Final Report

LEARN KERNEL PILOT PROJECT

Implemented at

St Anthony of Padua Primary School

Mlandizi, Pwani, Tanzania

Prepared By

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Introduction

Learn Kernel is an innovative rechargeable, tablet-like device that makes access to information easier by solving the following problems:

- **Lack of Internet:** Internet connectivity should be optional to learning. Topic-specific videos are loaded via a USB port on the device for use in remote areas without WiFi access.
- **Digital Divide:** The devices offer visual learning, which closes the gap between education and education for underprivileged members of society.
- **Affordability:** Learn Kernel provides sustainable, cost-efficient devices as an alternative to expensive, unfavourable education resources like smartphones, tablets, or laptops.

Camara Education and Potter Technology conducted a pilot test at St Anthony of Padua Primary School in Tanzania. The purpose of the test was to determine the device's effectiveness in learning outcomes, functionalities, and ease of use.

St Anthony of Padua English Medium Primary School is located in the Coast region, approximately 65 km away from Dar es Salaam, where our office is located. It has a total of 341 students, of whom 153 are male and 188 are female. We chose this school because its environment was conducive to running the Learn Kernel pilot project, and the school was ready and willing to run the pilot.

We visited the school on 27/09/2021 to discuss the Learn Kernel project with the headteacher and signed an MOU with him on behalf of the school. The headteacher highlighted that he was very happy their school had been selected to benefit from the project, and he believed the Learn Kernel devices would help their students and improve their academic performance.

Following review and consideration, we decided to conduct the pilot with students from standard 3 (a total of 35 students) and standard 5 (a total of 44 students), with a focus on science and technology subjects.

Project Activities

Training

We completed a five-day teacher training with 8 teachers from 27 September until 1 October 2021. The training focused on teaching teachers the basics of ICT, outlined how technology can improve academic performance, and taught them how to use the Learn Kernel devices for blended learning in their classrooms. We further conducted simulations and practical sessions on how to charge the device, load videos, deliver sessions, and support learners during the sessions.

After completing training with teachers, the teachers trained students for three days to ensure they understood how to use the device and were comfortable using it during the session.

Baseline Assessment

Following training, we conducted the baseline survey with four teachers who will be delivering sessions for class 3 and class 5. This was aimed at assessing their perceptions, how they are planning to use the videos and the Learn Kernel devices in their learning and teaching practices, and how they think they will help them. Please find the teachers in this folder.

Class Sessions

During the project, students used the learn kernel devices three sessions per week over 3 Months with the support and guidance of their teachers and Camara staff. The Camara Tanzania staff visit the school weekly to support the sessions, observe how teachers and students are interacting with the devices and resolve the challenges highlighted.

Each class spends 80 minutes in the session watching the videos, getting clarification from the teacher, conducting discussion about the topic and answering questions from their teacher. Each student receives a device during the class session and carefully watches the selected video according to their teacher's instructions. At the end of the session, the teacher asks students questions about what they have learned in that video.

At the end of each session, teachers must fill out a session feedback form highlighting

what went well and what they aim to improve during the next session. This feedback has been outlined in the observation and recommendations section of the report. The teacher's remarks forms can be found in this folder.

Videos Update

Another task was to update the videos on all devices after topic completion by removing the ones they had already watched and adding new videos selected by teachers covering different topics as a revision for science subjects. The teachers aimed to allow students to prepare for their annual exams by revising different issues using the learn kernel device.

Interview Sessions

As part of our project, M & E, interviews were completed with four students and one teacher at the end of every month. The focus of the student interviews was to ascertain the students' views regarding using the learn kernel devices in their learning practices. For teacher interviews, we aimed to understand the teachers' views on how classes are conducted with the devices, how they handle and charge the devices within the school, and also how they feel the Learn Kernels devices have helped in their teaching practices to support student learning. The Interview videos and Pictures are located in this folder.

Monitoring, Evaluation and Learning

Students Assessment

We assessed randomly selected students (5 from each class) after 4 weeks of usage, assessing their experience and perception with the Learn Kernel device. Generally, the assessment revealed that students enjoyed the sessions.

Monthly Test

After the end of each month, students will conduct a monthly test based on the topics covered and the topics covered by the videos loaded on Learn Kernel devices. The aim is to see if students' understanding improves and assess whether using the videos improves students' academic performance. The results of the first monthly test can be found here.

Challenges & Observations

● **Screen size**. The device's screen is too small. Some videos' words can’t be read well, making students take more time during the session, and some don't understand well when it comes to reading the text within the video eg: subtitles.

● **Device buttons**. During the session, our staff observed devices' buttons failing (play/pause and previous) in some devices despite not being used excessively. Thus, students had to press the button several times for it to work. This could pose a challenge for the lifespan of the device.

● **Device volume:** The volume in some videos or video sections is low, and there is no way for the user to adjust it. Thus, students had to move the device close to their ears for them to be able to hear clearly.

Recommendations

From what we have observed in the overall During the implementation period, below are some of the recommendations we have:

- **On & Off button:** We suggest the new release of the device to include the On and Off button as if the screen is not covered well, then
the screen won't turn off, causing the device to discharge.
- **Earphones plug/port:** Students learn at a different pace, and when each student is playing a video creates a lot of noise in the class. We recommend each device have a standard audio jack (2.5mm) so that students can use earphones.
- **Volume Up & Down button:** We suggest also adding a volume control button to allow users to control the volume of the video.

Conclusion

Overall, teachers' feedback is positive, and they are happy to hear that their recommendations are already incorporated into the newest version of the Learn Kernel device.

Students were excited and enjoyed the overall integration process, and there was a lot of improvement in the tests and results. Camara believes that the second version of the devices might be very attractive to parents and teachers, and we want to test them to see how they will respond and plan how we can offer them the product.

Camara appreciates all the support and coordination from Potter Tech in this pilot, and we believe this is the beginning of a long-term partnership and collaboration between our organisations. We look forward to working together to further pilot the kernel and seek funds and support from different stakeholders to scale this technology to many schools and help them improve their educational outcomes.