initiative.
- **Blended learning is key:** This is a core approach employed in Flying Colors throughout the program. A number of studies, including this study on promising practices in refugee education by Save the Children also underscore the need for a blended approach to using Ed-Tech emphasizing that technology based education can only be part of the solution in the provision of education in any setting, even if its' transformative potential requires more dedicated focus on learning outcomes in refugee contexts. This study on Leveraging technology to support education for refugees also notes the need for in-depth integration of mobile learning with onsite and face-to-face.
- **Play Based Learning on Integration:** Multiple studies have shown that play can help improve social, emotional, cognitive, and physical development in childhood (between 3-12 years of age) which can then relate to better cohesion and cooperation skills. Specific findings on which skills were improved depend on the type of play and the context where the intervention was implemented (home-based, school settings, among others). A study from the Lego Foundation compiling various scientific studies on the effects of play on coping mechanisms for children who have faced trauma or life-threatening situations, shows that through improved self-regulation skills children acquire better coping mechanisms which in turn allows them to interact better with people and situations in their environment. The studies also show that children are able to release negative emotions through play, enabling them to interact better with others. Play can also be helpful for refugee learners in particular to better communicate with peers wherever communication is limited due to cultural or physical barriers. This is particularly true for refugee children who join a host community speaking a different language.
    - **Play based Learning and Academic Performance:** Literature has shown a positive relationship between the use of play-based learning methodologies and children's academic performance, especially from the use of guided and free play. A report from the Lego Foundation on Learning Through Play and its potential to reduce inequality, references

multiple studies that show that even in resource-constrained settings, play-based learning approaches have a positive effect on children's development and can help close achievement gaps. Specifically, a study carried out in Rwanda, Bangladesh and Ethiopia showed positive effects in literacy, numeracy and SEL development for children who were exposed to play-based learning methodologies. The Encyclopedia of Early Childhood Development (ECD) analyzes multiple studies carried out in a myriad of settings and shows that play can be associated with positive gains in reading and mathematics, and it provides a setting for children to improve on these skills moving forward.

It's worth noting that most of these studies focus on children up to 8 years old, therefore there seems to be more evidence for early-childhood and pre-primary students than for older students.

- **Social and Emotional Learning (SEL) programming has the potential to be effective in conflict-affected regions,** yet the evidence is limited, and findings are mixed. Some studies in regions such as the DRC, Niger, and Lebanon show positive impacts on student academic learning but no overall impacts on student wellbeing or mental health. One thesis to explain these results is that SEL programs are not locally developed, failing to represent the values and voices of local communities. Another hypothesis relates to fidelity of implementation, considering the unique challenges posed by emergency settings where these programs are applied. Similarly, a study on the effect of providing child friendly spaces and play-focused activities on early childhood learning outcomes in refugee settlements in Uganda uncovered the importance of play as an important factor in uplifting children's SEL skills like resiliency, emotional regulation and peer relationships.
- Colors of Kindness **has not yet been rigorously tested, but signs of potential:** There has not yet been an opportunity to conduct a randomized controlled trial to confirm the attributable change in SEL or other learning outcomes to the program. However, in a previous pilot in Bangladesh, with refugee and host community children, data showed a 16.5% increase in the SEL skills of the children. Similarly in Greece, in 2021, Harvard EASEL Lab conducted a study of the Colors of Kindness curriculum with 400 students from 26 classrooms. Teachers observed a significant improvement in students' SEL skills from the initial assessment to the final assessment. On average, student scores on the SEL assessment increased from 0.55 to 1.004, with an effect size of 0.80 (N=256). However without a counterfactual, it is not conclusive how much of this increase can be fully attributed to the program approach. Some of the challenges highlighted in the study relate to student absenteeism and language and cultural appropriateness of the content, echoing the findings of the literature on SEL and Ed-Tech programs for emergency settings.

Learning Question: To what extent is there documented evidence that approaches like Flying Colors facilitator support structures & resources have the potential to help facilitators better address SEL and academic gaps?

Indicator: Extent of documented effectiveness of approaches to resources and training similar to Facilitators' Kit, Colors of Kindness Episodes tools, workshops, and facilitator debriefs to address SEL and academic gaps for refugee learners in similar contexts

Target: ***Relevant documents and data show that resources and training such as Facilitators' Kit, Colors of Kindness Episodes tools, training workshops, and***

facilitator debriefs are effective for enhancing facilitators' skills to address SEL and academic gaps

GREEN - For SEL programs, compelling evidence highlights the crucial role of facilitator support systems similar to those within Flying Colors within other SEL education interventions to ensure the quality of implementation, including teacher training programs and coaching. Other research confirms that similar facilitator support factors drive quality implementation with education programs specific to emergency contexts, as well as with the use of Ed-Tech interventions. In emergency situations, teacher support for SEL is particularly pivotal. Guaranteeing teacher skill development, as well as comfort with the intervention have been found to be important factors for quality implementation. Although inferential evidence regarding teacher support in Ed-Tech-SEL interventions within emergency settings is limited, a study conducted in Greece, focusing on the Colors of Kindness methodology, provides promising insights. Teachers in this study reported that the training was highly beneficial, and the program's structure and guidance equipped them with the necessary tools for successful implementation. The study highlights how principals noted this marked a distinct advantage over programs with less concrete support, showcasing the potential of the Flying Colors methodology.

- Source: Literature review conducted by IPA (references provided throughout)
- **SEL literature agrees that teacher support is fundamental:** A systematic review of factors facilitating the implementation of SEL programs found program support, like coaching activities and training, was the most consistent factor essential for ensuring program success. This review didn't consider Ed-Tech or emergency contexts.
- **SEL implementation in emergency situations has found relevance of teacher support and Family involvement:** This Evaluation of a Social-Emotional Training Program for Refugee Families and Service Providers highlighted the potential of culturally adapted social-emotional initiatives to support refugee caregivers' and service providers' abilities to provide high-quality social-emotional care to refugee children. The study showed a significant increase in caregivers' and service providers' knowledge of social-emotional concepts post training, which for the latter showed to be sustained at the 2-month follow-up. A Save the Children study on Strengthening Teacher Professional Development in Kakuma Refugee Camp showed that teachers who participated in the Teachers for Teachers initiative – (teacher training, peer coaching, and mobile mentoring) found the model effective for making positive changes to their teaching practice, creating safer learning environments, and improving their relationships with their learners. On the other hand, This accelerated learning program in Nigeria reported no effects on SEL outcomes. The further study of these null effects showed teachers skipped lessons because they found the curriculum hard, citing their newness to the topic. Likewise, the lack of adaptation to the context ment the activities where not appropriate for the Nigeria context.
- **Caregiver engagement:** A guideline on promoting social and emotional learning shows that many educators have found the benefits of bringing family members into the process of social and emotional skill building with family homework assignments, invitations to observe class lessons, and actual instruction on how parents can use the techniques with their children. The impact is even greater if the same framework is used by family members, daycare providers, clergy, local police officers, and recreational supervisors.
- **Likewise, there is compelling evidence around the relevance for Ed-Tech interventions:** Evidence from this Save the Children review on the effectiveness of Ed-Tech in emergencies and

displace settings report shows that teacher training is a focal aspect for any Ed-Tech solution and poor training leads to poor results. It advocates for high quality of initial teacher training and the need for maintaining this throughout the project/program lifecycle, which Flying Colors emulates.

- Finally, the 2021, Harvard EASEL Lab study on Colors of Kindness in Greece, cited on the previous indicator, shows promising results around the relevance of teacher training and support for the success of the program. Specifically, the study highlights comments by principals saying support was a distinct advantage over programs with less concrete support: "The program's structure and content provided teachers with the guidance they needed to implement it, whereas other programs lacked that level of concrete details".

Learning Question: To what extent is the model adapted to meet the linguistic needs of facilitators and learners for use and understanding of Flying Colors?

Indicator: Extent to which learners who face linguistic barriers are still able to engage with Flying Colors

Target: HAF staff and facilitators are able to explain how they adapt to learners' language needs to successfully engage learners who face linguistic barriers

YELLOW - Some learners are encountering challenges with the English curriculum, particularly in the lower classes where English comprehension is limited. There are a breadth of learners who benefit from the foundational literacy skills development that the curriculum provides, however the prevalence of concerns raised by facilitators indicates the opportunity for these disparities among learners to be targeted further in order to engage and comprehend Flying Colors content. The partners note that the government requires materials in English, which is an external constraint. Facilitators have often engaged effective strategies to mitigate these challenges and the program encourages these adaptations, including the use of peer-support, providing live-accent translations during played video content, and the use of local props to adjust the illustrations to the local context. Facilitators attempt direct translations from English into Acholi/Juba Arabic where possible, although some facilitators have reported lacking the language competency to accommodate the full breadth of learners' languages in the classroom. Operating in the context of a mandated English curriculum presents challenges to fully accommodate the breadth of learners' capabilities/skills in the context, but there are encouraging steps being undertaken and further pipeline iterations to mitigate some of the comprehension gaps from the English-based learning resources. Drawing from facilitators inputs: Areas for prospective iteration would be to identify heuristics and approaches that would equitize the opportunity for engaging with the content or level-up learners to the prerequisite foundational literacy skillset at an improved pace for it to no longer be considered a major

challenge[4]. Such examples may include tailored approaches to cohorts with more challenges in comprehension promoting the peer-learning approach further, methods to accommodate learners with a local language barrier with peers and the facilitator, and continued adjustment of multimedia content to become more localized, simplified and engaging for learners.

- Source: IPA: Facilitator FGDs and Partner Staff KIIs
  Contextual Background: The program sought to teach foundational literacy skills and conducted a baseline, including collation of information on FLN skills has taken place in order to tailor content for the right-level for learners and understand best facilitation approaches, including but not limited to how facilitators may be able to support their learners in the best way possible.
- **Learners English competency and prerequisite skill levels from learners:** Facilitators report greater linguistic challenges in the 'lower classes' where learners are less likely to speak or comprehend in English where approximately '80%' (perceived from a respondent) may have basic comprehension, compared to the 'upper classes'. From different facilitators consulted:

  "In a class the level of understanding varies, some learners are fast learners and others are slow learners. When the fast learners are done then you put the attention to the slow learners. The understanding … it is 80% (across the class). - *Facilitator*

  "In relation to the level of understanding, they understand but in the lower class we basically use the local language 'Luo' yet all the resources are in English. So what we do, the stories in English we translate to them, there they understand very well. That's why it's 80%. For the upper classes they know English very well." - *Facilitator*

  The Partner would like to highlight that following baseline data collection and understanding foundational literacy and numeracy skills better, Flying Colors' curriculum was modified to dedicate more time and attention on the most basic of skills in English literacy in order to catch learners up to the required standard.
- This indicates that to some extent, live translations are relied upon as the immediate go-to approach to circumvent the challenge of comprehension.

  Understanding technology based resources (which are in English and not local languages) is a challenge, not only because of languages spoken, but disparities among learners in foundational literacy, which renders the approach less helpful for any written components. This is notably separated from a user's basic competency to be able to login to the Kolibri portal; considered far less of an issue.

  "According to me the accessibility is simple for them but understanding the resources is a challenge because some have little literacy knowledge. If you can't read then you can't understand the resource given. So the understanding is not relative to the accessibility." - *Facilitator*

  A more open-ended reflection quotation over comprehension of the technology-based content is provided below; it is not immediately clear from the respondent whether the understanding gap refers to concerns over foundational language skills or session content.

[4] In spite of this suggestion, IPA understands from the partner that the curriculum content has already been modified following the foundational baseline of student's literacy and numeracy levels, and targeted towards fostering basic skills development.

"The accessibility of Kolibri is 100% but understanding the session there is another thing. So what we do [is] we assign the resources to class for a given lesson and after teaching, watching [them] answer quizzes we see from the performances: those [who] have not scored 50% and above, it means they have not understood the resources. Then we assign to them differently/individually. So we spend more time with them." - *Facilitator*

- **Localization and Accents:** From a program oversight lens, strategies were identified and facilitators were encouraged to adopt these; some are to address accent challenges, notably the comprehension of an American Accent (as most videos used this) vs a Ugandan English accent; by doing live-accent and local Acholi translations as videos/content were playing; following this, those who understand English better were able to pick up the content and learnings faster. There was also cited use of local materials that are familiar to learners to facilitate the learning pace, such as local vegetables etc., that were helpful to impart knowledge compared to how the illustrations made in session content were referenced.

  IPA understands that following the first cohort, iterations were made to replace audio-files embedded in the Colors of Kindness to versions with a Ugandan English accent to circumvent some comprehension challenges. There is positive intention in place to incorporate user reception/feedback following the second cohort into the future roadmap of the Kolibri learning platform to see how the platform can better address users needs in the context.

- **Breadth of language competencies required to facilitate in one class:** One facilitator highlighted that they sometimes don't speak the children's respective local languages Facilitators were hired based on their multilingual skills, so it remains unclear why the latter issue arose as a reported challenge, or the extent to which this may have impacted delivery in reality; one possibility is that there were more exceptions to facilitators having full mastery of the full breadth of languages spoken in each class, a challenge which has propensity to replicate in different contexts and other iterations of the model under a multilingual classroom.

  "For the local language, some of us don't know the learners' local language so explaining things in their local language is not easy. That's why the level of their understanding may not go high because they may not understand English yet we don't know their local language." - *Facilitator*

  The overall prevalence of this challenge from IPA's consultation with facilitators is unclear. It is understood by the partner that in 3 out of 4 schools, Acholi was the most dominant local language of use and teachers were able to translate content as needed and communicate with all students in Acholi. In one school, more than one language was used which created additional demands on facilitators as they had to use multiple languages in the classroom, but this did not hinder implementation and learning as this was one of the best performing schools in both aspects. The relevant language requirements was a key consideration in the hiring process for facilitators.

  - From the qualitative exercise, the partner team was the only cohort to mention the use of peer support in gaining language competencies.

    "We also engage learners in group work, discussions during sessions. The educators identify learners with challenges and they group them. This is because learners learn while they are facing their fellow peers...they have been using the translators and the fellow peers and

they have been able to catch up. At the enrollment you are able to see how the learner is and as the program goes on, they learn a lot and things change" - *Implementing Partner Team Member*

  - In a reflection of improvements from facilitators, direct translations of materials into local languages are suggested, although *IPA understands from the partner that there are external constraints in government mandate that prevent translating written, audio and video materials*.

- A couple of suggestions for reflection, from facilitators, to better improve comprehension and engagement are provided in the quotations below

"The resources should be made simple to the level of learners with simple English. Another improvement, the learners like cartoons so the resources should be made interesting like we had the alphabets which had some funny animals running with the letters. Made it so interesting to the learners." - *Facilitator*

"I would like to see some bit of local language translation like the stories. I would like to see the [value in] learning, reading stories in local languages because it is also important like the Arabic and Acholi language." - *Facilitator*

Note from the Partner: *The Partner notes these suggestions for future iterations, but would like to highlight the tension between government policy to provide resources in English and translating content to local languages. English was opted for to ensure policy and curriculum alignment, which is critical to scaling. A shift away from this model would need to explore potential risks in terms of government buy-in and scalability to mainstream schools.*

1.3. Do the project's targeting criteria allow it to reach the group that needs the intervention the most in the community?

Result	Summary
 *Few or no adaptations to address potential risks are suggested*	The program targeted learners who were out of school and above the age threshold for P3 and P4. It was successful in registering more than the targeted number of students who met this criteria.

Key Findings	Planned Adaptations and Considerations of Findings
Targets Exceeded: Enrollment was above targets in cohort 2 (266 learners reached with 250 targeted)	
Importance of community support: Initial self-enrollment in cohort 1 was lower than expected, but iteration on the approach to include community mobilization and sensitization of age eligibility led to improved enrollment in cohort 2.	

Learning Question: Is the program able to enroll out of school learners (who would be in P3 and P4 if they hadn't dropped out)?

Indicator: % of enrolled learners who had previously dropped out and would be in P3 and P4 levels if they had continued

***Target:* 100% (out of ~250 enrolled in Cohort 2)**

GREEN - 100% of the registered 266 learners were above the anticipated age thresholds (6-7 and 7-8 for P3 and P4 respectively) while enrolled with the program. Thus the program was successful at enrolling pupils who have evidence of having dropped out or not attending school by the time of enrollment, supported by methods such as community-based OOSC identification and sensitization around the ages of eligibility.

- Source: Partner - School attendance and enrollment register
- Learning from the first cohort, the implementing partners of Flying Colors improved OOSC identification with community leaders, Refugee Welfare Councils (RWCs) and caregivers. The program also added additional sensitization for the age-threshold for eligibility. This improved targeting approach proved to be a successful iteration for enrollment in cohort 2.

Evaluation Results for Criteria 2: Results

Overview

What do we mean by *results*?

An intervention is considered successful at generating results if it is able to deliver key **outputs** as planned in the program's Theory of Change and if there are indications that the program is able to generate **clear early outcomes** in beneficiaries' knowledge, attitudes and/or behavior. The process evaluation "Results" criteria also measures if beneficiaries feel **satisfied** with how and what they are receiving from the program. This criterion is divided into three macro evaluation questions:

2.1. Has the pilot produced measurable outputs?
2.2. How satisfied are the participants with the intervention?
2.3. Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the interventions?

The following section will cover a summary across the Results findings, followed by sections 2.1, 2.2., and 2.3 to break down the key findings within each evaluation question and the partners' planned adaptations based on those findings. Within each of those evaluation question sections, the key findings are followed by more detailed analysis by learning question and indicator.

Summary of Results Criteria Findings

Some adaptations to address potential risks are suggested

Key successes:

- **Learner attendance:** Learner attendance was consistently high, with over 75% attendance in almost all Kolibri sessions
- **Resource, Hardware, and Software Availability:** Almost all learning materials were still present at the end of the program. 100% of tablets were present, undamaged, and had functioning software by the end of the program
- **Facilitator Training Attendance Strong:** All designated trainers attended the initial training, and over 80% of actively teaching facilitators attended at least 75% of the refresher training. Facilitators were broadly happy with the pace of facilitator training and its timing and expressed satisfaction over the content they received.
- **Close to satisfactory compliance with session frequency:** Across the delivery period an average of 2.5 modules were taught per week, and 85% of recorded school-weeks reached the target of at least 2 modules per week suggesting a high coverage of students.

- **Facilitators and experience with SEL:** All facilitators consulted have provided positive examples of change after practicing the SEL components, noting that it addresses challenges related to trauma that have affected the students.
- **Flying Colors Delivery Quality from Partner Observations:** Approximately 70% of partner observations affirmed strong setting and storage up of tablets for lessons and more than 70% of Flying Colors sessions met an excelling threshold across 50% of classroom observation criteria.
- **Learners' Engagement with Kolibri:** 89% of learners had at least 10 calendar week logins. All learners spent on average 22.8 minutes per week viewing or completing content within the Kolibri platform.
- **Facilitators attitudes towards Blended Learning and Flying Colors:** From the teacher feedback survey, facilitators were very positive over perceptions of blended learning and aspects of Flying Colors by the endline.

Path to scale opportunities:

- **Community Government Engagement:** Community members and government actors' attendance at the student showcase fell below the target potentially due to scheduling conflicts among targeted stakeholders. Future iterations of the program could explore how best to increase realized engagement.
- **Session Frequency in Specific Schools:** Although an average of 2.5 modules were taught per week indicating there are positive patterns in coverage of students, one school lay behind and did not reach the targeted 2 sessions per week with more consistency than the remaining three schools. Targeted support will improve the consistency of delivery.
- **Classroom observations:** The 8 facilitators were not observed as frequently as intended, falling short on unique-facilitator observations. Opportunity remains to increase observations more in-line with targeted 5 observations per facilitator across a cohort to benefit their delivery of the Flying Colors curriculum. Actionable feedback with regularity can support teachers further.
- **Concerns over Interrater Reliability:** IPA highlights the need for some caution, on the basis of attainment observed in its own Flying Colors classroom observations and would recommend applying a close-lens to internal-scoring consistency for the partner to ensure its observation findings are representative of facilitator performance.
- **Facilitators and the Ed-Tech component:** While facilitators felt confident in their abilities to use the tablets, several facilitators reported challenges that might affect their ability to deliver and utilize the technology as effectively and sustainably as possible in the program. Challenges around troubleshooting and implementing learner differentiation, by using Kolibri's coaching tool. These could be training/ facilitation points for further attention in future iterations of the program.
- **Learners' independence with Ed-Tech:** Kolibri engagement is encouraging, however some scope exists to identify how further independence among learners can be achieved

2.1. Has the pilot produced measurable outputs?

Result	Summary
 *Some adaptations to address potential risks are suggested*	The program demonstrated positive outputs in facilitator training attendance, learner attendance, presence of teaching materials, and consistently functional hardware. Learners show encouraging signs of engaging with the Flying Colors' Kolibri Ed-Tech platform with minimal assistance. Future iterations can improve facilitator classroom observation support and slight improvements in student independence in Kolibri and community engagement. . ● **Learner attendance high:** Learner attendance was consistently high, with over 75% attendance in almost all Kolibri sessions. ● **Resource, Hardware Available:** All complementary learning materials to administer Flying Colors delivery were present by the end of the program, with only some missing headphones sets. ● **Learners' foundational familiarity with Kolibri Ed-Tech:** two thirds of observed sessions identified independent learner navigation of Kolibri, Flying Colors' Ed-Tech platform. In a live demonstration, 80-85% of students displayed skill to navigate content beyond logging in, factoring in minimal assistance from the facilitators. Scope exists to identify how further independence among learners can be achieved. ● **Community/Government engagement needs attention:** Attendance fell below target levels of 200 community members and 20 government stakeholders, at the student cohort showcase, with 93 and 17 community and government members respectively in attendance. The timing coincided with a peak farming season and other conflicting events, which may have reduced engagement. ● **Facilitator Support:** 8 program facilitators were not observed as frequently as intended, at an average of 2.4 visits per facilitator, falling short of the targeted 5-session observations per facilitator, limiting the opportunity for providing feedback on facilitation.

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Learner attendance: Learner attendance was consistently high, with over 75% attendance in almost all Kolibri sessions	
Resource, Hardware Availability: Almost all complementary learning materials were still present at the end of the program including Colors of Kindness, play-based and tech resources. 100% of tablets were present, undamaged, and had functioning software by the end of the program, demonstrating effective maintenance and operation during the respective period of implementation.	
Learners' familiarity with Kolibri: Four out of six classroom observations in weeks 6-12 of the program were judged to achieve independent student navigation of Kolibri, yet more clarity on instructions for setting up devices would enhance the independence of children. Similarly, data from KDP indicates that 89% of learners had logged in at least once across 10 weeks of the program and spent on average 22.8 minutes per week on the platform. In a live demonstration, 80-85% of students displayed skill to navigate content beyond logging in, factoring in minimal assistance from the facilitators.	
Community/Government Engagement: Community members and government actors' attendance at the student showcase fell slightly below the target potentially due to scheduling conflicts among targeted stakeholders, although 93 community members and 17	What events and seasons should future programs be aware of to optimally time showcases and improve attendance?

government officials joined. Future iterations of the program could explore how best to increase realized engagement	
Facilitator Training and support: All designated trainers attended the initial training, and over 80% of actively teaching facilitators attended at least 75% of the refresher training. Refresher training covered relevant topics identified from teacher observations. However the 8 facilitators were not observed as frequently as intended, at an average of 2.4 visits per facilitator, falling short on unique-facilitator observations and opportunity still remains to observe the targeted 5-session observations per facilitator over the cohort.	

Learning Question: Are sufficient numbers of learners attending the sessions?

Indicator: % of targeted learners attending each session

***Target:* 70% of targeted ~250 Cohort 2 learners attend each session of Kolibri**

GREEN - Learner attendance at sessions was high throughout program implementation, with almost all weeks and sessions having attendance above 75%. One week (Week 9) had attendance rates slightly below the 70% threshold across three sessions, likely impacted by school break scheduling, indicating on balance strong attendance has been achieved by learners.

- Source: School attendance logs, supplied by Partner
- Across all combinations of weeks and sessions (40 total), 37 (92.5%) recorded student attendance over 75%. For one week (Week 9), Sessions 1, 2, and 3 had attendance rates of 63%, 63%, and 67% respectively. The Partner has added additional insight that, for this week of classes, students had been called back a week early from a school break, accounting for the lower attendance rates

Learning Question: Do classrooms have the right complementary teaching and learning materials?

GREEN - All complementary teaching materials are accounted for, including all hardware except for fewer than anticipated headsets from two schools. All play-based resources, Colors of Kindness materials measured through infrastructure and resource checklists and overall infrastructure conducive to Ed-Tech integration are accounted for and functioning by the end of the Second cohort of program delivery. The reduced headsets are a consequence of improper handling during the program's first cohort of delivery; however after adapting training to support improved learner handling of headsets, the incidence of depletion was heavily reduced and 27/29 of previously damaged headsets are now deployed back into the program. During the observed timeframe this implies the program has potential to function with little reduction to required resources. It will be beneficial to

monitor closely in future the extent to which all assets can sustain this level of usability over a longer period of time.

Indicator: % of classrooms with sufficient teaching and learning resources (colors / math manipulatives / chart paper etc.)

Target: 100% of classrooms (n=4) have all items of the resource checklist

GREEN - 100% of complementary resources required for Flying Colors delivery are equal and accounted for across all 4 schools, with no deviations, as per the information provided by the partner.

- Source: Filled Infrastructure and Resources Checklist from Partner records.

Resources	Aywee	Apyetta	Ogili Hill	World View	Total	Distributed
Building Blocks	4	4	4	4	16	16
Yoga mats	20	20	20	20	80	80
Learning charts	4	4	4	4	16	16
Dominos	3	3	3	3	12	12
Week 1-4 Lesson Handbook	2	2	2	2	8	8
Week 5-8 Lesson Handbook	2	2	2	2	8	8
Week 9-12 Lesson Handbook	2	2	2	2	8	8
Ludo	1	1	1	1	4	4
Draft	1	1	1	1	4	4
Omweso	1	1	1	1	4	4
Football	1	1	1	1	4	4
Skipping ropes	2	2	2	2	8	8
Whistles	1	1	1	1	4	4
Emotion thermometer Charts	1	1	1	1	4	4

Indicator: % of classrooms that have infrastructure for charging and storing the hardware securely

Target: 100% of classrooms (n=4) have all items of the infrastructure checklist

GREEN - 100% of classrooms have the infrastructure for charging and storing the essential tablet hardware. One of four schools (Apyetta) is powered by community solar panels hence did not have project-installed solar infrastructure. Two schools had fewer headsets (with the total stock reduced by 13%), owing to challenges faced during the first cohort's program delivery; following additional training for teachers to support improved learner-handling of headsets, during cohort 2, only three headsets were subject to wear and tear. While the rating of this indicator reflects positive adaptations made from the program, future iterations of the program can factor in unavoidable replacement rates.

- Source: Filled Infrastructure and Resources Checklist from Partner records.

- **Infrastructure largely accounted for:** As per the table below, all materials are at the expected levels except for headsets in Aywee (46 out of 55) and Apyetta (35 out of 55). This totals to 29 missing headsets, roughly 26% across those two schools or ~13% across the four schools.
- **Headsets:** The partner has explained that all schools were provided with the same number of headsets prior to program inception. Most depleted headsets resulted from poor handling by learners during the first cohort of delivery. The program's refresher *training thus iterated towards supporting learners to better handle headsets.*
    - *The partner has reported that during the second cohort, only 3 headsets were subject to wear and tear damage, unaffected by poor handling. This presents an encouraging successful adaptation of the program, reducing the extent to which replacement becomes a necessary component of the implementation approach.*
    - *It has been possible to repair 27/29 of the damaged headsets post-collection, which are now deployed back into the field.*

Infrastructure by Schools:	Aywee	Apyetta	Ogili Hill	World View	Total	Distributed
Tablets provided at beginning of program	18	18	18	18	72	72
Working tablets remaining at the school (July 2023)	18	18	18	18	72	72
Solar panels	2	0	2	2	6	6
Headset	46	35	55	55	191	220
Server	1	1	1	1	4	4
Routers	1	1	1	1	4	4
Solar Batteries	1	1	1	1	4	4
Inverters	1	1	1	1	4	4
Cages	1	1	1	1	4	4
Adaptors	8	8	8	8	8	8

Learning Question: Are the hardware components and associated software available and functioning throughout the program?

Indicator: % of tablets that are present, undamaged, and have working software by the end of the program

Target: 100% of Tablets and Software Functioning

GREEN - 100% of tablets are fully functional by the end of the program, according to the infrastructure and resources checklist summaries provided by the partner. This indicates that the standard operating procedures and maintenance of the tablets is sufficient under current conditions to last the duration of the program in similar contexts.

- Source: Filled Infrastructure and Resources Checklist from Partner records.
- *n.b. see table in the previous indicator for a detailed breakdown of tablet-supply by school.*
- Some additional perceptions on sustainability of the tablets, including storage and tracking of the devices, especially from headteachers, are elaborated on further in the sustainability and scalability section (under sub-criteria 3.1) of this report.

Learning Question: Are learners able to make use of the Ed-Tech component?

Overall Finding for Learning Question[5]:

YELLOW/GREEN - In weeks 6-12 of the cohort, from classroom observation data, four out of six Kolibri sessions reached a level of independent student navigation. Furthermore, 92% of learners have spent more than 100 minutes on the Kolibri platform, averaging at 228 minutes. This implies that students are likely to have some familiarity with the platform, which is corroborated in IPA-observed live Kolibri demonstrations. In this setting of 20 learners, for those unaffected by server-connectivity challenges, 90% recorded easy logins, 70% seamless video watching, and 60% independent quiz completion, raising to approximately 80-85% competency with minimal facilitator aid although still below the 90% target. Developing independent student competency for quiz and multimedia engagement, as well as easily implementable troubleshooting approaches for server-connectivity issues pose the biggest opportunities for enhanced learner engagement with the Ed-Tech component.

Indicator: Extent to which learners can demonstrate interpreting and advancing to new Kolibri content on tablets

Target: In learner FGDs, 90% of learners demonstrate that they can interpret and advance to new Kolibri content on tablets

YELLOW - In a live demonstration, 75% of the 20 learners observed could log in without trouble, however this frequency increases to 90% when accounting for learners severely affected by router connectivity problems. 70% of learners could watch a video without trouble. Demonstrated ability to complete quizzes independently was slightly less, at 55% of learners. Broadly, when facilitators provided minimal assistance, the learners' ability to navigate the platform across tasks improved to 80-85%.

- Source: Joint Partner and IPA observed live Kolibri use demonstration following completion of program
- **Summary on the live demonstration:** 20 learners were observed during the live demonstration sessions, with network challenges present that affected the efforts of several learners. Findings are not conclusive considering the small sample and that the observations were done in an artificial setting after the program had been completed, but are indicative of successes and challenges that might apply to other learners. These limitations are expanded further in the '*Limitations of the Data'* section in the introduction of this report.
- Observed **ability to navigate on the Kolibri platform:** Independent competency to progress on Kolibri was demonstrated to fall below the 90% target level. When adding minimal guidance from facilitators, students were able to reach 80% of the targeted skills, such as being able to log-in, access media content and complete quizzes.

[5] Including Learning Question 1 under 'Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the intervention?'

- **Logging-in:** 15/20 learners were able to log-in without any issues.
    - **Issues with logging in:** Challenges with local router connectivity, which stores user-information seemed to prevent 3 of the 20 learners from logging in and prevented 1 learner entirely. IPA notes this potentially hampered the extent to which independence could have been adequately demonstrated for these three learners. Accounting for the learners who encountered this issue, 15/17 or 88% were able to log-in without any noted challenges. The remaining two respectively 1) required some facilitator prompting, and 2) were not able to login at all.
- **Videos:** 14/20 (70%) could watch a video without trouble with an additional 2 learners succeeding with minimal assistance.
- **Quizzes:** 55% (11/20) could complete the quiz without assistance, a further 30% (total 85% or 17/20) could do so with minimal support.
    - *When observing this part of the live Kolibri demonstration, it is important to flag that two students were facing server connectivity issues and required some minimal teacher support to proceed. Omitting their readings, 61% (11/18) could complete the quiz without assistance. 83% were able to complete independently or with minimal assistance.*
- ***Server Connectivity Challenge:*** *Incidental findings during the demonstration, around challenges of connecting to the local server, should be considered as a potential point to address or support troubleshooting capacity for in future iterations, which led to slow logging in and fundamentally reduced student independence during the demonstration. This is distinctly different from network connectivity, which should not impact the program delivery as Kolibri is capable of functioning effectively offline.*

Learning Question: Are community and government actors engaged with Flying Colors?

Indicator: Attendance of community members and government actors at student showcase

Target: **1 learner showcase per cohort is held with at least 200 community members and 20 government actors and community leaders in attendance**

YELLOW - Attendance from the showcase in Cohort 2 indicated successful government engagement, with 17 government actors and community leaders joining (just slightly below target of 20). Community member attendance fell below the target of 200 with 93 attending. In addition, 258 students attended this event. This showcase coincided with a peak farming season and other conflicting events, which may have reduced engagement due to timing.

- Source: Attendance showcase data for Cohort 2 provided by Partner
- Overall, 351 community members attended the showcase for Cohort 2. This included 258 students, 93 other community members (including 74 parents), and 17 local and government leaders.

Learning Question: Is the facilitator training effective and implemented as planned?[6]

Overall Finding for Learning Question:

YELLOW - Overall, the training for facilitators was implemented successfully and as planned. Teachers had high attendance at the trainings, and refresher training incorporated feedback from classroom observations to ensure that the trainings were tailored to teachers' needs. However, no teachers were successfully observed at the desired frequency of every 2 weeks.

Indicator: % of facilitators who attend 3 full-day initial training in May

Target: 100% of 10 targeted facilitators

GREEN - All 10 designated facilitators attended both the initial in-person and virtual trainings in May 2022.

- Source: Training attendance data provided by Partner
- All 10 designated facilitators attended both the initial in-person and virtual training sessions in May 2022.
- Initial facilitator training was implemented successfully and as planned.
- By the end of the program, 8 facilitators were delivering the Flying Colors Program. Of the original ten trained, 3 dropped out and one was replaced during cohort 1. The reduced number of facilitators (8) was not deemed to present any challenges in program delivery, as an average of 2 facilitators per school was maintained.

Indicator: % of facilitators who attend at least 50% of the refresher trainings conducted

Target: 80% of actively teaching facilitators attend at least 50% of the refresher trainings conducted

GREEN - 80% of actively teaching facilitators attended at least 75% (9 out of 12) of the refresher training sessions. Attendance at refresher training sessions decreased slightly over time, with only 6 attendees at the May 2023 refresher training. Without further insights there are no immediate concerns to raise on this declining attendance, as implementation neared completion towards the final refresher training and refresher trainings were frequent.

- Source: Training attendance data provided by Partner

Indicator: # of refresher trainings conducted that address priority topics from classroom observations

[6] Including and considering indicator: *Extent to which timing and pace of facilitator training is considered appropriate* in Sub-criteria 2.2: How Satisfied are Participants with the Intervention?

***Target:* At least 2 refresher trainings that address priority topics from classroom observations**

GREEN - Three refresher trainings discussed priority topics identified from classroom observations, indicating observations are being successfully being used to identify key topics to cover in refresher trainings.

- Source: Training content logs provided by Learning Equality

Indicator: % of facilitators observed every two weeks

Target: 80% of actively teaching facilitators are observed every two weeks (starting from Week 4 of the cohort), based on # of observation records submitted

RED - Overall, this indicator was not met, with only an average of 2.4 visits per facilitator. If observations occurred as expected beginning in Week 4, teachers would receive 5 visits over the course of the program. No teacher was observed 5 times, and only one was observed 4 times.

- Source: Classroom observation data compiled and provided by Partner
- **Observation Frequency:** The average number of observations per teacher was 2.4 when only including the 8 teachers who delivered the program, with a median of 2.5.
- **School-Averages:** The schools Apyetta, World View, Aywee and Ogili Hill respectively received 3, 5, 3 and 4 lesson observations respectively across the second cohort. If lessons were strictly delivered in pairs across all observations, it is probable that only one school of four reached the minimum targeted threshold, indicating that this presents an opportunity for sustained improvement in future program delivery, or that the target for observation-based support and feedback may need to be critically evaluated for feasibility, ease of administration and consistency in application.
- ***Insight from the Partner:*** *IPA understands from the partner that possible reasons for not meeting the target threshold were 1) capacity constraints and 2) illness experienced by the main implementing partner team. A couple of implications fronted by the partner for future iterations of the model are 1) a need for more realistic target setting and/or 2) potential back-up capacity in the future.*

2.2. How satisfied are the participants with the intervention?

Result	Summary
 *Few or no adaptations to address potential risks are suggested*	Facilitators reported high levels of satisfaction with the **training timing and pace**. Facilitators also reported positive attitudes regarding the **training content** on SEL, playful learning, and blended learning (see sub-criteria 2.3 for further details).

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Training timing and pace: Facilitators were broadly satisfied with the pace of facilitator training and its timing.	
Training content: Facilitators reported positive attitudes regarding the training content on SEL, playful learning, and blended learning. All facilitators responded to the teacher-endline feedback survey agreeing that the training content was helpful to them.	

Learning Question: Is the facilitator training effective and implemented as planned?

Indicator: Extent to which timing and pace of facilitator training is considered appropriate

Target: **Facilitators largely agree both the timing and pace of most lessons is appropriate**

GREEN - Facilitators were satisfied with the pace of facilitator training and its timing.

- Source: IPA (Facilitator FGDs), Triangulated with Partner Teacher Feedback Survey Findings (conducted by the partner)
- **FGD Findings:** The training sessions were considered especially helpful in terms of preparation and areas of effective lesson planning, differentiation, administering activities and playful learning. Facilitators indicated that the timing and pace was appropriate and half of the facilitators elaborated that they felt in a good position from training and experience to support new facilitators to onboard to the program if that were needed. The trainer's strengths were praised during the FGD.
- **Teacher feedback survey findings**
  - All facilitators by the endline agreed that training content was helpful to them: 75% (6) 'strongly agreed' and 25% (2) 'agreed'.
  - 37.5% (3) facilitators indicated that the number of facilitator training sessions was not right for them, with all three stating that they would have liked more training sessions.
- 7 out of 8 facilitators felt that the **timing was appropriate**, with one reporting not being sure about whether or not the training timing was appropriate.

2.3. Have changes been observed/self-reported in the knowledge, attitudes, behavior or practices directly targeted by the interventions?

Result	Summary
 *Few to some adaptations to address potential risks are suggested*	The implementation of the program shows positive signs of practices aligned with Flying Colors' pedagogical approach and attitudes of facilitators in the schools. The following are among the most relevant changes: • **Sessions frequency:** Sessions were delivered regularly in most schools averaging 2.5 sessions weekly against the targeted 2, with one school less consistent than the remaining three. • **Facilitators adopting the Ed-Tech component:** Facilitators were consistently employing Kolibri during Flying Colors sessions. Despite increased confidence with technology, facilitators highlight challenges around troubleshooting, implementing learner differentiation via the platform's coaching tool and accommodating differences in learners' competencies to use the platform, which may have affected some facilitators' ability to make full use of the technology. • **Quality of Sessions:** More than 70% of partner observations of Flying Colors sessions met an 'excelling' standard. • **Attitudes to SEL, Blended Learning and Flying Colors:** Facilitators perceive great value in the SEL component as it addresses challenges related to the trauma that have affected the students and have overall positive attitudes towards Blended Learning and Flying Colors.

Key Findings	Implications/Planned Adaptations and Considerations of Findings
Close to satisfactory compliance with frequency of session delivery: An average of 2.5 sessions were taught per week, with 85% of recorded school-weeks across all four schools achieving the target of at least 2 modules delivered per week. Most of the weeks where the target was not met correspond to one school (Aywee).	
Facilitators adopt the Ed-Tech component with some challenges: Facilitators are consistently using Kolibri during the Flying Colors sessions. Moreover, facilitators reported confidence about their abilities to use the tablets but also reported some challenges that hinder their ability to effectively utilize and integrate technology into the program. These include troubleshooting, accommodating the spectrum of user-prerequisite competencies, and implementing learner differentiation by using Kolibri's coaching tool.	
Facilitators facilitation of blended learning sessions: More than 70% of partner observations of Flying Colors sessions met an 'excelling' standard across at least 50% of classroom observation criteria.	
Attitudes to SEL, Blended Learning and Flying Colors: All facilitators consulted have provided positive examples of change after practicing the SEL components, noting that it addresses challenges related to trauma that have affected the students. From the teacher feedback survey, facilitators were very positive over perceptions of blended learning and aspects of Flying Colors by the endline.	

Learning Question: Are learners able to make use of the Ed-Tech component? (Continued)[7]

Indicator: Percentage of classrooms in which a majority of the students know how to navigate Kolibri (As per classroom observation form question "Did the majority of the students know how to navigate Kolibri?")

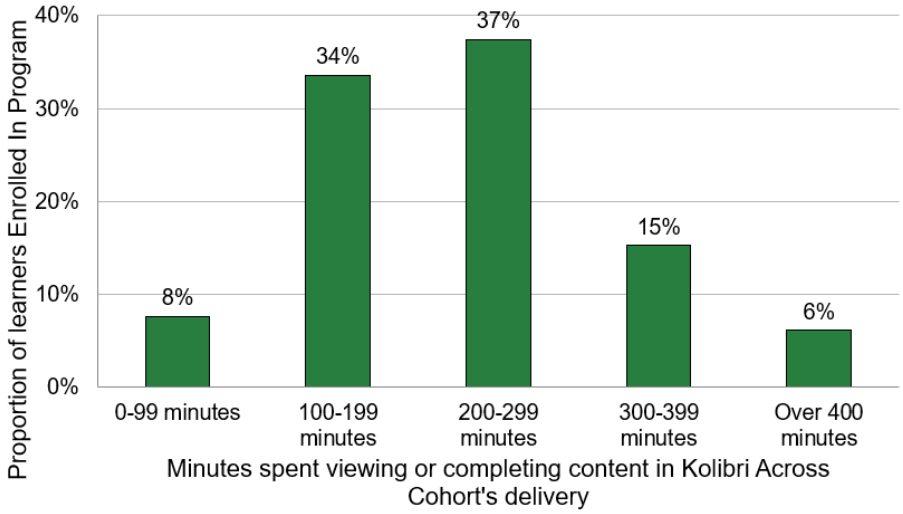
Target: 70% of classroom observations in Weeks 6-12 record that students can navigate Kolibri independently

YELLOW/GREEN - Class observers reported that in four out of six observed sessions (66% of the sessions) students could navigate the Kolibri platform independently between weeks 6-12. Administrative data from the Kolibri Data Portal (KDP), on the other hand, indicates that 92% of learners have spent more than 100 minutes on the Kolibri platform, at an average of 228 minutes across all learners.

- Source: Classroom observation data supplied by Partner, triangulated by Kolibri Data Portal information provided by Partner
- Only 8% of the 73 sessions (6 sessions) were observed during weeks 6-12; with such a small sample limiting confidence, this indicator is broadly compared to the live demonstrations of Kolibri observed by IPA. There is relative consistency between these findings.
- From Kolibri Data Portal information as provided by the partner, 92% of learners spent over 100 minutes using Kolibri content during the program, with an average total minutes of 228.4 (median 223)
- Figure: Source KDP Data Portal

[7] This is a learning question spanning across two sub-criteria. The indicator below is combined with Indicator: Extent to which learners can demonstrate interpreting and advancing to new Kolibri content on tablets, to compile an overall finding for this learning question.

Figure: Learners recorded engagement in minutes using data from the KDP, across weeks 3-10 of the program



Learning Question: To what extent are facilitators' practices changing?

Overall Finding for Learning Question:

YELLOW/GREEN - Class observations and data from KDP suggest that facilitators have adopted relevant practices for the effective implementation of the Flying Colors program, and indicate areas to strengthen the delivery. To begin, data from the KDP indicates that teachers are actively using Kolibri in their teaching, with an average of 2.5 sessions per week across the four schools and 85% of recorded school-weeks reaching the target of at least 2 modules per week. Notably, most of the weeks where the target was not met correspond to one school (Aywee), indicating that support to specific schools will be effective in improving the consistency of delivery. At the same time, two thirds of the sessions observed by the partner affirmed adequate tablet setting up and storage practices. Similarly, facilitators met an excelling rating in at least half of classroom observation criteria in more than 70% of the observed sessions. This indicates some strength in the quality of lesson delivery by facilitators when under normal conditions. However, IPA highlights the need for some caution, on the basis of attainment observed in its own classroom observations and would recommend applying a close-lens to internal scoring consistency for the partner to ensure its observation findings are representative of facilitator performance.

Indicator: Number of modules taught per week

Target: An average of 2 modules taught per week

YELLOW/GREEN - On average, most schools are meeting the target and implementing an average of 2.5 modules per week between weeks 3 and 12 of the program. During that period, at least one Kolibri module was taught every week at every school. However, when considering all the schools combined, the target of at least two modules per week was met for 85% of all the possible school-weeks. The data from the KDP suggests that supporting specific schools will be effective in improving the consistency of delivery, as most of the weeks where the target was not met correspond to one school (Aywee).

- Source: Kolibri Data Portal information provided by Partner
- *n.b. Previously this indicator was framed at the facilitator-level, however the means of verification was the number of recorded facilitations while facilitators were logged into the portal; joint facilitation was a common occurrence during implementation (only one teacher is logged into the portal to do so), and hence the measure lacks reliability. Therefore the adjustment has been made to the wording and target of this indicator to report pm the weekly average modules that were confirmed by the dataset.*
    - **Lessons taught:** 85% of school-weeks had two or more lessons taught in the school (Apyetta, Oglii Hill, and World View had 2 or more lessons taught in their schools at least 9 out of 10 weeks; Aywee had 2 or more lessons taught only 6 out of 10 weeks).
    - The following table breaks down the delivery of lessons per week for each school (for which the cumulative 40 school weeks are illustrated). The white cells point to weeks where the target of 2 lessons per week were not met. Aywee school faces the biggest challenge with consistency of delivery.

Week	Apyetta	Aywee	Ogili Hill	World View
W03	2	1	3	2
W04	3	2	4	1
W05	2	1	3	3
W06	2	3	4	2
W07	3	3	3	3
W08	3	3	1	2
W09	3	2	3	4
W10	3	2	2	3
W11	2	1	3	3
W12	2	1	4	3

- A recommendation is that performance for individual facilitators remains unclear and it may be helpful to strengthen approaches to facilitator-specific monitoring, in order to better track individual delivery.

Indicator: Percentage of Kolibri sessions in which facilitators have an organized process for distributing, setting up and collecting the tablets and relevant hardware
Target: 70% of Kolibri sessions meet 'excelling' ratings across at least 5 out of 6 of criteria for distributing, setting up and collecting the tablets and relevant hardware
YELLOW - Based on IPA and partner lesson observations, there is room for improving the hardware distribution, set up and collection practices as 50-66% of the observed sessions respectively attained an 'excelling' rating. In session observations led by IPA, two out of four sessions (50%) reached the 'excelling' rating across five of six criteria for this indicator (including setup, device shutdown, and storage activities). Key areas for improvement identified were the preparedness of the server and tablets, and clarity of explanations for the instructions for technology-setup. In session observations led by the partner, four out of six (66%) reached an 'excelling' rating[8]. In those, the most common area of improvement was in who leads setting up devices (where a higher rating is provided for children leading this function). Overall, the PE suggests that small improvements can mitigate the risk of inconsistency in this facet of Kolibri session delivery.

- Source: Partner (Observation Checklist); IPA (Observation Checklist)
- *The partner has identified several mitigating circumstances that could affect the representation of IPA observed findings when carrying out data collection and classroom observations. These include 1) Observations taking place on sessions after the program had been completed; 2) At least one facilitator running a session with little prior notification; 3) One observer facing language barriers and 4) Inaccessibility to tablets in one observation as the headteacher who was holding keys to the tablet cabinet was not present (as the program had ended, pre-planning for tablet access had not taken place as usual). As observations were held separately from the partner, with challenges for interrater reliability being present and the small number of observation samples from both partner and IPA data (6 and 4 respectively and both subject to high margins of error), IPA has resolved to refer to both data sources separately. IPA acknowledges the small sample size (4) from its own observations, and while the margin for error will inevitably be high, the logistical shortcomings that underpin potential access concerns need to be treated cautiously, especially with devices.*
- **Data considered:** All four of IPAs classroom observations and 9 Partner observations (from Week-6 onwards of the cohort's delivery classroom observations) were considered in the analysis for comparison.
- **Logistics Concerns:** From IPA led observations, one out of four observed sessions could not demonstrate any setup or use of devices. This was due to the tablets and devices being locked away, and the responsible focal point with keys to the cabinet (a headteacher in this instance) not being present. The facilitator opted to facilitate a Colors of Kindness Session instead, upon which this session's performance is considered for the following indicator "% of facilitators able to successfully facilitate a blended learning Flying Colors session by the end of the cohort."
    - *IPA notes a concern raised by the partner on the appropriateness to reflect on this lesson observation given the hampered demonstrability of tablets during the session. IPA recognises the limitations of considering this alongside lessons which had access to tablets. Thus the analysis below reflects trends observed from uninhibited lessons. However IPA opts to highlight this incidental finding for this indicator, as the propensity for this logistical*

[8] These are observations of sessions conducted between weeks 6-12 of implementation

challenge to occur has been captured and demonstrated, and thus has scope to affect regular lesson delivery; this has also been identified to occur at times in consultations with program stakeholders. IPA would recommend identifying alternative sustainable approaches or processes towards ensuring tablets can be reliably retrieved where needed for lessons, to ensure as minimal disruption to planned lessons as possible.

- **Observations not affected by tablet-lockup:** Of the three remaining observed IPA sessions, two were meeting an 'excelling' rating across at least 3 out of 4 of Kolibri setup criteria and performed well over shutdown instructions. Two received the 'progressing' or 'emerging' rating for criteria on tablets being charged, a concern not identified among the 6 partner lesson observations.
- **Setting up devices:** one IPA observation identified this as an improvement area, whereas 4/6 partner classroom observations scored this as progressing or emerging. The ideal approach for device setup includes a split of initiative between the teachers and students, rather than being primarily led by the teachers. The setup of devices would be an area in which overall achievement has scope for improvement; the partner may need to consider whether or not this would be a point of focus, moving forward, in either promoting or deprioritizing this criterion based on the experience and perceived benefits of having students predominantly leading the tablet-setup.

Indicator: Percentage of facilitators able to successfully facilitate a blended learning Flying Colors session by the end of the cohort

Target: 70% of classroom observations meet 50% of criteria for 'excelling' facilitation

GREEN - Combined observations from the partner and from IPA suggest that facilitators are able to facilitate blend learning sessions; 10 out of 13 (approximately 77%) of the observed sessions attained an '*excelling*' rating. Half (2) of the IPA observations met at least 50% of the excelling criteria, whereas eight out of nine of the partner observations reached this threshold. In total this included four Colors of Kindness sessions and nine Kolibri focused lessons. IPA observed sessions noted lower 'excelling' levels compared to partner observed sessions, which may indicate inter-rater reliability challenges with the tool or; IPA notes that during the logistics of arranging the classroom observations, miscommunication with teachers on the timing of observation may have occurred in the sessions scheduling (held after regular programming was complete) which may have led to some teachers being unprepared - this is further elaborated on in the Data Limitations section in the introduction of this report.

- Source: Partner (Observation Checklist); IPA (Observation Checklist)
- *The partner has identified several mitigating circumstances that could affect the representation of IPA observed findings when carrying out data collection and classroom observations; These include 1) Observations taking place on sessions after the program had been completed; 2) At least one facilitator running a session with little prior notification; 3) One observer facing language barriers and 4) Inaccessibility to tablets in one observation as the headteacher who was holding keys to the tablet cabinet was not present (as the program had ended, pre-planning for tablet access had not taken place as usual). As observations were held separately from the partner, with challenges for interrater reliability being present and the small number of observation samples from both partner and IPA data (9 and 4 respectively and both subject to high margins of error), IPA has resolved to refer to both data sources separately. IPA acknowledges the small sample size (4) from its own observations, and while*

the margin for error will inevitably be high, the logistical shortcomings that underpin potential access concerns need to be treated cautiously, especially with devices.

- **Data considered:** All four of IPAs classroom observations and 9 Partner observations (from Week-6 onwards of the cohort's delivery classroom observations) were considered in the analysis for comparison.
- **Average Excelling and Progressing scores across classroom observations:** Average excelling percentages across all criteria and lesson observations by the partner reached 76% compared to the 48% over IPAs four lessons observed. This is a difference of 28 percentage points. However, if considering levels combination of 'excelling' and 'progressing', this deviation narrows, from 85% observed by IPA and 93% by the partner.
    - This deviation cannot be explained without a further opportunity to undertake a conjoint lesson observation between IPA and regular observers. This could be due to issues with inter-rater reliability (different raters selecting different levels for the same observation) or it could stem from a real difference in the sessions observed. Thus a risk is flagged that potential exists for subjectivity among some scoring levels per criteria.
- **IPA Observations:** IPA's four lesson observations had two observations that reached the target threshold, with 71% and 52% respectively. The final two observations achieved averages for 'excelling' across criteria at <30%. The average excelling achievement across all IPA-observed lessons was 48%.
    - While this average is close to the threshold, IPA acknowledges the small sample size (4) from its own observations, and consequential margin for error but would like to highlight the variation in achievement across the four observations.
    - It can be a beneficial to explore further where consistency has greatest propensity to be enhanced, especially in criteria themes pertaining to Playful Learning and Kolibri (the latter of which IPA's 'excelling' scores varied most in comparison to the partners', particularly with respect to teacher being able to respond effectively to learners' queries/lack of comprehension and quiz to session delivery alignment and relevance.
- **Key rater patterns of differences between IPA and partner observations:** Aside from the deviations in Kolibri setup reported in the previous indicator, the following general session criteria achieved 'excelling' scores more than 30 percentage points below the partner. While the margin for error in comparing observations of 4 and 9 in size (for IPA and the partner respectively) is recognized, IPA has identified these opportunities for zooming into, either to bolster interrater reliability/consistency or to focus on, in maintaining standards:
    - **General:** Does the teacher clearly communicate the classroom routines and expectations? Are there disruptions in the classroom? Did the teacher prepare the necessary learning materials? Was time managed well during the lesson? Does the teacher check learners' understanding of what is being taught?
    - **Playful Learning:** Does the teacher provide opportunities for role-play and imagination? Does the teacher provide time for students to explore on their own? Does the teacher celebrate learners' success? Does the teacher encourage peer learning?

Learning Question: How extensively are learners engaging with the Ed-Tech component?

Overall Finding for Learning Question:

GREEN - Overall, the Kolibri portal was used with sufficient consistency (as measured by 89% of learners logging into the platform at least once a week) and duration (an average of 22.8 minutes per learner per week in class).

Indicator: Average minutes per week per learner
Target: By end of cohort, 20 minutes per week per learner

GREEN: Learners logged in with an average engagement of 22.8 minutes per week per learner, exceeding the target. This is particularly promising considering that learners are paired and may be using their partner's accounts, so this measure is a minimum of their actual engagement and their true engagement is likely greater.

- Source: Kolibri Data Portal information provided by Partner
- **Minimum Engagement Estimates per learner:** Over weeks 3-12, the average number of minutes per learner per week was 22.8 minutes. The program notes this as a **minimum** estimate, given that students at times are placed in pairs for the tablet exercises, but only logged into one account ID. Therefore, the direct and indirect engagement time will exceed 22.8 minutes per learner.
    - **School vs Calendar Weeks:** Weeks 3-12 of implementation were conducted over 18 calendar weeks. Implementation weeks did not follow calendar weeks due to holiday days and weeks, and different schools and classes conducted implementation weeks at different times depending on delays, scheduling, and teacher absences. The exact timing of school weeks and associated KDP records has been clarified to IPA by the partner.

Indicator: % of targeted learners logging onto Kolibri at least once a week
Target: By end of cohort, 70% of targeted learners log into Kolibri according to KDP at least once a week

GREEN - 89% of learners logged in at least once a week across 10 weeks of the program, far beyond the 70% target.

- Source: Kolibri Data Portal information provided by Partner
- **Consideration of the Data - Calendar weeks vs Implementation weeks:** Because the 12 weeks of program implementation occurred across 18 calendar weeks due to school holidays days and weeks, and students did not use Kolibri in weeks 1 and 2 of the program, the indicator of having at least 1 login for at least 10 out of 18 total calendar weeks was used. In total, 89% of learners had at least 10 calendar week logins.
- **Influence of Paired Learning on the Findings:** It should be noted that due to paired learning, it is possible that in some weeks learners only logged in in a pair using their partner's ID, and therefore a login in their username is not recorded; therefore, the direct and indirect engagement time recorded likely underestimates the true interaction of learners with the platform.

Learning Question: How well is the facilitator observation / coaching component working?

Indicator: % of facilitators able to give a specific example of useful feedback they received from an observer and how they applied the feedback

Target: 80% of facilitators could recall received and applied feedback from an observer, and can provide examples

YELLOW - All facilitators recall receiving useful feedback from an observer. Three (37.5%) were able to clearly articulate actionable pieces of feedback for improvement and how they applied them in the classroom, and a further three named general feedback on best practices. Observation visits did not occur as often as prescribed, potentially limiting the time facilitators could receive feedback and action points. Exploring approaches to make facilitator-focused feedback and actions more specific and memorable could be an area of attention in future iterations of the program, so that actions for improvement have the best opportunity to be internalized and continually implemented.

- Source: Teacher feedback survey, collected by Partner
- **Reports of useful feedback:** Out of the 8 facilitators who took the endline survey, all 8 stated that they had received useful feedback from observers that they were able to implement in the classroom, and 6 out of 8 (75%) provided a response to reflect on feedback.
- **Actionable Feedback:** Three (37.5%) identified actionable pieces of feedback for improvement and how they applied them in the classroom. These were 1) To always read the lesson thoroughly before entering the classroom; 2) encourage gender equality and cater for individual learner differences, i.e. those learners with specific needs; 3) frequently reminding learners of the classroom agreement, making management easy.
- **Feedback without more specific applications:** Three further respondents provided more generalized examples of feedback, without noting specific actions taken from feedback provided. These tend to reference broader best practices and observations and reflect on 4) executing playful learning, perfect classroom management, friendly learners and teachers, effective content delivery; 5) motivation from an observer, identifying areas for improvement for next lessons; 6) delivering good content. Although facilitators did not note *specific* applications from these themes of feedback, it is difficult to know if this may be due to the limitations of the question (as noted before)
- ***Limitations of this indicator:***
  The precise Teacher feedback survey questions asked were:
  - *1) During the program, did you receive useful feedback from someone who observed your lesson that you were able to implement in the classroom?*
  - *2) If you said Yes, please give an example of useful feedback and how you applied it in your classroom.*

  The question design did not make explicit the level of detail needed. This makes it difficult to know whether a more general reflection is evidence of a lack of actionable feedback or limitations in the specificity of the question or respondent's ability to recall specific applied feedback.
- **Opportunities:** The teacher feedback survey was administered towards the end of implementation, which could plausibly reduce recall of actionable feedback. Exploring approaches to make facilitator-focused feedback and actions more specific and memorable could be an area of attention in future iterations of the program, so that actions for improvement have the best opportunity to be internalized and continually implemented. An increase in the lesson observation frequency, closer to

the targeted threshold for surveillance, can increase opportunities for receiving this feedback more regularly, and qualitative observations pertaining to success criteria could be a valuable rule-of-thumb to structure actionable feedback.

Learning Question: To what extent are facilitators' attitudes and self-efficacy changing?

GREEN/YELLOW - Facilitators report strong positive attitudes towards the incorporation of SEL and play-based learning in the classroom, noting that these components seem to improve student engagement and behavior. The facilitators hold predominantly positive attitudes towards blended learning and the Flying Colors program as a whole. While facilitators reported confidence in their abilities to use the tablets, three out of eight facilitators have stated challenges that might affect their ability to deliver and broadly incorporate technology as effectively and sustainably as possible in the program. These include troubleshooting, accommodating the spectrum of user-prerequisite competencies, and implementing learner differentiation, by using technology-based support tools. It is difficult to discern whether the cause is attributable to continued gaps in technical competencies and teaching competencies conducive to use of technology, or challenges faced with the iterative execution and adaption of the Ed-Tech platform in this context.

Indicator: % of facilitators with only positive attitudes about blended learning by endline

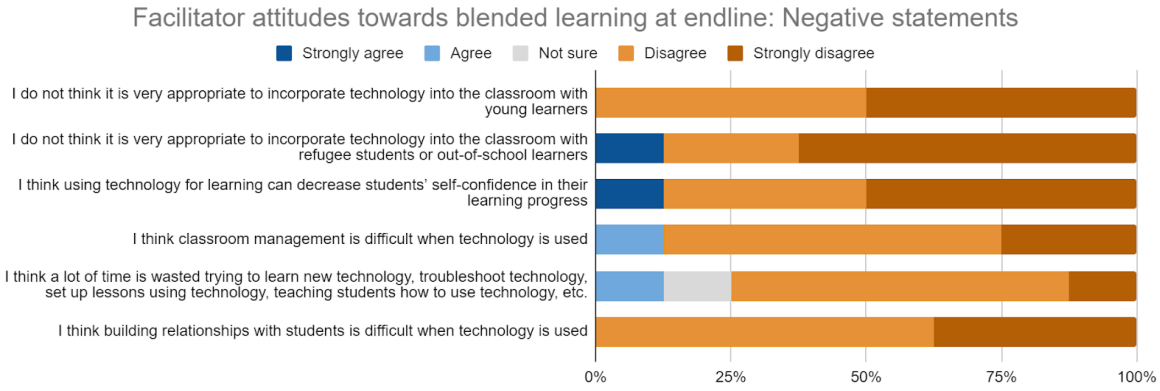
Target: At least 6 of 8 facilitators have positive attitudes[9]

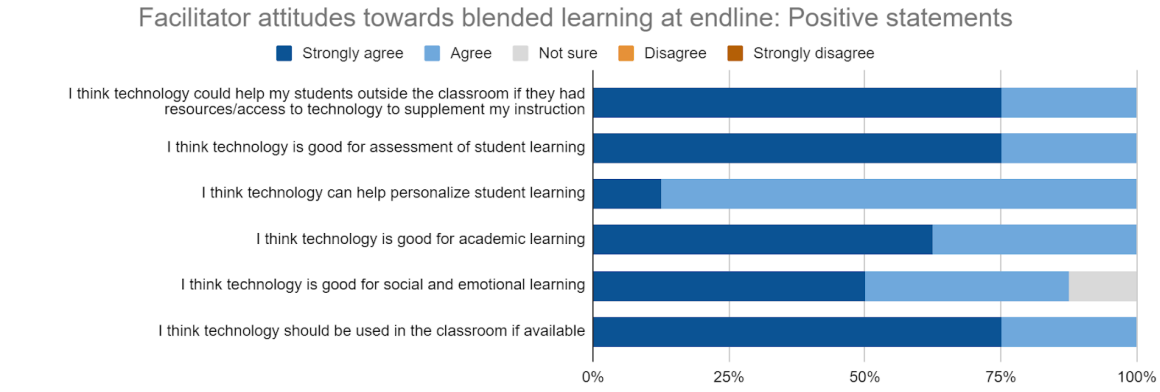
GREEN - 8 out of 8 facilitators held at least 4 or more positive attitudes over blended learning over both positively *and* negatively framed statements in the Teacher Feedback Survey.

- Source: Teacher Feedback survey, conducted by the Partner.
- **Classification of likert-responses:** For the analysis of this and the next indicator, survey data collected by the partner is reviewed of likert-questions to gauge perceptions. A definition consistently applied of a “positive” response when reviewing the data is an answer of either “agree” or “strongly agree” to questions expected to have an affirmative answer and either “disagree” or “strongly disagree” to questions expected to have a negative response. (An example being Disagree or Strongly Disagree counted as “positive” in response to the question: “I do not think it is very appropriate to incorporate technology into the classroom with refugee students or out-of-school.”) A response of “not sure” is counted as neutral.
- **Facilitator response averages across likert questions:** On average, across all of the 12 likert-questions asked during the Teacher Feedback Survey 7.5 facilitators expressed positively associated attitudes towards blended learning. A distribution of responses by specific question is provided in the figures below in these supplementary bullets. (both negative and positive statements).

[9] Measured as agreeing with >4 of 6 of positively framed statements and did not agree with >4 of 6 of negatively framed statements from the Teacher Feedback Survey

- **Positive Associations:** All 8 teachers agreed with positively framed statements that 1) technology could help their students outside the classroom if they had resources/access to technology to supplement facilitator instruction, 2) that it is positive for assessment of student learning, can help personalize student learning, 3) it is good for academic learning and that it should be used in the classroom if available. All teachers also disagreed with the negatively framed statements that it is 1) inappropriate to incorporate technology into the classroom with young learners and that 2) building relationships with students is difficult when technology is used.
- **Contrary Opinions are Limited:** 4 statements had negative attitude responses with just one facilitator in each instance (note that this was not one facilitator solely) implying that 1) they do not think it is very appropriate to incorporate technology into the classroom with refugee students or out-of-school learners. 2) technology for learning can decrease students' self-confidence in their learning progress, 3) classroom management is difficult when technology is used and 4) a lot of time is wasted in trying to learn, troubleshoot, set up lessons using new technology, and teaching students how to use the technology, etc.
- **Figure: Facilitator Attitudes towards Blended Learning: A distribution of Likert Responses by all 8 facilitators by the end of the program**





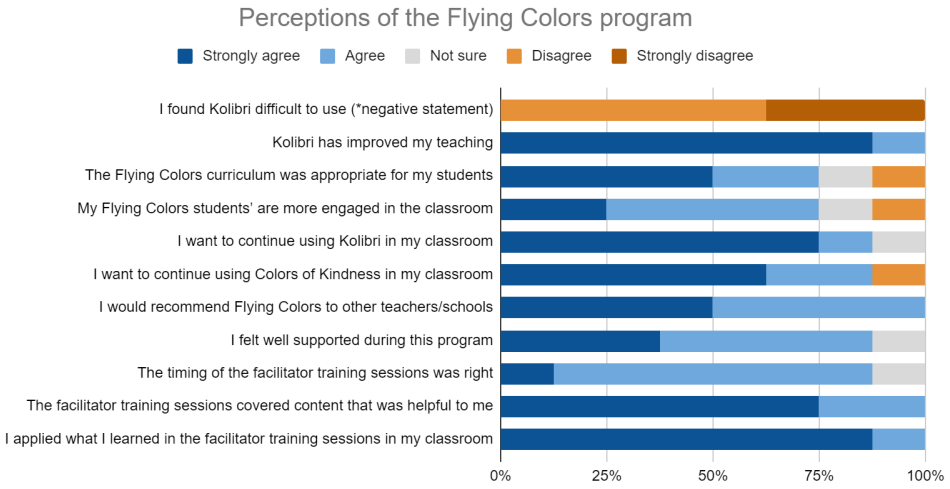
<u>Indicator:</u> Number of facilitators that have positive feelings about the overall Flying Colors program.

<u>Target:</u> 6 of 8 facilitators have positive attitudes[10]

GREEN - 8 out of 8 facilitators held 7 or more positive attitudes over the Flying Colors program according to questions concerning Flying Colors, in the Teacher Feedback Survey.

- Source: Teacher Feedback survey, conducted by the Partner.
- **Facilitator response averages across likert questions:** An average of 7.2 facilitators expressed positive attitudes across all of the 10 likert-questions asked during the Teacher Feedback Survey, administered by the partner, on aspects of the Flying colors program; none of the facilitators agreed with the negatively framed statement over the difficulty of Kolibri use. However, facilitators held neutral attitudes towards 5 reflections, and negative attitudes towards 3 reflections of the program, but just one facilitator mentioning each of these reflections.

  Figure: Facilitator Perceptions of Flying Colors Program: A distribution of Likert Responses by all 8 facilitators by the end of the program (8 Facilitators)



- **Universally Positive Attitudes over 5 Likert Perceptions:** All of the 8 facilitators agreed to the following statements, which implies that they have largely positive perceptions over the value addition and applicability of the overall Flying Colors program.
  a. Kolibri has improved my teaching
  b. I would recommend Flying Colors to other teachers/schools
  c. The facilitator training sessions covered content that was helpful to me
  d. I applied what I learned in the facilitator training sessions in my classroom

  All facilitators agreed that the program offered training sessions with content that was helpful to them, and that they were able to incorporate whatever they learned into their classrooms. They also agreed that Kolibri has improved their teaching, and that they would recommend the program to other teachers/schools. All facilitators disagreed with the negatively framed statement ie. "I found Kolibri difficult to use", implying broad confidence in interacting with the platform among facilitators.
- **Neutral Attitudes:** Reflections that carried neutral attitudes, by only one facilitator in each instance include
  a. The Flying Colors curriculum was appropriate for my students

[10] Measured as agreeing with >7 of 10 of positive only statements and did not agree with 1 of 1 negative statement)

b. My Flying Colors students' are more engaged in the classroom
c. I want to continue using Kolibri in my classroom
d. I felt well supported during this program
e. The timing of the facilitator training sessions was right

- **Negative attitudes:** Reflections that carried neutral attitudes by only one facilitator in each instance (note that this was not one facilitator solely) include
  a. The Flying Colors curriculum was appropriate for my students
  b. My Flying Colors students are more engaged in the classroom
  c. I want to continue using Colors of Kindness in my classroom
- **Reflection on Ambivalent Attitudes:** The findings highlight that there are predominantly positive attitudes towards Flying Colors, but not universally shared perceptions over the curriculum appropriateness, engagement of students and desire to use Colors of Kindness; for the latter point, incidental findings in the Focus Group with facilitators indicated that one facilitator struggled conceptually with Colors of Kindness, which may be an explanatory factor in their specific perception (see Indicator *Percentage of facilitators with self-efficacy about blended learning, play based pedagogies, SEL, and use of Kolibri by endline*). Despite these nuances, a positive perception over Flying Colors is apparent across respondents.

Indicator: Percentage of facilitators with positive attitudes about SEL by endline
Target: 70% of facilitators have positive attitudes

GREEN - From the Teacher Feedback Survey, all 8 (100%) of surveyed facilitators carry positive attitudes about SEL by the endline. All facilitators have provided positive examples of change after practicing the SEL components, noting that it addresses challenges related to trauma that have affected the students. There is an indication of freer interaction among teacher-child relationships and child-child interaction. Facilitators raised anecdotal cases of change observed, noting that this is one component of the holistic package which may have induced positive changes, but with the SEL components being mentioned.

- Source: Partner: Teacher Feedback Survey; IPA: Facilitators FGD (6 participants)
- In the **Teacher Feedback survey**, 100% of instructors responded that i) SEL skills are teachable in the classroom and ii) teaching SEL skills can reduce bullying in the classroom. 7 out of 8 (87.5%) agreed that teaching SEL skills can improve academic performance. Overall, **qualitatively**, teachers exhibited highly positive attitudes towards SEL at the end of the project.

"The playful learning approach, the SEL, the blended learning all those ones change a lot in the classroom. In the classroom we are [the] same, you can't differentiate that this is a teacher. There [are] free interactions with the learners unlike in the past, the teacher could talk and talk." - *Facilitator*

"The lesson plans emphasize classroom agreements. The learners know what they are supposed to do in class. For example not to shout in class, respecting everyone so this creates positive interaction between the teachers and the learners. When the lesson ends ...we smile, we laugh, we have [educational] dances in class and we enjoy ourselves." - *Facilitator*

> "At the start of the program, the learners lacked respect, with our effort through counseling, guiding, doing SEL with them, now the learners are respectful due to this program." - *Facilitator*

> "Before the program, the learners were shy and were not able to interact with others but when the program came, we were able to guide them, counsel them and now they are confident." - *Facilitator*

Indicator: Degree of positive attitudes among facilitators about SEL, academic learning and playful learning

Target: FGD feedback that most facilitators view SEL, academic learning, and playful learning very positively

GREEN - Most facilitators view SEL and playful learning very positively. Academic learning is deemed important to supplement play-based approaches to ensure engagement, and the facilitators perceive that the SEL components have been associated with transformational behaviors, classroom interaction and willingness to learn in school. Conceptually these have been accepted as supportive approaches to integrate in education among refugee/trauma affected learners

- Source: IPA: Facilitators FGD (6 participants);
- **Play-Based Learning:** Facilitators perceive that class engagement, attributable to playful learning, has helped to increase interest among learners; learners seem to prefer this over other methods of teaching. Some facilitators believed it was actively supportive given the trauma experienced by learners, with the notion of play-based learning making the prospect of school more accessible to those who haven't much experience of formal education.

  "Incorporating playful learning was one of the best aspect[s] I have ever experienced in the program because we are dealing with learners who are out of school. They have dropped out, others have never stepped into school. So being a refugee, it's not easy, the trauma they have and when they are in school we play with them, we do lessons on Kolibri so they were able to be relieved from the trauma. It is good, it has motivated most of them to enroll into regular classes." - Facilitator

  One facilitator has tied in play-based approaches as being vital to keeping children engaged, given the typical cited session length (80 mins).

  The practice of playful elements (including using Kolibri) has some challenges in terms of ease of administration, which are noted in the following results indicator, however these have been separated in reflection of the concept of play-based learning when teachers provided feedback on the concepts during FGDs. The play-based learning elements have been deemed positively.
- **SEL Components:** Due to the transformative nature of how engaged children are in play-based approaches in class, combined with the highlighted changes observed under SEL (in both child-child to child-educator interaction), it is fair to say that these blended approaches combined have improved the outlook of teaching and learner engagement across the implementation period.

"...the SEL, the blended learning... change a lot in the classroom. In the classroom we are [the] same, you can't differentiate that this is a teacher. There [are] free interactions with the learners unlike in the past, the teacher could talk and talk." - *Facilitator*

- Tablet based acceptance/misunderstandings took place earlier in the program's inception (over tablet dissemination) however following resolutions sought by sensitizing learners, this has not persisted across the implementation period.

"...parents were asking after learning that computer [would be involved in the program], what next are you going to do, will the tablets be given to them (learners) permanently...we said no but they sent the learners to school knowing that they will go back home with the tablets. So this made them run away because of the tablets, but we followed them, counseled them and they returned to school." - *Facilitator*

Indicator: Percentage of facilitators with self-efficacy about blended learning, play based pedagogies, SEL, and use of Kolibri by endline

***Target:* 6/8 facilitators have increased or retained confidence across these program components**

GREEN/YELLOW - Up to 5/8 facilitators may be inferred to reliably perceive self-efficacy in all components. 7/8 Facilitators perceived their blended and play-based learning and incorporation of SEL components self-efficacy positively, with increasing confidence reported through both FGD and teacher feedback survey responses. Teachers furthermore perceived largely they were able to support fellow peers in being onboarded with respect to these components of the program, with only some minor concern from one respondent over their confidence and comprehension of the Colors of Kindness component. Feedback survey responses indicated a rise in confidence over the use of Kolibri and technology across facilitators. However, when cross-referencing with FGD findings, at least 3 out of 6 facilitators reported challenges. These challenges might affect their ability to deliver and utilize Kolibri and broadly incorporate the technology as effectively and sustainably as possible in the program. These include troubleshooting, accommodating the spectrum of user-prerequisite competencies, and using Kolibri's coaching tool for learner differentiation.

- Source: IPA: Facilitators FGD (6 participants); Partner: Teacher Feedback Survey
- **Blended Approaches and Play-Based Learning Self-Efficacy:** From the Facilitator FGD, there is a broad consensus that the blended approaches have been embraced by facilitators, primarily given their increasing confidence in in the approach's ability to benefit learners, and also through observing positive changes in learner attitudes in the classroom (especially for the SEL and general play-based components).

> "Due to a lot of activities that we have been doing in SEL, it gave hope in the learners. There are drop outs and we have conducted a series of surveys with them so the love for school has greatly improved and now they wish to continue up to primary 7 and then join secondary level." - *Facilitator*

Only one respondent indicated that the Colors of Kindness component was conceptually challenging, and they may not be able to or feel comfortable to train prospective peers on.

> "They should get someone who is well versed with colors of kindness and that person should train other people so that people get to know about it. To me it has not been something very easy." - *Facilitator*

For other components, there is wider-spread confidence among facilitators that they are able to support new teachers who potentially may be onboarded, from their experiences and self-attested improved abilities to implement the program components.

- **Teacher Feedback Survey Findings:** Between the three surveys (baseline, midline, and endline), 9 out of 10 (90%) of instructors increased or retained high levels of confidence about their self-efficacy in play-based learning, incorporating technology, Kolibri, and SEL programming. Only 1 instructor did not improve in confidence across all questions, although there was improvement and retention in some measures.

- **Self-Efficacy of the Technology:** While teacher feedback survey responses indicated progress with Kolibri confidence, at least three facilitators out of six who participated in the FGD had mentioned barriers affecting their use of incorporating the technology effectively in lessons. These are triangulated to factor in whether confident applications of technology are appropriately represented by the quantitative findings. While facilitators felt confident in their abilities to use the tablets, there are a few challenges which reportedly arose, where it is difficult to discern whether the cause is attributable to continued gaps in technical competencies and teaching competencies conducive to use of technology, or challenges faced with the iterative execution and adaption of Kolibri in this context:
  - **Technical Challenges:** Illustrative indications drawn on by Facilitators include **1) troubleshooting issues**, which sometimes require input from other program staff to resolve (including but not limited to what to do when applications were accidentally deleted), **2) Learners being considered to not independently operate the tablets without additional supervision** and challenges with pre-requisite learner competency.

    > "I think learners cannot use the technology safely alone, they need our guidance and instructions. This is because they are drop outs and their age brackets, some had never attended school. They cannot read yet this technology is complicated." - *Facilitator*

    The latter perceived challenge drawn from facilitator discussions possibly arises from facilitators who are considering the entire learner spectrum observed, rather than the typical user experience by the end of implementation. This is an important nuance to consider as it points to challenges likely to be experienced in further program iterations with respect to how aptly the technology and its use in Flying Colors can be efficacious to diverse learners. During an IPA observation of learners interacting with the Kolibri platform, many were able to do so independently and in some instances with minimal supervision.

    Two points of conjecture could arise from this:

    - Kolibri's user-tech prerequisites don't match the profile of the learners in this instance

- Teacher training or capabilities to deliver the pre-requisite levels of user competency requires some revision

From Partner discussions with IPA, it had been raised that a decision was taken to attempt to impart 'just enough' knowledge to the facilitators to be able to operate and use their technology to effect in the classroom. A desire to not overload facilitators with nuanced information was a key motivation for not transferring the responsibility or knowledge on how to troubleshoot more complex technical aspects, in favor of other program staff implementing the fixes themselves. If future iterations of the model are to be explored, especially at scale, this approach may need to be revisited/reviewed in order to ensure sustainability of the operational approach to troubleshooting.

- ***Expectations and Classroom Management of Learners with the technology:*** *A* challenge has been identified in students' willingness to share tablets during lessons. This may be in direct response to paired-learning and appreciably only becomes a cause for concern owing to the limited resource availability in these schools.

  "The limited number of tablets that we have always upsets the learners during sessions. Sometimes they would like to explore on their own and would like to have his or her own tablet. So it is difficult to explain to them much as they share due [to] the sessions." - *Facilitator*

- **Differentiation:** Finally, there is an arising concern over the ability to time-manage by using the data collected through Kolibri (and its coaching tool) to differentiate students and plan lessons. The process could be more straightforward or could be streamlined to not cut into additional post-teaching time. This challenge's nature is outlined further in the proceeding indicator.

  As learner differentiation using the Kolibri coach tool was introduced towards the end of the implementation period, it was recognized that challenges in differentiation may have been ongoing or persistent at the time of surveying. Therefore IPA understands that the challenges faced might have been highlighted more often because facilitators were not yet familiar with efficiently and effectively utilizing the platform to differentiate learners.

- **Encouraging Coping strategies:** Positively where technology challenges were observed, there was evidence of alternative strategies taken up being cited, such as directing content to chalk-boards. One facilitator also noted that they even watched some of the videos in Kolibri to influence how they approach teaching presently.

  "...if you are to watch all those video clips on how lessons are conducted by them, it is so much different and very interesting, so I have taken a series of time to imitate what they are doing and transfer to my teaching styles" - *Facilitator*

- **RELEVANT QUESTIONS CONSIDERED IN THE TEACHER FEEDBACK SURVEY**
  - How comfortable are you in using technology (e.g., powering them on and off, saving documents, typing, searching the Internet, finding appropriate content for your students)?
  - How comfortable do you feel incorporating content from technology into your lessons?
  - How confident are you in integrating playful learning in your lessons? (Playful learning is driven by student inquiry and needs, is meaningfully connected to students' lives, and fosters experimentation and social interaction).
  - How much do you agree or disagree with these statements? [SEL skills are teachable in the classroom] How comfortable are you with helping learners identify their emotions?

Indicator: Extent to which facilitators either describe having no challenges or describe challenges and how they implemented a solution

***Target:* No facilitators describe a challenge they have not implemented a solution to** YELLOW - Half of the teachers noted that they faced challenges in finding the time to differentiate learners into groups and to support students with differentiated competencies

- Source: IPA: Facilitators FGD (6 participants)
- Three challenge umbrellas were noted throughout the focus groups:
    - **1) Technology-based challenges.** Facilitators have been able to freely talk about certain challenges related to classroom management and dealing with challenges related to technology. These have been elaborated on a little further in the preceding indicator.
        - This has been navigated effectively by facilitators in various ways, such as relying on their increasing user-competencies around basic troubleshooting or seeking support from program staff to assist in resolving challenges that have mitigated the extent to which these persist.
    - **2) Behavior and management** of learners who had SEL/PSS needs. This has been resolved via setting classroom expectations with students, permissible behaviors, managing learners with the most needs upfront.
- There has also been very strong evidence of retaining learners' interest in continued education, enrollment and attendance through sensitization and being able to use their 'space expectations' by ensuring learners know how to behave in the classroom and interact with teachers and one-another.
    - **3) Lesson planning/tailoring for learners of different levels** and the planning involved.
    - **Praise of the concept and need:** The Kolibri coach dashboard has been praised as useful to understand where the learners are at, to adjust lesson planning and class 'differentiation', based on factors such as quiz results.
    - **Workload and ease of administration:** However, a commonly highlighted challenge, arising in at least half of the facilitators feedback, is that the time and process for them to reflect and act on the data has not been straightforward. The analysis and subsequent lesson planning/grouping, based on ability, takes a lot of time, having been mentioned as both taking more time than planned, and supporting students in different competency-groups becoming hectic. One facilitator also mentioned that the explanation of why some students were grouped differently (even isolated) was a difficult subject to address.
        - There is potential to support teachers more in the "*interpretation of data to action-point*" process, so as not to incur unexpected time burdens while planning for classes.
    - *As learner differentiation using the Kolibri coach tool was introduced towards the end of the implementation period, it was recognized that challenges in differentiation may have been ongoing or persistent at the time of surveying. Therefore IPA understands that the challenges faced might have been highlighted more often because facilitators were not yet familiar with efficiently and effectively utilizing the platform to differentiate learners.*
    - *The partner has since clarified that differentiation and utilizing the Kolibri coaching tool to support the process was an addition to the program in response to a pre-existing challenge faced by facilitators. This freedom in adaptation is welcome during the piloting stage of Flying Colors. Dedicated monitoring is needed to determine if this challenge diminishes over time or if additional adjustments can streamline the differentiation process in future model iterations.*

Evaluation Results for Criteria 3: Sustainability and Scalability

Overview

What do we mean by *Sustainability and Scalability*?

Sustainability implies that the effect of the intervention on the **early or intermediate outcomes** defined in the theory of change have the potential to **last over time** for the beneficiaries who participated in the intervention. Scalability implies that the model through which the intervention is implemented can be **replicated in practice on a larger scale** to achieve greater reach. This criterion has the following two macro evaluation questions:

3.1. Provides persistent benefit to the community? (after the intervention is done)
3.2. The intervention is scalable to greater reach based on technical, administrative, and human resource requirements

The following section will cover a summary across the Sustainability and Scalability findings, followed by sections 3.1 and 3.2 to break down the key findings within each evaluation question and planned adaptations based on those findings. Within each of those evaluation question sections; the key findings are followed by more detailed analysis by learning questions and indicators for reference of the data that led to the key findings.

Summary of Sustainability and Scalability Criteria Finding

Some adaptations to address potential risks are suggested

Key successes:

- **Program Knowledge Management:** Flying Colors training materials are developed and available for use by the partners, facilitating the expansion of both the Kolibri EdTech Toolkit as well as the Colors of Kindness curriculum elements of the program. These materials will be included in the Kolibri Edtech Toolkit with an open license to support its reuse without cost and ability to be contextualized following additional inputs by the Kolibri community so they can be accessed by wider stakeholders.
- **Local Stakeholder Support:** There are early signs of support by local parties for the Flying Colors program. All sector working group meetings from January to June 2023 discussed the program.
- **Alignment of Flying Colors components with Government Policies:** Existing government strategies and priorities align with the program design in terms of equitable access to education for disadvantaged groups, importance of SEL in these contexts for wellbeing and education delivery outcomes, incorporating play as a strategy. Proof of an abridged curriculum by the government due to Covid-19 shows alignment over the priority to accelerate education for those who missed schooling years.

Path to scale opportunities:

- **Infrastructure and Funding Challenges to Scaling:** Despite local support for the Flying Colors program, there are concerns about 1) availing sufficient funding for scaling hardware-components of the program into new schools and 2) the quality of general schooling infrastructure across the schooling system in similar contexts required to deliver the program with quality. It is worth noting that the Partner has limited agency on solving some structural issues, including who should bear costs for upgrading regular schooling infrastructure; these are important considerations however to raise given the intended model of Flying Colors being heavily tied to the use of technology assets.
- **Opportunities for Continued hardware use:** Deputy Headteachers perceived that training more teachers within implementation schools to use the technology, providing additional tablets, ensuring reliable power sources, protection against theft/damage, and maintenance could support continued use of the hardware beyond the pilot implementation period.
- **Address Perceived Concerns from School Leadership to Support Continuation of the Curriculum:** Only 2 out of 7 head and deputy headteachers rated the likelihood of continuing to use the Flying Colors software-based curriculum at or above 75%. This indicates they were not aware of concrete plans to integrate the curriculum through the software beyond HAF implementation, although plans may have been formed. Sensitization may be required for these stakeholders to better understand the experiences of the students and teachers before supporting integration into mainstream education plans for longer term benefits.
- **Local Awareness of Curriculum Content:** Scope still exists for introducing program-materials to local district education and government stakeholders. Intentions are present to onboard local stakeholders in future iterations.

3.1. Does the program show promise for providing persistent benefit to the community through pathways to continued implementation after the intervention is done?

Result	Summary
 *Some adaptations to address potential risks are suggested*	There is a strong desire from some facilitators to continue teaching approaches of Flying Colors in the future, including play and SEL elements. However school leadership perceives some barriers to continued application of Flying Colors programming beyond the pilot if there were no further external programmatic support. ● **Moderate likelihood of continued hardware usage:** School leadership perceived logistical barriers to continuing use of, and wider scaling of, tablet and solar panel use, such as power source reliability, theft prevention, and maintenance. The implementing partners note that many of these are factors that are taken into account in the current implementation, so next steps could include planning for integration of those hardware management components into standard school management practices with school leaders to ensure sustainability beyond direct implementer involvement. In addition, Head and Deputy Headteachers perceived that training more teachers within implementation schools to use the technology, providing additional tablets, ensuring reliable power sources, protection against theft/damage, and maintenance could support continued use of the hardware beyond the pilot implementation period. ● **Continuation of the software-based Curriculum:** School leaders shared perceived concerns about future use of the Flying Colors curriculum and would need sensitization to better understand the experiences of the students and teachers before supporting integration into mainstream education plans for longer term benefits.

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Moderate Likelihood of continued hardware usage: Long-term school staff perceived continuation of tablet and solar panel use as moderately likely. Head and deputy headteachers cited training more teachers to use the technology, providing additional tablets, ensuring reliable uninterrupted power sources, protection against theft/damage, and maintenance planning as approaches to improve likelihood of hardware sustainably being used. Staff reported partial reliance on the implementation team to facilitate technical maintenance, which could have implications on the persistence of benefits (post-implementation).	
Continuation of the software-based Curriculum: Only 2 out of 7 head and deputy headteachers rated the likelihood of continuing to use the Flying Colors software-based curriculum at or above 75%. This indicates they were not aware of concrete plans to integrate the curriculum through the software beyond HAF implementation, although plans may have been formed. Sensitization may be required for these stakeholders to better understand the experiences of the	

students and teachers before supporting integration into mainstream education plans for longer term benefits.	

Learning Question: How do facilitators envision using what they've learned in the program beyond the end of the program?

Indicator: Extent to which facilitators describe how they plan to use what they've learned from the program beyond the program

Target: All interviewed facilitators have specific plans for using at least concept, learning, or skill beyond the end of the program (in a teaching context)

Note from IPA: This indicator no longer has any implication on the process evaluation because uncertainty lingered about Flying Colors program post-project closure during focus group administration as well as lack of specificity in questions. The finding remains unrated and serves only to provide an illustrative background which may be of use to the partner for reflection purposes.

UNRATED - 3 of the facilitators consulted in a focus group stated specific intentions to use concepts, learnings or skills beyond the end of the program, commonly citing the integration of play-based approaches. These three facilitators also indicated improvements in teaching styles and improved ability to consider emotions from SEL components to support learners that they have adopted post-intervention. Other transferable skills were difficult to identify for respondents, potentially driven by the perception that the program may end, at the time of consultation and consequently scope for application of atypical mainstream education approaches (such as Ed-Tech components) may be limited in opportunity for facilitators.

- Source: IPA: Facilitators FGDs (6 participants)
- Two key challenges have been faced which mitigate the extent to which this indicator could be measured against the target; the first is that responses to this question required proactive participation from participants, which do not represent the viewpoints of the majority of teachers, and secondly at the time of administering the focus group there remained uncertainty over the future of the Flying Colors program post-closure of this project. The project is currently (November 2023) continuing in a new iteration. The obstacles mentioned, therefore, linked to using specific program components (in the final supplementary bullet for this indicator), might not affect the continuation of what facilitators have learned or intend to practice from the program, particularly as some respondents were uncertain about the program's immediate continuation. IPA maintains this breakdown of findings in the report for this learning question with a view of it being reflective and prescriptive to the partner but will omit this in the PE's scoring and key-findings reported on.
- **Positivity over the curriculum:** Facilitators perceive that the curriculum supports learners in their behavioral development and that it has supported students to become more eager to participate in education than at the beginning of the program. Half of the facilitators involved in the focus group elaborated on a competency they would seek to integrate in the future; feedback has been most

positive about adopting **play-based approaches** in their future teaching, while one indicated they may seek to **integrate tech resources** more than previously (indicating they see value in technology applied in the program that could extend to other Ed-Tech solutions).

"I plan to continue with the access of resources through technology because I know it is not only through Kolibri that I can execute the lesson in class. I will using other programs or applications to help me get the resources that can help me in the normal classes. I know now that it is through technology that I can develop my teaching skills." - *Facilitator*

- **Improvements in Teaching Style:** Two facilitators noted they have also improved their teaching style due to better consideration of emotions and interests of learners (SEL) and more useful teaching styles from the videos.

  "It has changed a lot, most especially in blended learning. We have useful resources like clips of experienced teachers ... So if you are to watch all those video clips on how lessons are conducted by them, it is so much different and very interesting, so I have taken a series of time to imitate what they are doing and transfer to my teaching styles. Secondly the issues of energizers, we used not to do it very well but I have learnt different energizers and once give to the learners, they are very active and even myself I feel that [I] am moving" - *Facilitator*

- **Static Perceptions of Continued Practices are tied heavily to program components:** One facilitator reflected that approaches specific to the program may not be continuing in their near future when the program ends, and therefore from lack of regular application their own knowledge over implementing components may become reduced. A reason for this may be that the program's transferrable learnings are perceived to be tied heavily to the integration of technology into education; without certainty on this, the package's collective benefits as a whole might be difficult to dissect for the facilitator.

  "I can use the skills in our normal teaching settings, I will incorporate the learning through plays, SEL activities but the blended learning, Kolibri I won't be in position to use them because the gadgets are not there. So that knowledge may die." - *Facilitator*

Learning Question: Could the hardware (tablets and solar panels) be maintained and used for learning in schools beyond HAF ownership of the program?

YELLOW - The process evaluation data indicates moderate likelihood of continued maintenance and use of both tablets and solar panels for learning in schools beyond partner ownership of the program, perceived at just below 75% likelihood by Headteachers and Deputy Headteachers. These long-term school staff were able to identify solutions to major barriers for solar panel challenges, but technical maintenance still relies partly on the

HAF implementation team and staff expressed concerns around security against theft/vandalism. For tablets, head and deputy headteachers perceived barriers beyond HAF ownership of the program, including perceived risks from unstable power sources (when technical faults are experienced), ongoing protection against theft/damage, maintenance, and keeping up training of teachers. The partners state that these perceptions were fully addressed during the pilot through solar panel installation and theft prevention policies, and schools have established systems to manage and track tablets. In spite of this, as *some inputs* from school leadership points to challenges *likely* experienced, it can be of value to consult them and risk-map to mitigate adverse scenarios from occurring as implementation continues. Full handover was not part of the plan for this pilot. If the program is aiming to move towards scale in the future, school management will need to be involved in long-term management beyond direct HAF implementation so next iterations of the program may benefit from further sensitization with key stakeholders of the hardware maintenance policies for their ownership, including school leadership, to ensure they are clear on how to maintain and use the hardware beyond the end of the implementer ownership.

Indicator: Perceived probability of continued maintenance and use of solar panels in 1 year for learning purposes in schools beyond HAF implementation ownership
Target: 75%+ avg. projected likelihood of continued use
GREEN - 74.8% average perception of deputy headteachers and headteachers, however the negative perceptions that skewed downwards the score were related to the unreliability of the panels in one school affecting some of the assets and utilization of power.

- Source: IPA Headteacher/Deputy Headteacher KIIs - Quantitative estimate requested (equally weighted among 3 Headteachers and 4 Deputy Headteachers)

Indicator: Extent of barriers to continued use of solar panels beyond HAF implementation
Target: Long-term school staff (head teachers/deputy head teachers) are able to independently identify feasible solutions to any major barriers to their continued use for learning purposes
GREEN/YELLOW - Long-term school staff can typically resolve challenges associated with the continual use of solar panels, however there is partial reliance on the implementation team to facilitate technical maintenance, and remaining perceived concerns over the ability of the schools to provide security to mitigate theft/vandalism beyond the end of HAF implementation.

- Source: IPA (Head and Deputy Headteachers KIIs)
- **Solutions to Safeguard Panels:** Some schools have been more readily able than others to implement solutions to mitigate challenges pertaining to the long-term safeguarding of panels and

their associated components. Examples of this include having guards look after the premises outside of school hours to protect the assets against theft and vandalism. The former is a key risk factor in one school where thefts have taken place, however there is no evidence from the interviews that this is a recent challenge.

"We are requesting that even guards should be on the panels so that they are protected because [of] this community... if it wasn't [for] our watchman sometimes they might even try to stone it" - *Deputy Headteacher*

"[A solution we have performed is] assigning the guards we have so that they see if there is anybody who might want to tamper with the solar panel because we might not be here full time like over the weekends but the guards are there to ensure that it is in safe condition" - *Deputy Headteacher*

Financial Liquidity: In one school's context, where the panel is shared with the community and was not installed by the program, liquidity challenges in financing power-bills upfront has been raised as a concern.

"[the] financial constraint, at first this program was instituted for financial purposes. You are supposed to pay for this solar [panel energy] given by [the] government before utilizing it, sometimes you pay [a] large amount and your tariff may run out for the allocated period of time and be cut off, that's the biggest challenge we are facing." - *Headteacher*

However as this is a challenge arising from an adaptation of the intended model, where panels are installed by the program, this marks only an indication of what may need to be considered in scaled iterations of the model that seek to make use of existing infrastructure.

The partner has informed IPA that the monthly cost for the school is approximately USD10, implying that supporting schools with this ongoing expenditure is a reasonable adaptation to the model that can continue to be actioned.

- **Perceived Challenge over Maintenance:** A couple of respondents have identified there have been some challenges to ensuring maintained functioning of the panels, with some technical assistance required from program teams and/or technicians to solve power issues. It is noted that the partner's implementation program team has been especially helpful to all schools, however in one instance, solar technicians took a week to attend to a problem which resulted in less Ed-Tech use during this disruption.

  "It has [previously] caused us damage to the chargers of the Tablets. It is on and off; the system is always getting off.... And the people who repair take like a week to come and work on it. And this forces the learners to stop for that period." - *Deputy Headteacher*

  There haven't been reports of any major maintenance challenges experienced, though it is perceived by several stakeholders as a potential issue for the future. Notably Lumi-solar, the solar-panels provider, have not flagged this as a concern about the technology, praising their overall longevity.
- **Workload Concerns over additional oversight:** A workload-oriented issue has been raised by some deputy headteachers and a headteacher about the holistic additional oversight and responsibilities of safeguarding tech-assets (though the extent to which this is influenced by the solar panels themselves is less evident than with Tablets and other technology assets).

  "We have put them [panel connections] up where nobody can access it and inside where the battery is, it is locked. It is me and the head teacher who

keep the keys. Sometimes it may interfere with the work of the head teacher: it has been put inside the head teacher's office. My suggestion is that they get a cable, [and] connect it to the classroom where the activity is taking place, when the session is done, the cable can be rolled back to the office." - *Deputy Headteacher*

"Sometimes keeping these things especially over the weekend or holidays we have to be around, whenever I am far, I would think of they are safe because the guard as a human being can't be here 24/7, thinking are those solar panels safe, because our school is not fenced making it difficult for the guard to monitor when we are not around we keep asking those around if the school is safe" - *Deputy Headteacher*

The exact workload implications and extent to which they are realized on a regular basis remains unclear. Therefore this may be a crucial perception based constraint that may require additional sensitization, a clearer delegation of responsibilities to the same or alternative process owners, or alternative adaptations built-into model to ensure workload concerns do not take precedence over positive reception to the program.

Indicator: Perceived probability of continued use of tablets in 1 year for learning purposes in schools beyond HAF implementation ownership

Target: 75%+ avg. projected likelihood of continued use

*GREEN/*YELLOW - 73% average projected likelihood of continued use (average perception of deputy headteachers and headteachers)

- Source: IPA Headteacher/Deputy Headteacher KIIs - Quantitative estimate requested (equally weighted among 3 Headteachers and 4 Deputy Headteachers)

Indicator: Extent of barriers to continued use of tablets beyond HAF (Partner) implementation

Target: Long-term school staff (head teachers/deputy head teachers) are able to independently identify feasible solutions to any major barriers to their continued use for learning purposes

YELLOW - Long-term school staff noted barriers to continued use of tablets for education purposes, as realized challenges include 1) the reliability of the power source to charge tablets. Additionally *perceived challenges* include 2) protection of tablets from theft and accidental damage and 3) maintenance of complimentary equipment. Suggestions to address barriers included training an adequate number of teachers (including mainstream teachers), providing more tablets (although it is plausible that deeper stakeholder awareness, sensitization to actual learners tablet needs or consultations to understand their concerns could mitigate this concern). Further solutions conjectured to improve the ease of continued asset usage included providing/seeking resources to maintain or repair equipment in the long term, and possibility of training teachers to undertake basic

maintenance and troubleshooting. There were mechanisms to ensure safety of tablets and other project equipment which were overseen by school administrators which are well described. Basic maintenance like dusting was being done by teachers, deputy head teachers and in some cases head teachers.

- Source: IPA (Head and Deputy Headteachers KIIs)
- **Power-Challenges:** In some schools, power generated from solar panels was sometimes unstable, with an experienced challenge reflected on by one school (as mentioned under the indicator Extent of barriers to continued use of solar panels beyond HAF implementation). One of the schools used solar power installed by Rich Energy which had to be paid for (described also under the previous indicator Extent of barriers to continued use of solar panels beyond HAF implementation). Sustaining these power payments, for continued tablet use, would be challenging for the school when and if the partner exits without additional support. *The partner noted limited influence in this case as the community managed the solar panels. For similar partnerships in the future, schools will benefit from guidance on how to navigate challenges in power in order to sustainably support program implementation.*
- **Current Learners to usable Tablets:** A common perception raised by one headteacher, two deputy headteachers and two facilitators is that the number of tablets isn't sufficient for the learners in classrooms, limiting the potential interactivity time for learners; while many of these these perceptions don't directly contradict the protocol of 1 tablet for two learners (or 18 working tablets per school), one stakeholder have indicated some reasons to why the learner-to-tablet ratio was not always met.
    - The first indicates a 1:3 ratio required when tablets face technical glitches, learners uninstalled Kolibri or otherwise tablets were indisposed. *It is not discernible from this interview whether irregular class sizes or numbers of learners exceeded standard practice.* Corroborating evidence of learner enrollment and classes taking place, it is plausible that this occurrence may have been more likely in the Aywee school, where learner numbers were at capacity and classes may have been more irregularly held over the course of delivery.
    - All other instances speak to the generalized perception that tablets are too few for learners; it is not clear why the school leaders (headteacher and deputy headteacher) hold this perception, especially in lieu of the learner enrollment numbers for Flying Colors being adequate, but at the facilitator level some reluctant attitudes for learners wanting to share tablets or explore on their own were raised. On the latter instance, it is unclear what could be done to avoid this issue, however the former points to a need to sensitize school leaders towards responsible and appropriate numbers of tablets required for adequate teaching - suggestions provided by stakeholders include the procurement of more tablets to accommodate this gap.
- **Perceived Challenges over Theft/Vandalism:** The possibility of theft and vandalism of equipment was a major concern; head teachers and deputy head teachers took responsibility for safeguarding tablets and other program equipment as they felt the school owned the equipment. While no direct incidence of theft under this program was reported, the potential was considered especially real in one school, for which a deputy headteacher had elaborated during an interview on the previous break-ins and thefts which had taken place in that school. There are occasional concerns over trust also, which inhibits lessons taking place, especially when custodians of the keys are away:

  "The way we are maintaining [tablets], we have the head teacher's office room, is where we keep everything but it was not easy in a community like this because people [have] different aims, the very person you are working with can even pick the tablets, it is not easy...

...Actually, it is not easy I have to be honest because at times they may be in need of things and there other side I may be still committed because it is only from our office that they are supposed to sign and if they have not signed they will not pick it, and they cannot take it back if I have not seen and signed to verify that they are taking back the right number. So, it is not easy because there are other days they may call me for like workshop, so when I am absent, the lessons will not go on because that part is very technical, someone may pick and you will find that there is something missing" - *Deputy Headteacher*

    - **Process of Safeguarding:** Despite the trust-based concerns, there were well established responsible people and systems highlighted by school leaders to manage and track tablets from stores to classrooms and back to the stores. However, a deputy headteacher from one school has expressed that they did not have locks on the cabinet to secure tablets.
- **Holidays:** The Implementing Partner collected and stored tablets and computers safely during the school holiday, however a longer-term solution may need further consideration post-project.
- **Maintenance:** Teachers and some head teachers were involved in basic maintenance like dusting using equipment provided by the program. There was a request to train some teachers to do basic maintenance and provide a fund/budget to do repairs in the long term.

"The suggestion I can put forward either to HAF Uganda or to any other partner, if they can plan for some small budget to maintain those systems especially in repair in case they have gotten broken for like maybe 5 years, that will help a lot." - *Deputy Headteacher*

Learning Question: Could the software be maintained and used for learning in schools beyond HAF ownership of the program?

RED/YELLOW - The perceived probability of continued use of the Flying Colors curriculum through the software beyond partner implementation is relatively low, with only 2 out of 7 head and deputy headteachers rating the probability of continued use 75% likely. Key barriers to continued use of curriculum through the software beyond partner implementation were highlighted as the ease of learner comprehension from the platform owing to the use of English, despite this being a Ugandan policy requirement; other learner-based challenges which could affect retention of information; and challenges in wider-student motivation in attending more mainstream education while Flying Colors is concurrently being delivered to a specific cohort of students.

Indicator: Perceived probability of continued use of curriculum through the software beyond HAF implementation

Target: 75%+ avg. projected likelihood of continued use

RED – Head and Deputy Headteachers reported a 58% average projected likelihood of continued use. Only 2/7 surveyed rated it at or above a 75% likelihood, with 4/7 rating it at 50% or lower. This indicates they were not aware of concrete plans to integrate the curriculum through the software beyond HAF implementation, although plans may have been formed and not yet sensitized.

- Source: IPA (Head and Deputy Headteachers KIIs) - Quantitative estimate requested (equally weighted among 3 Headteachers and 4 Deputy Headteachers)

IPA has met with the partner and has been informed that the program is continuing further through HAF implementation which is a positive for the community and the partner to build on to the platform they have created. It is important to note that at the time IPA conducted field assessments, the continuation of the project and its components was in doubt among many of the stakeholders consulted and they were not yet clear on how to continue without HAF. It is acknowledged therefore that at an alternative point in time, that overall perception over this indicator from respondents may have been more positively inclined. The partner also notes that the curriculum was aligned to the Ugandan abridged curriculum of P3 and P4 and they are working on a pathway for continued use, but the headteachers and community stakeholders were not necessarily made aware of this alignment.

Indicator: Extent of barriers to continued use of curriculum through the software beyond HAF implementation

Target: Long-term school staff (head teachers/deputy head teachers) are able to independently identify feasible solutions to any major barriers to their continued use for learning purposes

YELLOW - Key barriers to the sustained use of curriculum through the software post-partner implementation include learner comprehension challenges due to the platform's use of English (as required by Ugandan policy) and specific accents in its media content (though there is encouraging evidence pointing to changes in content to start addressing this). Perceptions of long-term school staff about the potential negative consequences of the program could represent another barrier. For instance, some perceived concerns include 1) the use of the tablets potentially affecting students' capacity to retain information and write, though the program has adapted to more actively incorporate writing after the first cohort of the program, 2) concerns about the program unknowingly creating incentives to skip mainstream education sessions because Flying Colors sessions are more engaging.

Source: IPA (Head and Deputy Headteachers KIIs)

- **Curriculum Alignment Perceptions:** Components of the Flying Colors curriculum are related to the MoES curriculum, teachers prepared accordingly and provided translation to the local language during lessons as lower primary children were not familiar with the English language, among other adaption measures (detailed further in sub-criteria 1.2). The deputy and head teachers may not entirely be clear of the connection between this curriculum and the mainstream mandated curriculum, as evidenced by one headteacher:

  "When developing the curriculum, they should work in collaboration with NCDC such that what will remain in the tablets is one which will be used by

the government, it should be one curriculum. Some parts are in conformity with the government and others are not so am suggesting that when developing the curriculum, it should be the one that will be supported by the government." - *Headteacher*

Although the partners note that this is in alignment, this indicates that more sensitizations may need to take place to ensure school leaders fully understand the efforts of the Flying Colors team to design the curriculum to be fully aligned with the government mandate.

- **Writing Development and Revision:** Other concerns raised by Deputy and Headteachers relating to children's engagement with the curriculum were:
    - 1) not being able to write as learners relied on tablets
    - 2) lack of revision material as they did not take notes

  IPA understands that the program adapted following the first cohort to incorporate writing more actively in the curriculum. It is unclear to what extent these concerns therefore remain founded.
- **Reflection on curriculum being delivered by tablets:** A concern raised is the possibility of accessing pornography while the curriculum was being delivered through tablets, particularly by adolescents (although this was not corroborated from interviews held by other head and deputy headteachers, only considered to be taking place by one headteacher, and raised as potential risk factor from one deputy headteacher).

  This issue was raised in response to perceived benefits and challenges of continued integration of this software-focused curriculum. IPA understands from the partner that sufficient preventative measures are in place to mitigate access to inappropriate content and that due to the offline nature of the software the highlighted risk is not likely to translate to an actual risk. The stakeholders may find it challenging to consider the curriculum administered purely independently from the prospective challenges of technology. More discourse around how the tablets and curriculum function in day-to-day teaching may support sensitizing the stakeholders and perceive this and the curriculum purely with an education mindset.
- **Incentives to Participate in Flying Colors with concurrent mainstream education:** Further concerns had been raised over the perception of the program as it sought to target a specific cohort of students rather than all students within their schools.

  In similar ways, there has been concern over students from other classes attempting to sneak in and join the Flying Colors classes leading to some disruption, indicating a preference for learners towards this style of teaching, which could have challenging repercussions for the interest of non-Flying Colors learners to attend mainstream education.
    - *While this consideration supports reflection of the program perception from the school leadership, IPA understands this stems partially from the pilot-nature of the project which can have restricted scope and coverage. This has no bearing on the overall rating for this indicator and is reported as incidental findings for reflection.*
- **Other minor suggestions for improved acceptability:** Head teachers and deputy head teachers advised that some material should be printed to allow revision at home. Furthermore, formal incorporation of these sessions with the school timetable may be considered a small adjustment that could improve the curriculum's overall acceptance.

  Additional insights from the partner have indicated the source of this concern might be from lessons occasionally taking place during public holidays for purposes of the pilot. If these are not anticipated to take place in future iterations of the program, then the overall acceptance of the program and its scheduling is likely to improve.

3.2. The intervention is scalable to greater reach based on technical, administrative, and human resource requirements

Result	Summary
 *Some adaptations to address potential risks are suggested*	Many components of the program have strong knowledge management for replication and local stakeholder support for continuation and adoption in scaled form. To facilitate scalability, future iterations of the program will need to address open challenges related to resources, funding and infrastructure needs for implementing Flying Colors in more schools. ● **Program Knowledge Management:** Flying Colors training materials are developed and available for use by the partners, facilitating the expansion of both the Kolibri Ed-Tech toolkit as well as the Colors of Kindness curriculum elements of the program. These materials will be included in the Kolibri Edtech Toolkit with an open license to support its reuse without cost and ability to be contextualized following additional inputs by the Kolibri community so they can be accessed by wider stakeholders. Intentions are present to engage local stakeholders to use these materials in future iterations of Flying Colors. ● **Infrastructure and Funding Challenges to Scaling:** Despite local support for the Flying Colors program, there are concerns about 1) availing sufficient funding for scaling hardware-components of the program into new schools and 2) the quality of general schooling infrastructure across the schooling system in similar contexts required to deliver the program with quality. It is worth noting that the Partner has limited agency on solving some structural issues, including who should bear costs for upgrading regular schooling infrastructure; these are important considerations however to raise given the intended model of Flying Colors being heavily tied to the use of technology assets. ● **Alignment of Flying Colors components with Government Policies:** Existing government strategies and priorities align with the program design in terms of equitable access to education for disadvantaged groups, importance of SEL in these contexts for wellbeing and education delivery outcomes, incorporating play as a strategy. Proof of an abridged curriculum by the government due to Covid-19 shows alignment with the priority to accelerate education for those who missed schooling years.

Key Findings	Implications/Planned-Adaptations and Considerations of Findings
Documented Resources: Flying Colors training materials are developed and archived by the partners. Foundations of the Kolibri toolkit are established and available as public goods, and similarly the Colors of Kindness materials in multiple mediums have been developed and are implemented across many contexts. Involving and orienting local stakeholders such as the District Education Officer presents a further opportunity to encourage wider-spread uptake of the program's approaches.	
Challenges in Funding/Increasing scale: The program staff, technical experts, government officials, and teachers interviewed noted support for upscaling and new implementation of solar panels in further schools (under a scaled program context), however they also noted that feasibility would be challenging including where costs	

can be borne, without special consideration of funding support, and security and delivery to more students.	
Additional support to new implementation sites: From discussing with multiple stakeholders, additional support is necessary for new implementation sites without pre-existing hardware (solar panels and tablet infrastructure). Availability of suitable structures for housing assets, and installation of solar panels or charging stations are considered crucial. Government uncertainty about infrastructure costs and the delicate task of transporting and installing panels also add to the challenges. It is worth noting that the Partner has limited agency on solving some structural issues, including who should bear costs for upgrading regular schooling infrastructure.	
Alignment with Government Priorities: there is alignment between existing government strategies and program design, especially SEL and Play-based components, and improving access to education for the disadvantaged crossing over into government priorities. Proof of an abridged curriculum by the government due to Covid-19 shows alignment over the priority to accelerate education for those who missed schooling years.	

Learning Question: Are the materials for the facilitator training sessions well documented so they can be easily reused for a new facilitator training by other implementing organizations?

Indicator: Extent to which facilitator training materials are sufficiently documented and simple to replicate for new trainings by other implementing organizations
Target: The facilitator training materials are sufficiently documented and simple to replicate for new trainings by other implementing organizations
GREEN/YELLOW - Flying Colors training materials are developed and archived by the partners. The Kolibri Ed-Tech toolkit has been developed by Learning Equality across numerous contexts, with extensive supporting background materials ranging from training in formal/non-formal contexts. Similarly, the Colors of Kindness materials in multiple mediums have been developed by Amal Alliance and are implemented across many contexts. Steps are underway to make an openly licensed Project-Based Learning Curriculum and Toolkit included in the Kolibri Edtech Toolkit available as public goods for use by other organizations. It is envisaged once the final project-specific materials are publicly available and local key stakeholders are introduced further to these that the rating for this indicator can be viably upgraded.

- Source: Partner shared: Kolibri Ed-Tech public OS toolkits; Kolibri Studio; PBL curriculum scope and sequence (unreleased); Audio guidance located on Kolibri is open source; Teacher Training Modules on Amal YouTube Channel and Presentations on Amal Drive (restricted access materials); Triangulated with IPA KII with the District Education Officer
- **Summary:** There is sufficient evidence to suggest that Flying Colors training materials content has been developed, archived with elements in process to be released as open-source material for use by other implementing organizations in the near future.
- The **Kolibri Ed-Tech toolkit component** of Flying Colors has been developed by Learning Equality across numerous contexts, with extensive supporting background materials ranging from training packs tailored to formal/non-formal contexts, in emergencies, with some supporting video guidance. Furthermore, there are extensive resources available to support suggested implementation approaches, set-up of assets and platforms, tutoring strategies and different classroom models to consider adopting per context. This extensive toolkit has been publicly available since 2018, iteratively developing based on community feedback.
    - Furthermore, there is an existing precedent for use of Kolibri in Uganda by the government in previous instances, as Kolibri was piloted by UNICEF as part of the Ministry's "Transforming Computer Labs into eLearning Labs" initiative, with content aligned to lower secondary level STEM and life skills. This points to a foundation of acceptance that the platform has opportunity to build on, including from any iterated design of materials arising from this program's intervention.
- Similarly, the **Colors of Kindness component of Flying Colors** has training materials that have been developed by Amal Alliance and implemented across numerous contexts, with extensive supporting background materials ranging from training in formal/non-formal contexts. The training materials, which include audio guidance, teacher training video modules, and presentations are all available for use by implementing partners. *These are confirmed to be present by IPA but are not public materials.*
- The partners are developing **project-based learning training packs** and Ugandan curriculum aligned scoping and sequence resources (both of which build on the approach adopted through the Flying Colors program). *IPA has had the opportunity to take an overview of the latter, verifying the content is underway for being released.*
- **Materials On track for use by other implementers:** The curriculum and digital content was iterated on across the two cohorts. It is the intention to finalize and publicly release the curriculum and toolkit as part of the existing Kolibri Edtech Toolkit. It will include both the changes from the program as well as additional feedback from educators in the Kolibri community. These are on track to be fully documented and accessible for use by other implementing organizations.
- **Government Stakeholder Awareness:** Although there is strong buy-in and support from government actors including but not limited to the District Education Officer and representatives from the OPM, the DEO has no knowledge of the materials and content; while this is not an immediate cause-for-concern, it will point to an area of opportunity for upscaling access and awareness to like-minded organizations who are operating in a similar area to the Flying Colors program, once materials and supporting documentation is ready for the public domain.
  The partner notes that the District Education officer was not trained on Flying Colors, however they had received a briefing from the implementing team. In case of continuation, the partner intends to involve the DEO, OPM, The National Curriculum Centre and the Ministry of Education and Sports, in reviewing the training content.

Learning Question: Is the facilitator training model efficient and effective?

Indicator: Extent to which the training model is appropriate for replication in terms of content and timing

***Target:* Qualitative feedback from facilitators indicates the training model is appropriate for replication in terms of topic emphasis, timing, and content**

GREEN/YELLOW - From focus group findings, teachers felt comfortable with the training provided, including its timing and pace, and regularity prior to their learner session delivery, expressing overall satisfaction (see also PE sub-criteria 2.2). At the same time, facilitators shared some individual concerns about the reduced interactivity during remote/virtual-training and lack of full confidence in use of the technology.

- Source: IPA: Facilitators FGDs (6 participants)
- **Training Content:** The training sessions were considered especially helpful in terms of preparation and especially areas of effective lesson planning, differentiation, administering activities and playful learning. Facilitators indicated that the timing and pace was of appropriate regularity prior to their facilitating sessions.
- Two issues arose in the modality of the training and content respectively.
    - **Remote vs In-Person Training:** One respondent felt the challenges of interactivity and network of training held remotely would have been avoided if delivered in-person, owing to connectivity challenges and challenges in engaging with the facilitator over the remote platform.

      "For training and support, we should have physical trainings instead of the zoom meetings because we are always interrupted by the internet network. For zoom we are just listening but for physical there is active engagement." - *Facilitator*
    - **Technology/Computer Trainings:** The other critique mentioned was a desire for more computer/tech user-trainings which facilitators felt they could benefit further from. While the rationale for this was not elaborated on during the discussions, triangulated findings throughout this investigation point to some tablet/gadget utilization and troubleshooting gaps, including in some instances the slow pace of tech-competency uptake self-reflected on by facilitators. This may point to underlying reasons for why this critique arose. *However, there is notable widespread agreement that all teachers' abilities to use tablets has significantly improved beyond the first few weeks of implementation.*

      The partner has provided feedback on the latter training opportunity (additional technology/computer trainings) that this critique is likely driven by a desire for additional digital literacy beyond that which is fit for purpose on the Flying Colors program delivery; the respondents inputs may be more biased towards seeking professional growth opportunities.

Learning Question: What additional support is necessary for scaling up Flying Colors in new schools that require additional infrastructure to deliver all program components?[11]

Indicator: Degree of infrastructure investment and support required to provide infrastructure for new schools

Target: Qualitative feedback from key technical personnel (including Partner staff) detail a feasible degree of infrastructure investment and support for new schools

RED - The program staff, technical experts, government officials, and teachers interviewed noted their support for upscaling and new implementation of solar panels in further schools, however they also noted that limited funding undermines the feasibility of scaling without substantial external support for panels and necessary hardware assets to deliver Flying Colors in new schools in the future. This could be addressed through either 1) adjusting the approach's required additional infrastructure (which could mean iterating on aspects of the model) or 2) identifying feasible funding pathways or partnerships to cover scale up costs of required infrastructure. However, stakeholders note that there are major student crowding/structure challenges in the system and aspects of safety which they recommend prioritizing for scaling up the program. It is worth noting that the Partner has limited agency on solving these issues but are important considerations to raise given the intended approach of Flying Colors delivery.

- Source: IPA: KIIs with 1 Partner Staff, 3 head teachers, 1 technical personnel (Lumi Solar, the company who installed solar system), Assistant Community Service Officer of the OPM, District Education Officer
- **Infrastructure reported on for this indicator:** For the delivery of Flying Colors, many essential resources and pieces of infrastructure were required during delivery for smooth functioning of the program. Many smaller items, including support tools for delivery of CoK components, and essential assets for the delivery of the Ed-Tech components of the program are monitored during program delivery (see reflections on Resource and Infrastructure checklist indicators under Sub-criteria 2.1). The key stakeholders, whose views are captured for this indicator, were queried over their attitudes, perceptions and outstanding challenges identified for the longevity and scale up of a program like Flying Colors considering the physical infrastructure required to bring a school up to the prerequisite level to deliver the program and maintain the assets.

  A limitation of this indicator is that it reflects primarily on the viability of equipping and replicating the technology related components and larger physical-infrastructural needs of the program and does not capture the perceptions around replicating all components of Flying Colors unrelated to the Ed-Tech specific needs. The summary takeaways for this indicator focus on the outstanding questions that remain and may inhibit the scaling of these minimum infrastructure prerequisites for incorporating, administering and maintaining the technological components in additional schools. Key assets drawn on in feedback from respondents include tablets, a computer to act as the server, a LAN router, basic connection wires and headsets, school infrastructure standards, mats/sitting areas.

[11] The previous phrasing of this learning question was "What additional support is necessary for new implementation sites without pre-existing infrastructure?"

- **Broad attitudes towards infrastructural assets acquisition:** Interviewees expressed support for scaling up electrification of schools through solar power. However, they also noted significant challenges including the availability of suitable structures to house assets (tablets, and key tech materials), mounting of solar panels or alternative charging stations, with mixed opinions on the need for classroom space to successfully administer Flying Colors (more vital in rainy seasons). Costs of acquisition and how this can be sustainably achieved (infrastructure and assets) for the program in a scaled version are a developmental area for focus.
- **Security:** From a safety perspective, safeguarding of necessary infrastructure continues to be an ongoing reported concern (as is expanded upon under concerns raised in sub-criteria 3.1 indicator *Extent of barriers to continued use of solar panels beyond HAF implementation* - these concerns are shared by non-Headteacher stakeholders consulted). Propensity for theft, vandalism and ensuring that tablets are consistently accessible when learners require it (and when custodians of keys are out) are considerations that may require clearer strategic considerations.
- **Leveling up school structures to a standard required to administer the program:** At a governmental level, there isn't clarity on who can bear the costs of getting infrastructure up to standard (including for existing and under-resourced schools that have challenges with their physical structures). Opportunities raised by public-stakeholders center around space available to house necessary assets and keep them secure:

  "[as a way to work around this] can first think of temporary structures that can house the items. We can't have a program like this in rainy season. Structures like tents, semi-permanent buildings some schools in the settlement started like that…For the gadgets there will be need for a shelter but if completely none, it can be a challenge…There is need for some [dedicated] structures since these are expensive gadgets" - *District Education Officer*
- **Prospective Scaling without sufficient Infrastructural focus:** While some stakeholders hold the perspective that to some extent the program can be delivered for a while in absence of physical infrastructures, this may not be a permanent solution, with concerns over safety from other stakeholders.

  "let's say we are taking this to a school that doesn't have structure, [we can be transporting the charged tablets] and children can be able to access the service and when it's done then you carry them and then [come back] to office… that is feasible it can be done" - Partner Implementation Staff

  "It is possible whether there are infrastructure or not. We have even had classes under the trees even during Covid." - *District Education Officer*

  "(On the need for Physical Structures) Without a structure for safety, it will not take even a day before [people will] vandalize it. So it needs structures…Even for child safeguarding principles we need to have the structures. For the learners to feel comfortable while learning; if it's under the tree, there are inconvenienced by the noise, the surrounding [environment]" - *Assistant Community Service Officer (OPM)*

  For general session delivery (but especially heightened under prospective challenges inside rainy seasons), Headteachers harbor concerns that waiting for classrooms to vacate, to deliver these specific sessions, requiring use of technical infrastructure, may end up pushing teaching/learning

schedules later which wouldn't be received well by parents. This may have implications over how easily the program can be incorporated into schools which have concurrently delivered educational approaches and with limited structural capacity. The District Education Officer has confirmed that overcrowding is a concern, with sometimes 4000 students to 10 classrooms, or 1:120-200 ratio of teachers to learners with the increase in refugee student's enrollment.

- **Logistics challenges for scaling panels:** Transportation/installation of panels is a delicate task requiring technically skilled personnel, as clarified by representatives of the supporting Solar Panel provider (Lumisolar) for 3 out of 4 school panels installed in preparation for Flying Colors. In cases of community-shared panels (where panels were not installed by the partner), where electrical use requires upfront payment, a challenge of cash-flow to bear electricity/utility expenses upfront has been mentioned by the headteacher; financial liquidity incorporation (upfront) into the model is therefore an opportunity area for further exploration.

"The most [important] challenge we are facing here is financial constraint. At first this program was instituted for financial purposes. You are supposed to pay for this solar given by government before utilizing it", sometimes you pay large amount and your tariff may not run for the allocated period of time and be cut off, that's the biggest challenge we are facing" - *Headteacher*

From conversations with the headteacher of the sole school leasing power from community panels, this challenge has emerged. The partner has informed IPA that the monthly cost for the school is approximately USD10, implying that supporting schools with this ongoing expenditure is a reasonable adaptation to the model that can continue to be actioned.

Lumisolar has indicated that an ideal requirement for sustained solar capturing is a permanent solar mount, requiring a permanent infrastructure and a safe indoor space for critical equipment is required to keep the infrastructure safe from severe weather effects. Drawing from the experience in collaborating on this pilot, two notable challenges including the former were raised, implying areas of specific focus on scoping scaling for future iterations of Flying Colors:

"Storage of the equipment at some point was a challenge but together with [the partner] we were able to get a place where the equipment were stored before they were installed...At some point we needed local help to help us with quick installations which wasn't available and that was a challenge. To some extent coordinating all the schools was a little bit challenging though in the end we managed." - *Lumisolar Representative*

Lumisolar however has expressed positivity over the longevity of the solar panels as a permanent solution for electrical needs, despite some concerns raised by consulted (deputy)headteachers under sub-criteria 3.1, with occasional breakdowns able to be fixed within short periods of time and with minimal program disruption.

- **Ad-hoc support when troubleshooting:** Drawing from feedback by a headteacher, communication to troubleshoot challenges that may take place with assets (including the tablet itself or its software) could be costly. A suggestion has been fronted that an airtime allowance could make the problem-solving process easier to action.
- **Incidental Findings on Optimism:** While outstanding concerns remain over the infrastructure considerations in a scaled version of the program, there have been several positive perceptions on what Flying Colors is attempting to achieve as a whole and willingness of stakeholders to collaborate with the program. These are shared by Lumisolar, the Assistant Community Service Officer from Palabek's OPM unit, and the District Education Officer. Lumisolar has signaled their ability in-kind to

be able to provide technical assistance and support, human-resources for installation and supporting future transportation of panels as a vendor.

Learning Question: Is there sustained support by local interested parties (e.g., government, sector working groups, etc.)?

GREEN/YELLOW - There are early signs of support by local parties for the Flying Colors program. All sector working group meetings from January to June 2023 discussed the program. Additionally, there is *potential* for alignment between existing government strategies and program design with no contradictions, with SEL and Play-based components crossing over into government priorities, and improving access to education for the disadvantaged, although there is no specific mention of refugee education interventions utilizing educational technology, or accelerated programs involving refugees. Government actors have not yet been actively engaged in reviewing the program curriculum (despite alignment of content with the government of Uganda) or integration plans.

Indicator: % of sector working group meetings where Flying Colors is updated on and/or discussed

Target: 70% of sector working group meetings (January - June 2023)

GREEN - From January - June 2023, 100% of meetings discussed the Flying Colors Program

- Source: Meeting minutes of refresher trainings, compiled by Partner
- Of the 5 sectors working group meetings held between January - June 2023, 100% of meetings discussed the Flying Colors program.
- Flying Colors is being discussed in sector working group meetings at a high rate.

Indicator: Extent of alignment between existing government strategies and priorities with the program design

Target: Explicit strategic priorities of the government align with key elements of program design (ex: blended learning, focus on refugee learners) and no areas of govt. strategic priority directly contradict key elements of program design

GREEN - The extent of alignment between existing government strategies and priorities with the program design is positive. Delivery components in alignment, such as the emphasis on equitable access to education for disadvantaged persons (including refugees), the recognizing of the importance of innovative strategies like the use of ICT in addressing social emotional skills, the importance of SEL in these contexts for wellbeing and education delivery outcomes and incorporating play as a strategy. There are

indications that the government has implemented like-minded accelerated programs, such as an abridged curriculum, in response to Covid-19, which aim to compensate for the years of missed education due to the pandemic. Though the Early Childhood Care and Education Policy does not explicitly mention migrants and refugees, it does emphasize principles of holistic development and equitable access.

- Source: Literature/Policy and Document Review by IPA
- Refugee Early Childhood Education in Uganda is addressed in various national documents, with the most significant one being "The Education Response Plan for Refugees and Host Communities in Uganda (2018-2021): " This plan outlines the theory of change for refugee education in Uganda.
- **SEL is Prioritized:** The Plan describes an output focused on Improved Delivery of Quality Education and Training, highlighting desire to enhance teachers' capacity through induction training to support the learning and wellbeing of the children in the refugee context. One of the constituent components of this wellbeing training includes Social and Emotional Learning. Additionally the follow up Education Response Plan for Refugees and Host Communities in Uganda (2021/22 - 2024/25) includes the training of teachers in wellbeing, SEL and psychosocial support administration under its Safety and Learning Environment Output.
    - **AEP for Childhood Education:** While this document emphasizes the importance of Accelerated Education Programs (AEP) for overaged children who have missed or dropped out of school, there is no explicit mention of AEP for childhood education; separately however there is evidence of like-minded abridged curriculum implemented to support learners affected by interrupted learning during the Covid-19 pandemic. The abridged curriculum condenses the regular syllabus, focusing on essential concepts, and employing innovative teaching methods. UNICEF collaborates with the Ugandan government and partners to train teachers in adapting to the revised curriculum, providing teaching materials, and supporting educational recovery efforts amidst pandemic challenges. Thus there are like-minded steps taken by the government to target learners affected by interrupted education; despite not specifically prioritizing migrants or refugees by name, it can be reasonably assumed these groups would be recipients who can benefit from these abridged curriculums.
- **Importance of Innovative Strategies and ICT:** The Education Response Plan for Refugees and Host Communities in Uganda acknowledges the need for developing and piloting innovations. Within this context, it mentions the application of Information and Communication Technologies (ICTs) to facilitate learning and address social-emotional and psychosocial issues for both refugee children and teachers. The plan endeavors to enhance the educational landscape, foster a secure environment, and elevate the academic achievements of children who are refugees as well as those residing in host communities. The innovative strategies suggested encompasses the implementation of double shifts, the integration of Information and Communication Technologies (ICTs), the proactive approach towards addressing social-emotional issues, the enhancement of safety measures, the utilization of children's spoken languages, and the active involvement of community members as assistant teachers. The endeavors in question are directed towards the provision of education of exceptional quality. Equitable Access: In contrast, "Early Childhood Care and Education Policy (2018)" in Uganda emphasizes several principles for the policy. These principles include a holistic approach, ensuring that all developmental domains of a child (physical, mental, social, emotional, linguistic) are addressed. Equitable access and non-discrimination are also highlighted, indicating that early childhood care and education programs should be available to all children regardless of gender, race, religion, ethnicity, ability, language, socioeconomic status, geographical location, and special needs. However, there is no explicit mention of migrants and refugees in this document.

    - Furthermore, this document includes a specific policy strategy of mainstreaming cross-cutting issues into all aspects of ECCE delivery, such as gender, ICT, sports, environment, and HIV/AIDS, among others. This suggests that the integration of ICT could be considered within early childhood education in Uganda.

Incorporating Play: While not specifically highlighted as a crucial component, primary education guidelines from the NCDC embeds play throughout and highlights it as a potential go-to-strategy for 'Children who live under difficult circumstances', stating that "For such children, play can treat the mind (therapeutic) especially those who are traumatized."

Policy Objectives: Lastly, the "Uganda Education And Sports Sector Strategic Plan 2017/18 - 2019/20" outlines three strategic policy objectives, one of which is to achieve equitable access to education and training. The government's priority interventions under this objective include developing and implementing programs to increase the participation of disadvantaged persons, such as refugees, in education and skills development programs. Additionally, the plan emphasizes the need to develop and implement response programs to provide quality education to both refugees and host communities. However, there is no specific reference in the Plan on promoting Ed-Tech nor blended learning.

- One of the 3 Strategic policy objectives of Uganda's latest Education and Sports Sector Strategic Plan (2017 - 2020) is to Achieve Equitable Access to Education and Training. Two of the priority interventions under this objective align with the project priorities particularly its focus on refugee learners. One of the government's priority interventions is to develop and implement programs that increase the participation of disadvantaged persons such as disadvantaged communities, conflict hit areas, refugees, and the disaster hit; in education and skills development programs. Another priority intervention is to develop and implement response programs for provision of quality education to refugees and the host communities. However, there is no specific reference in the Plan on promoting Ed-Tech nor blended learning. The Plan also presents no notable contradictions to key elements of program design.

- It's also important to note that although the Education sector lacks a tailored ICT policy, in 2022, the ministry officials noted that they will be adapting the national ICT policy which also caters for the education needs and as part of its key objectives is focusing on improving functional ICT literacy and building human resource capacity.

  "We want to holistically address this challenge within the context of a larger framework that will facilitate the development of supporting regulations on the use of mobile phones among other ICT tools in schools. We want to fully adopt the use of ICT in the entire education system in a manner that is age-appropriate, beneficial and safe for the learner, teacher and the school environment" *Hon. Muyingo John Chrisestom*

- There are no notable contradictions to the key elements of the Flying Colors program design in these documents. This suggests that there is potential for the integration of blended learning strategies in refugee education in Uganda, particularly in addressing the educational needs of young children.

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