



RIGHT TO PLAY
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Learning Through Play for Science and Elementary Technology in Rwanda



PROGRAM DESCRIPTION

Implemented by Right To Play, with support from the LEGO Foundation, the Plug in Play pilot project has been working to improve the quality of education for boys and girls aged ten to 12 years old in Rwanda since 2021. In collaboration with the Ministry of Education (MINEDUC) and its agencies, the University of Rwanda-College of Education (UR-CE), and local EdTech partners, Plug in Play is delivering competency-based curriculum through an innovative approach to learning through play with technology (LtPT).¹ LtPT includes a focus on fields such as making, tinkering, coding, and robotics. The hands-on, play-based approach is key to developing students' creativity, innovation, collaboration, problem-solving, and practical 21st-Century skills.

In its last year, Plug in Play is showing promising results in student's learning outcomes and teachers' ability and confidence to deliver engaging and practical SET lesson plans through play. Bringing LtPT into the classroom has also helped to create more positive and engaging learning environments, increased teachers' ability to teach science, engineering, and technology concepts, and improved their motivation and wellbeing.

CONTEXT

The Government of Rwanda (GoR) is investing heavily in the growth of its Information and Communication Technology (ICT) sector to drive economic and social prosperity. The Education Sector Strategic Plan (2017-24) prioritizes the delivery of a competency-based curriculum, with a focus on Science, Engineering, and Technology (SET) across all levels of education. As such, the government is moving away from a traditional knowledge-based curriculum toward a more practical, hands-on style of learning. This has created a gap in teachers' skills and knowledge, particularly in SET.

As a partner of the MINEDUC, Right To Play's Plug in Play project was designed specifically to increase the number of teachers trained in effective LtPT approaches and to help the government deliver on its mandate to prepare students for high-tech jobs of the future.

REACH

312
schools

1,150
teachers
Head Teachers: 312
SET Teachers: 838

116,980
students
Girls: 55,624
Boys: 61,356

43,445
parents and caregivers
Women: 20,298
Men: 23,147

*312 schools were reached across six districts in Nyagatare, Kayanza, Musanze, Rubavu, Nyanza and Ruhango. 83 District Education Officials and Sector Education Specialists, 312 Head Teachers, and 838 SET Teachers at the Upper Primary level received a training, coaching, and mentoring package directly from Right To Play trainers. Plug in Play also worked to engage parents through Play Days which further reinforced the importance of LtPT at home and in the community.

KEY LEARNINGS

1 Play improves the quality of teaching and teachers' ability to deliver SET-curriculum: When teachers receive training in LtPT, it improves their skills, knowledge, and confidence to deliver practical SET lessons. Teachers who received support from Right To Play were better able to shift away from theory-based approaches to more effective learner-centered and participatory methods. Teachers were better able to develop lesson plans that encouraged exploration and interaction among peers, which allowed students to grasp SET concepts more easily and increase their enthusiasm for learning.

2 LtPT creates a more engaging and positive learning environment: Teachers who use LtPT are better able to foster more positive learning environments² and improve teacher-student relationships. Teachers using play-based approaches were observed to more frequently encourage their students to ask questions, think independently, explore, and make mistakes. This improved interaction ultimately supports student's agency over their own learning.³

3 Play supports skills development and a love of learning among students: LtPT allows students to work in groups and ask questions, which helps enhance students' confidence, collaboration, communication, and presentation skills. This has also supported equal participation from girls and boys in the classroom. The shift toward interactive and hands-on LtPT methods engages students and fosters skills like creativity, problem solving, critical thinking, and teamwork. One such example included national-level SET competitions. These competitions were a powerful motivator for children to master their skills and deepen their engagement with SET topics. Head Teachers and Teachers found that these competitions were crucial platforms to celebrate students' work and actively encourage them to continue designing creative projects.⁴

Before, it was very theoretical, which would bore the children. But currently, it is more practical and playful. Learning by doing is very important as it helps students to acquire knowledge smoothly and eases the work for teachers.

- Teacher, Ruhango



4 Training school leadership leads to positive change: Without training and support, school leadership (e.g., Head Teachers, District Education Officials) struggle to implement the necessary SET curriculum changes at the school level. With support from Right To Play, school leadership now has the knowledge and skills needed to coach and train its teachers in delivering SET curriculum. This has allowed Head Teachers to more confidently coach and train teachers in LtPT, which makes the project results more sustainable, has fostered a more collaborative relationship between school leadership and teachers (e.g., mentoring, professional development), and has had a positive effect on teacher motivation.

5 Teacher professional development and peer-to-peer support is key: Teachers who participate in Communities of Practice (CoPs) are able to continuously improve their teaching practice and report a more collaborative and supportive working environment.⁵ CoPs are crucial support networks for teachers as they can share challenges, experiences, and best practices with their peers. This collaboration has improved teachers' professional development and is crucial to sustaining LtPT approaches in teaching.

CONCLUSIONS AND RECOMMENDATIONS

The Plug in Play pilot project is an innovative and effective way to support the Ministry of Education in Rwanda to improve teaching practice and the delivery competency-based curriculum, with a focus on SET.

In order for the Ministry of Education in Rwanda to further realize its commitment to building an ICT-led economy and ensure that students have the skills and knowledge they need to succeed, Right To Play puts forward the following recommendations for consideration:

- 1 Embed LtPT into national pre-service and in-service teacher training and teacher professional development.** Given the hands-on and practical nature of SET, including fields like coding, making, tinkering, and robotics, LtPT is an effective approach to teaching and learning these subjects. Teachers and school leaders who are trained and knowledgeable about the benefits of play-based approaches are more likely to bring these skills into the classroom and yield better results.
- 2 Collaborate with LtPT experts to scale-up trainings, resources, and supports for SET teachers at the primary and upper-primary level, with a specific focus on coding, making, tinkering, and robotics.** This includes working with partners to develop relevant handbooks, manuals, guidance notes, and online e-certification programs to expand teachers' knowledge and qualifications in SET. Support school leadership to provide continuous professional development and consistently engage in classroom observations to ensure that their teachers receive constructive feedback to build their knowledge and confidence in using LtPT in the classroom. As a first step, prioritize schools in districts that have expressed readiness to integrate LtPT into SET curriculum.
- 3 Invest in inclusive and equitable access to LtPT, as well as relevant technology and devices.** Building a strong ICT-led economy requires investments in skills and knowledge, as well as infrastructure like electricity and internet connectivity. Investments, including the provision of computers, tablets, robotics equipment, gadgets, etc., must reach both urban and rural areas so that all students can benefit from a good quality SET curriculum.
- 4 Increase the collection of data related to the delivery and quality of SET curriculum broadly, and LtPT specifically.** As the delivery of SET curriculum moves from theory to practice, more efforts are needed to assess the effectiveness of teaching practice, access to technology, and students' learning outcomes, including the acquisition of skills (e.g., ICT, life skills). The Ministry of Education in Rwanda should establish district-level baselines in these areas and measure gains over a two-year period. This information will help to identify gaps and areas for improvement in SET curriculum delivery, with the long-term goal of establishing national level assessments (e.g., examinations).

1. Plug in Play was generously funded with support from the LEGO Foundation and was delivered by Right To Play in partnership with the Ministry of Education in Rwanda (MINEDUC), the Rwanda Basic Education Board (REB), the National Examinations and Schools Inspection Authority (NESA), the University of Rwanda-College of Education (UR-CE), and local EdTech partners including Keza Education Future Lab and Creativity Lab.

2. Education Development Centre. 2024. Classroom Study Findings, Topline Memo.

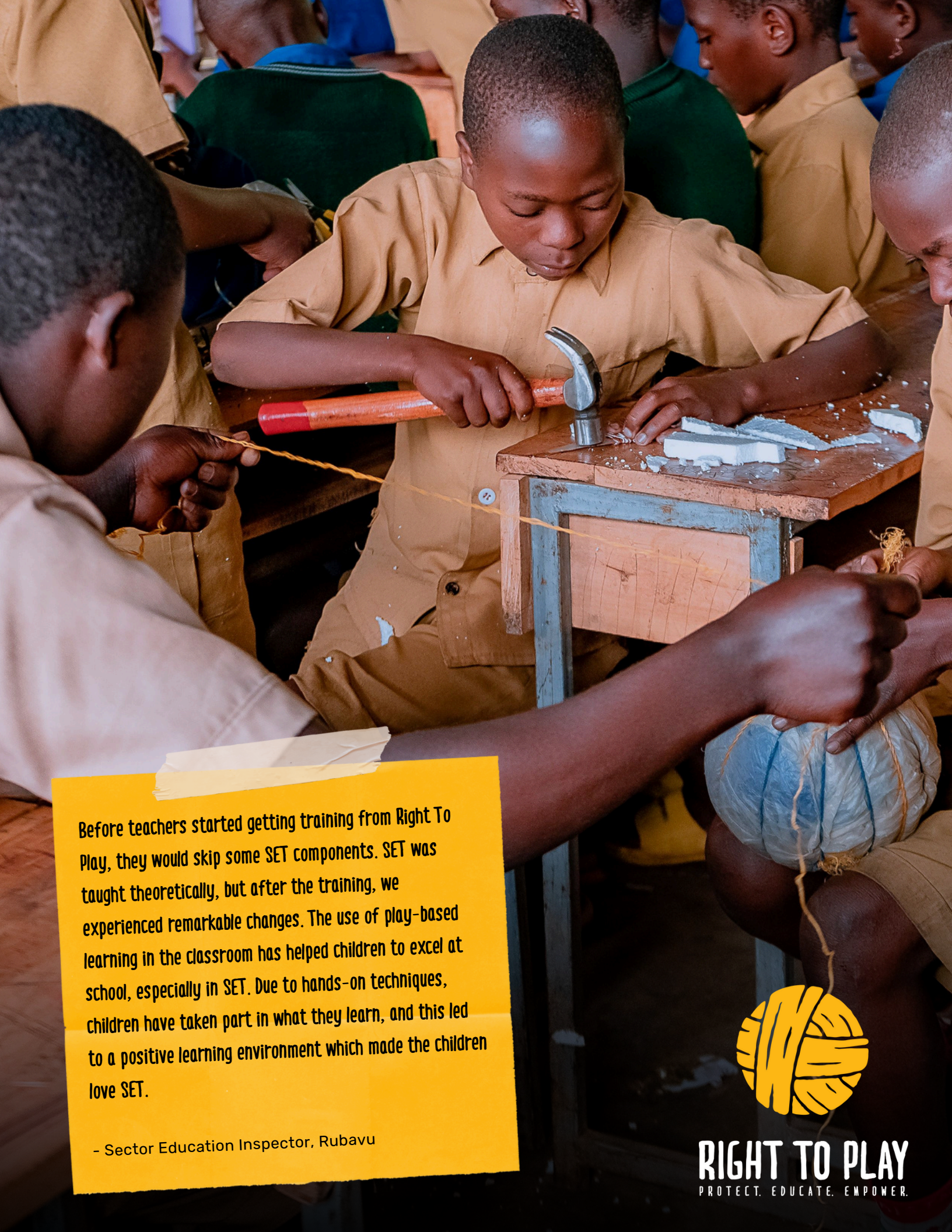
3. National Foundation for Education Research. 2023. Exploring teacher and learner experiences of play-based approaches to SET lessons at Upper Primary level.

4. National Foundation for Educational Research. 2024. Sustainability study.

5. Education Development Centre. 2024. Implementation Study Findings, Teachers' Robotics Communities of Practice, Topline Memo.



RIGHT TO PLAY

A group of young children in a classroom are engaged in a hands-on activity. In the center, a boy in a tan shirt is focused on using a hammer with a red handle to work on a piece of white material on a wooden workbench. To his left, another child is pulling on a yellow string. In the foreground, a child's arm is visible, holding a ball of blue and white yarn. Other children in similar tan uniforms are visible in the background, some looking on. The scene is brightly lit, suggesting a sunny day.

Before teachers started getting training from Right To Play, they would skip some SET components. SET was taught theoretically, but after the training, we experienced remarkable changes. The use of play-based learning in the classroom has helped children to excel at school, especially in SET. Due to hands-on techniques, children have taken part in what they learn, and this led to a positive learning environment which made the children love SET.

- Sector Education Inspector, Rubavu



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