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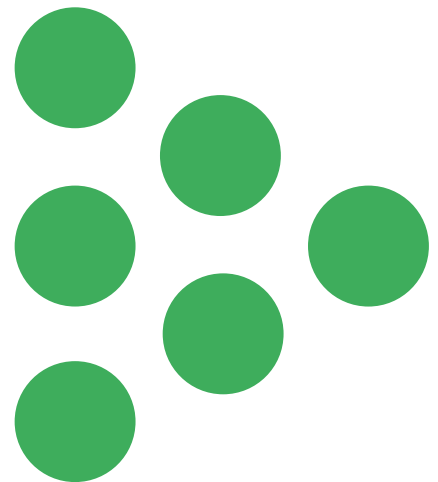
**Learning Study 1 for the Plug-in-Play Project,  
Rwanda**

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**Exploring teacher and learner experiences  
of play-based approaches to SET lessons  
at Upper Primary level**

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**National Foundation for Educational Research (NFER)**



# Exploring teacher and learner experiences of play-based approaches to SET lessons at Upper Primary level

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## Abbreviations and Acronyms

|                |  |
|----------------|--|
| <b>CBC</b>     | <b>Competence-Based Curriculum</b>                       |
| <b>COP</b>     | <b>Community of Practice</b>                             |
| <b>DOS</b>     | <b>Director of Studies</b>                               |
| <b>FGD</b>     | <b>Focus Group Discussion</b>                            |
| <b>ICT</b>     | <b>Information and Communications Technology</b>         |
| <b>LtPT</b>    | <b>Learning Through Play with Technology</b>             |
| <b>MINEDUC</b> | <b>Ministry of Education</b>                             |
| <b>NFER</b>    | <b>National Foundation for Educational Research</b>      |
| <b>PIP</b>     | <b>Plug-in-Play</b>                                      |
| <b>RCA</b>     | <b>Reflect, Connect, Apply</b>                           |
| <b>REB</b>     | <b>Rwanda Basic Education Board</b>                      |
| <b>RTP</b>     | <b>Right To Play</b>                                     |
| <b>SET</b>     | <b>Science and Elementary Technology</b>                 |
| <b>STEM</b>    | <b>Science, Technology, Engineering, and Mathematics</b> |
| <b>SSI</b>     | <b>Semi-Structured Interview</b>                         |
| <b>SEN</b>     | <b>Special Educational Needs</b>                         |
| <b>TSI</b>     | <b>Three Stones International</b>                        |

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## Executive Summary

### 1. Introduction

The Plug-in-Play (PIP) project supports the Government of Rwanda’s ambition to transform Rwanda into a knowledge-based economy. One strategy for achieving this goal is to support schools in delivering engaging and practical Science and Elementary Technology (SET) lessons so girls and boys receive high quality SET education. Accordingly, PIP aims to improve SET pedagogies in Rwandan schools by using Learning through Technology with Play (LtPT) methods, which comprise interactive and playful approaches to education.

The project seeks to integrate LtPT methods into SET subject teaching by supporting upper-primary (grades P - P6, 10 -12 years old) SET teachers’ professional development and practices. The LtPT approach integrates play-based pedagogies into three components of the Rwandan SET curriculum: tinkering and making, coding and robotics. These methods are expected to improve learners’ academic performance in SET subjects and to enhance holistic skills, such as communication, creativity and problem solving.

PIP project activities can be grouped into five broad, interconnected components:

1. Developing culturally appropriate contents, materials and trainings on LtPT approaches.
2. Training educators and other education stakeholders to deliver LtPT approaches.
3. Piloting and implementing LtPT approaches in SET lessons with support from communities of practice (COP) for teachers and coaching from Teacher Training College tutors, school leaders and education officials.
4. Advocacy and communication activities to raise awareness of LtPT approaches and integration into the curriculum in schools and communities.
5. Sustainability and scale up activities to inform a potential countrywide scale up of PIP.

The National Foundation for Educational Research (NFER), in collaboration with Three Stones International (TSI), are the Monitoring, Evaluation and Learning (MEL) partners on the PIP project and were commissioned by Right to Play (RTP) in November 2022 to help generate relevant, in-depth and timely evidence to improve project learning, adaptation and scale up.

NFER, with the support of TSI, has designed this study to explore the experiences of teachers and learners in SET lessons implementing the LtPT approach and any emerging signs that the approach supports the development of learners’ holistic skills. The study provides learning and evidence from Cohort 1 schools to support iteration and scale up to Cohort 2.

## 2. Learning Study design

In this qualitative study, school staff (teachers, headteachers, and directors of studies) participated in one-to-one interviews; and community members (parents and caregivers), and learners themselves participated in separate focus group discussions. The objective of the study is to respond to the following research questions:

1. How do teachers and learners experience and engage with LtPT approaches in SET lessons?
2. What emerging signs of learners' holistic skills (generic competencies) are there since engaging with LtPT approaches?
3. What factors and conditions support or constrain the uptake of LtPT approaches in schools?

## 3. Findings

### How do teachers and learners experience and engage with LtPT approaches in SET lessons?

- Teachers described having more constructive working relationships with headteachers who are better equipped to support and coach them to improve their teaching practice.
- Teachers develop lesson plans to structure activities and to ensure that the LtPT approach is experienced as intended.
- In a move away from teacher-led practice, teachers now use strategies which are learner-centred and participatory, for example, energisers and group presentations.
- Teachers use formative assessment more frequently; there is less reliance on high-stakes exams to monitor learning.
- More participatory lessons with diverse teaching strategies have helped to increase most learners' engagement and enjoyment of SET lessons; this also motivates teachers.

### What emerging signs of learners' holistic skills (generic competencies) are there since engaging with LtPT approaches?

- Group work and questioning are among the key teaching strategies that encourage the development of converging holistic skills of collaboration and communication.
- A move towards learner-centred practice also enables other elements of holistic skills such as confidence and presentation skills.
- Groupwork and questioning teaching strategies are used to enable gender equity and inclusion, with teachers setting mixed gender and ability grouping.

## What factors and conditions support or constrain the uptake of LtPT approaches in schools?

- Training and follow-on support are valued and are key enablers for maintaining the LtPT approach.
- Teachers would like more peer learning and training in supporting learners with Special Educational Needs (SEN), and in digital skills.
- Many of the key challenges in integrating the LtPT approach are around digitisation (for example, availability of computers for lesson preparation), management of large classes, lesson length and English as the language of instruction, as learners do not understand SET terminology in English.
- Parental engagement is needed to support learners at home with SET.
- Despite the challenges, the LtPT approach is beginning to have positive effects both in and beyond school.

## 4. Conclusions

The findings suggest that teachers feel better supported to reflect on their practice, to engage learners in creative ways and feel more motivated. PIP is helping teachers and headteachers tailor their existing educational experience to create more positive teaching environments and ability to implement the LtPT approach in practice. This in turn improves student engagement, which further increases teacher motivation.

Teachers have built on their experience of setting groupwork for learners and this contributes to the development of learners' collaborative and communication skills. Mixed gender and ability grouping helps to promote gender equity and inclusion.

The key enablers are around the Right To Play training on the LtPT approach and the follow-up support which comprises coaching and in-school Continuing Professional Development (CPD) for teachers and COPs for both teachers and headteachers. The training and support underpin many of the positive findings, as they provide a strong foundation for implementation of the LtPT approach and for continuous improvement of teacher practice through peer learning opportunities.

There is, however, some variation in the level of support across schools, with some teachers conveying that more time is needed for peer learning opportunities, and that CPD needs to be more focused on SET. There also appears to be a need for further training on the digital components of the LtPT approach, for example, coding, as well as on supporting learners with Special Educational Needs (SEN), and on managing large class sizes.

There are several interconnected challenges which impede the full delivery of the LtPT approach, including:

- a lack of access to computers to prepare for lessons, and of projectors needed for teachers to introduce and model lesson content to large classes of up to 65 learners.

- infrastructure issues, for example, poor internet connectivity in school, inadequate outdoor space for play, and small classrooms which cannot accommodate the large classes.
- inadequate lesson time fully incorporate the required elements of the LtPT.
- learners not being proficient in English, which is the language of instruction in SET lessons and so finding these lessons difficult to understand.
- a lack of parental familiarity of the LtPT approach, meaning that some children are not supported in their SET studies at home.

Despite the challenges, the LtPT approach is beginning to contribute to positive, wider effects, both in and beyond school, including improved attendance and attainment; learners’ application of their learning at home and an increased interest in SET for future employment, for some.

## 5. Recommendations

1. **Right To Play should continue to support headteachers and teachers with peer learning opportunities in school CPD and COPs and support knowledge and experiences to be widely shared.** School staff highly value these opportunities to share successes and challenges. There were a few examples of resourceful and solution-oriented practices outlined, for example, explaining concepts to learners in Kinyarwanda, and recycling paper from tests and cardboard to be reused. Some schools are also lending learners laptops to take home to practice and embed learning from the classroom; the benefits of this need to be evaluated before scale up. Right To Play can encourage schools to document these practices and the experiences therein via CPD and COPs and share these across schools to help scale up good practice.
2. **A consideration of SET-specific CPD and more frequent COP meetings is needed by Right To Play.** The study findings indicated that teachers need further support with some of the more technical aspects of SET, rather than tinkering and making, in particular, digital skills. In-school CPD which is more relevant to SET and COPs for sharing SET teaching experiences are also needed. Right To Play should support school leaders to develop the necessary training for in-school CPD. The digital skills training needs can also inform the planning of the training for Cohort 2.

Right To Play should also consider ensuring increased time for COPs so teachers can share learning from peers in other schools, particularly as the LtPT approach is fairly new. Training in English as the language of instruction also needs to be delivered and may be presenting a competing demand. Right To Play could conduct a small-scale study or needs assessment on the content of CPD and COPs and provide recommendations to headteachers and the REB.

3. **Right To Play should consider resourcing further training on supporting learners with SEN.** The findings from this study suggested that teachers were making SET lessons accessible for girls, however, some teachers highlighted a need for training on inclusion for learners with additional needs. Since gender and disability are often intersectional, it would be



useful to gauge the extent to which all learners, but in particular girls with disabilities and other SEN are included and progressing.

4. **Time management of lessons in large class sizes was a common theme; Right To Play should consider an exploration of the issues around SET lesson length for application of LtPT.** Teachers reported that 40-minute lessons were inadequate for the necessary LtPT practical activities to be incorporated, in the context of large class sizes and considering the time absorbed by lesson set up and packing up. Right To Play should consider: 1) whether the LtPT approach can be adapted to be more suitable for a 40 min lesson; 2) whether teachers need more training / strategies to manage time; and 3) whether they can work with school leaders to better plan for SET lessons.
5. **In collaboration with like-minded organisations, Right To Play should identify advocacy opportunities to help draw attention to system-level challenges.** Concerns were raised around the lack of resources in school which impede LtPT implementation, including access to computers for lesson preparation; lack of projectors to deliver lesson content to large classes, and infrastructure challenges. As part of feedback to MINEDUC, Right To Play should recommend that MINEDUC supports teachers to procure their own laptops for lesson preparation. Right To Play could support on the provision of projectors for demonstrating activities to classes, alongside other PIP EdTech kits.

English as the language of instruction can also be an issue for learners and can preclude them from receiving support with SET from home, so Right To Play should consider advocating for multilingual SET teaching materials to support learners, teachers and parents.

6. **Right To Play is well positioned to support school leaders in facilitating parental engagement sessions.** Parental requests for support broadly fell into two types: familiarisation with the LtPT approach in SET lessons, and training on laptops which some learners brought home. Some parents also conveyed that they were not equipped to support their children as they did not have English language skills, so Right To Play should explore the possibility of implementing such engagement via existing mechanisms or structures, for example, the Parent-Teacher Associations.

# 1 Introduction

## 1.1 Plug-in-Play Project background

Plug-in-Play (PIP) supports the Government of Rwanda’s ambition to transform Rwanda into a knowledge-based economy. One of the strategies for achieving this ambition is to improve the quality of Science and Elementary Technology (SET) education for girls and boys, including learners with Special Education Needs (SEN), across the country by supporting schools to deliver engaging and practical SET lessons. As set out in Rwandan education policy, this attention to SET derives from a more comprehensive government commitment to strengthening Science, Technology, Engineering and Mathematics (STEM) from pre-primary to higher education (MINEDUC, 2019). This logic is central to PIP, which aims to improve SET pedagogies in Rwandan schools using interactive and playful approaches to education.

The PIP project seeks to integrate Learning through Play with Technology (LtPT) methods into SET subject teaching by supporting upper-primary (grades P4–P6, ages 10-12 years old) SET teachers’ professional development and practices. This approach integrates play-based pedagogies into three components of the Rwandan SET curriculum: tinkering and making, coding and robotics.

1. Tinkering and making: Teachers are provided with training and materials to support learners to play, explore, and discover new ideas and engage with their creativity and imagination to create something new.
2. Coding: Learners are taught how to use computers to code, using playful and engaging approaches which boost teamwork and collaborative skills.
3. Robotics: Using skills and knowledge gained in tinkering, making, and coding, learners learn how robots work by manipulating and exploring them, before being trained to make robots themselves at an appropriate level.

By improving teachers’ ability to deliver practical, interactive, and playful pedagogies, PIP expects to improve learners’ academic performance in SET subjects, and to enhance ‘holistic skills’ or ‘generic competencies’ through Information and Communications Technology (ICT) and technology lessons.

Alongside delivering capacity-building activities centred on LtPT, PIP strives for the sustainability and scale-up of project activities beyond its timeframe. This pursuit is promoted through the project’s experimental, iterative, context-sensitive, collaborative approach and gives rise to two key project features. First, PIP relies on successive pilot phases where project stakeholders co-create materials and interventions, regularly collect data and gather lessons allowing them to collectively vet, improve on and validate the intervention’s approaches and toolkits. Second, it delivers its interventions through existing Ministry of Education (MINEDUC) and the Rwanda Basic Education Board (REB) teacher training structures to generate government buy-in and capacity to integrate approaches into the formal curriculum and teacher professional development programmes.

## Project activities

PIP activities can be grouped into five broad interconnected components of activities.

1. Developing culturally appropriate contents, materials and trainings on LtPT approaches.
2. Training educators and other education stakeholders to deliver LtPT approaches.
3. Piloting and implementing LtPT approaches in SET lessons with support from communities of practice (COP) for teachers and coaching from Teacher Training College tutors, school leaders and education officials. Coaching for teachers includes classroom observations with feedback, conducted by the school leader (headteacher or Director of Studies).
4. Advocacy and communication activities to raise awareness of LtPT approaches and integration into the curriculum in schools and communities.
5. Sustainability and scale up activities to inform a potential countrywide scale up of PIP.

## 1.2 Background to the Learning Study

The National Foundation for Educational Research (NFER), in collaboration with Three Stones International (TSI), are the Monitoring, Evaluation and Learning (MEL) partners on the PIP project, bringing extensive expertise in educational research and knowledge of Rwandan context. They were commissioned by Right to Play in November 2022 to help generate relevant, in-depth and timely evidence to improve project learning, adaptation and scale-up. NFER is a leading provider of educational research, evaluation, and assessment in the UK. TSI is a Rwanda based management, research, and development firm with an extensive understanding of the Rwanda education context.

As part of this partnership, NFER, with the support of TSI, has designed this in-depth study to explore the experiences of teachers and learners in classrooms implementing the LtPT approach. This study provides learning and evidence from Cohort 1 schools to support iteration and scale up to Cohort 2. The study aims to provide in-depth insights into the experiences of learners and teachers who are using and engaging with LtPT approaches in SET Lessons, and to draw out any emerging signs that these approaches support and engage with the holistic skills / generic competencies of learners.

This study explored the views and practical experiences of different stakeholders, including school staff (teachers, headteachers, and Directors of Studies), community members (parents and caregivers, men and women), and learners themselves girls and boys in the selected six schools through participatory focus group discussions and one-to-one interviews. This builds on the ongoing monitoring activities conducted by Right To Play as part of project implementation. This study is the first of three deep-dive studies that will be conducted by the MEL partners (NFER and TSI) to enhance ongoing learning and adaptation for Plug-in Play.

The structure of the remainder of this report is as follows:

- **Section 2** sets out the study design, including the sampling approach, research method and limitations.
- **Section 3** presents the findings, organised around the research questions.
- **Section 4** provides the key conclusions from the findings.
- **Section 5** sets out our recommendations for Right To Play and project stakeholders.

## 2 Learning Study design

### Study design

This qualitative study draws on data from semi-structured interviews (SSIs) and focus group discussions (FGDs) to explore the experiences and perceptions of individuals engaging with the LtPT approach in Rwandan schools. Qualitative approaches (or ‘case-based’ strategies) tend to be interested in a small number of interesting or significant cases (Ragin, 1999) which will allow a depth of learning and an understanding of contextual factors that explain how or why certain patterns occur (or do not occur).

Six schools were selected as illustrative, deep-dive case studies which look at the lived experiences of those who deliver and engage with the LtPT approach in SET classrooms. A case study approach uses a variety of data sources to explore a specific phenomenon in context (Baxter and Jack, 2008). This study explored the specific case of implementing LtPT in SET classrooms supported by the Plug-in Play project in different contexts. It provides insights into the personal, social, and contextual factors that influence how LtPT approaches are adopted, delivered, and perceived by different users, including acceptability of the approach, unintended consequences (good and bad), facilitators and barriers to implementation and participation, and any emerging signs that these approaches support the development of basic and generic competencies. The objective of the study is to respond to the following research questions:

1. How do teachers and learners experience and engage with LtPT approaches in SET lessons?
2. What emerging signs of learners’ holistic skills (generic competencies) are there since engaging with LtPT approaches?
3. What factors and conditions support or constrain the uptake of LtPT approaches in schools?

### Sampling approach and methods

This study adopted a non-probability purposive sampling approach and is not intended to be statistically representative of the wider PIP beneficiary population. Our sample sought to identify cases of beneficiaries who can provide information on differentiated experiences of the PIP project. Two schools were selected from each of the three districts where the project is implementing activities, for a total of six schools in Ruhango, Kayonza and Rubavu.

To ensure that schools supporting learners with special educational needs (SEN) were included in the study, we further restricted the sample to those schools where at least one learner with SEN was enrolled, based on data from monitoring visits carried out by the Right To Play staff. We excluded those schools where less than two SET teachers were trained in LtPT. Based on these exclusion criteria, a list of schools was created. Next, we applied the inclusion criteria to capture diverse experiences of program beneficiaries. These were: region, classroom size, gender of SET teacher and teacher experience.

TSI carried out a study pilot to test out each of the research tools to ensure that the questions were understood by respondents. Following the pilot, the fieldwork team held a debrief session to

discuss feedback on the tools and shared this with the wider NFER and TSI team. A few adjustments were made to the tools following experiences in the field. Table 1 below presents the final, full sample and the research tools for this study.

**Table 1: Summary of respondents and achieved sample**

| Stakeholder Group         | Number per school   | Achieved sample                        |
|---------------------------|---|--|
| <b>Headteachers (HT)</b>  | 1 SSI with LtPT trained headteacher (HT) or Director of Studies (DOS)                                     | 6: 1 Female HT; 5 Male HTs             |
| <b>SET Teachers</b>       | 2 SSIs with LtPT trained teachers   | 12: 7 Female teachers; 5 Male teachers |
| <b>Learners</b>           | 2 FGDs per school (1 boys, 1 girls)<br>4 learners per group from the LtPT trained teachers' classes       | 12: 48 P5 and P6 learners              |
| <b>Parents/Caregivers</b> | 2 FGDs per school (1 males, 1 females)<br>4 parents of learners taught by LtPT trained teachers per group | 12: 48 parents/caregivers              |

### Limitations

There may be some selection bias in the parent sample. The TSI team worked with the headteachers and SET teachers to contact parents who lived in the school catchment area and were willing and available to participate in the FGD. The criteria followed was that these parents had children in upper primary SET classes at that specific school. There is a possibility that parents who lived closer to the schools, or who are more engaged in their children's education may have attended the FGDs.

The study pilot found that P4 learners were particularly shy and not forthcoming with their responses so the final sample included only P5 and P6 learners. This limits insights into the experiences of youngest learners receiving LtPT-based teaching. Learning from this will be factored into any future research with children for PIP, including consideration of how tools and methods could be adapted to be more engaging for younger children.

The exploratory approach in our research design allows for detailed learnings on topics of interest but does not draw upon methods, for example, those used in impact evaluations and which allow us to attribute causality.

### 3 Findings

We used a thematic analysis approach to arrive at the findings. Broadly, this involved the identification of themes on a particular area of interest, for example, changes in teaching practice; finding both similar, and diverging responses from each of the stakeholder groups on each theme, where relevant; and lastly, exploring finer-grained sub-themes to gather detail on, for example, variety of teaching strategies.

We present the findings as they relate to each research question.

#### 3.1 How did teachers and learners experience and engage with LtPT approaches in SET lessons?

##### Key findings



- **More constructive teacher-headteacher working relationships**
- **Teachers develop lesson plans to incorporate LtPT elements**
- **Teachers employ strategies which are learner-centred and participatory**
- **Teachers use formative assessment more frequently**
- **Most learners' engagement and enjoyment of SET lessons has increased; this is motivating for teachers**

##### **Teachers described having more constructive working relationships with headteachers who are better equipped to support and coach them to improve their teaching practice**

After teachers are trained in LtPT methods, they receive follow up support such as coaching from their headteacher and director of studies (DOS). The coaching includes classroom observations and feedback to teachers to help them improve their practice. This additional support helps to increase the level of interaction between the headteachers and teachers. The quality of school leaders' interactions with teachers feeds into teachers' experiences, and, in turn, learners' experience of the LtPT approach. If teachers are supported to deliver good teaching, then the classroom experience is more likely to be positive.

Both headteachers and teachers reported that classroom observations were more supportive. Headteachers conveyed that the coaching training they had received enabled them to guide teachers to improve their practice in a supportive manner, using the GRROW<sup>1</sup> approach. Teachers added that previously, lesson observations were fault picking and judgemental but that now headteachers had been trained on how to provide constructive feedback, and to highlight teachers' good practice, as well as on what needs improvement. Teachers also reported that generally, headteachers offer increased support for materials, including textbooks and some of the hands-on materials such as wires and batteries for SET.



*When I need certain materials, he [Headteacher] is able to understand and help me quickly because he knows the importance of them. Before, he came in supervision and it was scary but now when he comes in observation we show him the problems we have and we are able to discuss each one. (Teacher)*



*When I visit the teachers, we thank them using the GRROW method and find that there is no problem because we were given a way to coach teachers well, that methodology works and is easy. We get good results as you find that teachers are more open to apply the advice you've given them, even when they have challenges they come to me easily. (Headteacher)*

### **Teachers develop lesson plans to structure activities and to ensure that the LtPT approach is experienced as intended**

Teachers are trained to teach using the four LtPT lesson considerations (tinkering and making time; Reflect, Connect, Apply<sup>2</sup> (RCA) questions, child agency and teacher-learner interaction). Some teachers explained that lesson planning is not a new process, but that the Right To Play training helped them to plan more effectively, and specifically plan for the playful elements of SET lessons and incorporating the four LtPT considerations. Headteachers also conveyed the utility of the process in helping them to check that lessons are taught in line with the LtPT approach, for example, that '... during the training, the most useful topic was the lesson plan, to check whether it contains the LtPT considerations, and the process of lesson development to check how the teacher delivers the lesson to students.' One headteacher also noted that lesson plans are useful

<sup>1</sup> GRROW – Goals, Resources, Reality, Options, Will – is a coaching model adopted in Rwanda for use in teaching STEM subjects.

<sup>2</sup> RCA is formative/continuous assessment strategy in which the teacher uses questioning techniques to ask learners to: *Reflect* on what they are experiencing or noticing about the LtPT experience; *Connect* and compare what they are experiencing in the LtPT activity with previous experiences, prior knowledge, or knowledge from related subjects; *Apply* their learning or knowledge learned or practiced in the LtPT activity to other topics or situations in life.



when a lesson needs to be taught by another teacher due to teacher absence, as the lesson content is documented and that this helps to mitigate against missed learning.

“

*While we were already familiar with lesson planning before attending the training, it provided us with a deeper understanding of the key considerations involved. We gained insights into how to structure our lesson plans and, importantly, how to incorporate practical activities in advance. This training enhanced our ability to design engaging and well-organised lessons that effectively integrate theory and hands-on experiences for our students. This helps students to be engaged in the learning process and the active engagement promotes a deeper understanding of the subject. (Teacher)*

**In a move away from teacher-led practice, teachers now employ strategies which are learner-centred and participatory**

Another key change reported was a greater variety of learner-centred teaching strategies. Teachers have moved away from traditional teaching methods such as teaching from the front of the classroom using only the blackboard for the whole lesson. Teachers and learners reported that there are now more hands-on activities and groupwork, helping to keep learners engaged and motivated to learn. Examples cited included:

- warm-ups / energisers, for example, singing and games
- going outside for activities, where possible
- calling learners to the front of the class to present their work
- breaking up the amount of content delivered to prevent it becoming overwhelming
- respecting lesson timings by letting learners go to their break time on time.

“

*I always use groups in SET classes; for example, today we learned more about plant reproduction: I distributed the teaching materials (different plants). After explaining, I told them to go outside to see the whole process in the nature. (Teacher)*

“

*Our SET teacher incorporates a variety of games and activities into the lessons, ensuring that we remain engaged and active during our studies. This approach prevents us from becoming bored or sleepy while learning SET. (Learner)*



**Teachers use formative assessment more frequently; there is less reliance on high-stakes exams to monitor learning**

Improved teacher-learner interactions, using the RCA methodology and other formative assessment types, for example, quizzes and reflecting on prior lesson content, encouraged learners to ask questions rather than learn passively. Learners valued teachers checking their understanding of lesson content and headteachers confirmed the increase in formative assessment, for example:

“ I like how the teacher gives us quizzes after finishing the unit, so that we can get well what we don't get before. After that also the teacher gives us homework, we help each other and ask questions to one another. (Learner)

“ They assess in the beginning, in the middle and at the end of the lesson. They really adhere to it more than before. Before they would just teach and give a summary at the end, without asking students if they understood. (Headteacher)

**More participatory lessons with diverse teaching strategies have helped to increase most learners' engagement and enjoyment of SET lessons; this also motivates teachers**

Teachers and learners reported that the changes in teaching practice, in particular the hands-on, practical approaches when using materials and computers contributed to an improved classroom environment. Learners' agency to discuss SET content with peers and ask the teacher questions, along with varied teaching strategies for joyful and playful learning, have increased their enjoyment and offset any boredom that existed in SET lessons prior to the LtPT approach. One learner explained: 'The thing we like to talk about the most is how we practice in class with the materials we use and we also debate on the outcome of the experiments we do.' Another learner described their enjoyment of SET lessons: '... because of the wide variety of engaging activities we participated in, this made the lessons interesting, interactive, and enjoyable for all of us.'

In conveying the more positive classroom environment, two learners also highlighted the absence of corporal punishment in SET lessons since the introduction of the LtPT approach, for example: 'Last year the teacher was

“ I also enjoy teaching using this approach because it facilitates the delivery of my course content to the students in a more effective manner. It reduces the amount of time I need to spend explaining concepts to them. Moreover, witnessing the active participation of students in the course is highly motivating for me as a teacher. It is energising to see them fully engaged and enthusiastic about the learning process. It is rewarding to observe their sustained interest and willingness to continue learning, even when SET period has ended. This approach helps to prevent boredom in students. (Teacher)

furious and used to give us corporal punishments but this year he disciplines us in a positive manner.’

“

*We enjoy Kinyarwanda ... more than SET lessons. Our parents are illiterate but with Kinyarwanda it is easy because they are able to support us. Kinyarwanda is our language; we all feel comfortable studying it compared to SET because we do not understand many [SET] terms as they are in English. (Learner)*

While learners enjoyed the play-based approach, for some, SET was less appealing compared to other subjects if they did not understand the technical terms in English. It should be noted that this study only explored SET so this may also be the case in other subjects. Further, some learners with illiterate parents and/or parents who did not speak English and so were not able to support them with these SET terms also expressed a preference for other subjects.

### 3.2 What emerging signs of learners' holistic skills (generic competencies) are there since engaging with LtPT approaches?

#### Key findings



- **Group work and questioning help the development of learners' collaboration and communication skills**
- **Learner-centred practice enables confidence and presentation skills**
- **Mixed gender and ability groupwork and questioning support gender equity and inclusion**

**Group work and questioning are amongst the key teaching strategies that encourage the development of the converging holistic skills of collaboration and communication**

The study focused on exploring the holistic skills of collaboration and communication. Headteachers and teachers described how the LtPT elements which involve teachers asking learners questions to encourage their processing of lesson content, the use of hands-on activities using materials, and learners interacting with one another in groupwork facilitated the development of learners' communication skills. A headteacher reported: 'You find that they really understand each other, the students feel free to ask questions and the teachers also give answers based on what the student needs.'



*[There is] increased creativity and motivation: students themselves can go pick the materials and create materials on their own and start working themselves. Some mornings, students will get to class before everyone else and help each other, that didn't happen before. Sometimes you'll find them here at the door saying they need materials to help them progress in their learning, for example, if the teacher creates a car, the student will be creative and create a plane or a bike.  
(Headteacher)*

Learners described undertaking groupwork activities which used communication and higher-order thinking skills, indicating the development of related holistic skills. They reported critical thinking, using brainstorming to discuss different scenarios and what would have happened if something was different in an experiment. They also outlined activities involving creativity and innovation by using alternative materials than those used by the teacher to do or create something, for instance, to generate light.

“ *The electricity unit is the one that we like to talk about. We take a paper, draw the batteries with the same signs of plus or minus. We brainstorm by saying what would happen if two batteries with the same signs are mixed? Would it make the light or not? That is what we discuss as classmates. (Learner)*

“ *We also take the initiative to try things on our own based on what the teacher has taught us. For instance, the teacher mentioned that we could create light using a lemon, metal, wires, and a bulb. Although we didn't have the materials at that moment, we, as students, decided to try it during our break time. Eventually, we successfully replicated the experiment on our own, which was both exciting and fulfilling. (Learner)*

### **A move towards learner-centred practice also enables other elements of holistic skills such as confidence and presentation skills**

Crucially, improved interaction between teachers and learners supports child agency, where teachers encourage learners to think independently, for example, when choosing materials; to ask them questions; and where learners interact with their peers. Teachers and learners reported that learners had developed confidence and the willingness to present their work to the class; and that some learners were overcoming shyness. A learner reported that groupwork supported more reticent students: ‘The teacher created groups of students to make it easier for the student who is shy to ask a question.’

Teachers dealt with any conflict in groups, for example, some learners being reluctant to sit with others, by talking the issue through with the learners, with a teacher explaining: ‘For example, if there is one answer they are not agreeing on, I approach them and help them get the same point of view on that answer.’

“ *We learnt about choice, where the student chooses for themselves the material. We also learnt about voice, where the student can speak and be free. I saw that it helped the students as they are more confident, they work well. (Teacher)*

“ *They became more confident, particularly during tinkering and making time and when presenting their creations. You can clearly observe that it has boosted their confidence to a whole new level. (Teacher)*

### **Groupwork and questioning teaching strategies are used to enable gender equity and inclusion**

Teachers reported that they set mixed gender and ability groups and that they used strategies such as alternate questioning of boys and girls to ensure that both were included. They explained that mixed ability grouping also enabled learners in need of additional support to learn from their peers.

The mixed gender and ability grouping was also described by learners, where all the FGDs revealed that girls' participation was equal to that of boys and that, in general, teachers had an inclusive approach to learners with special needs. One learner explained: 'The teacher encourages us to form mixed gender groups. I appreciate this ... it allows us to collaborate and share our ideas about the activity. The teacher likes to ask some children because she knows they are students with special needs.'

“

*Quick learners explain to slow learners more than me [the teacher]. The slow ones feel more comfortable to ask their fellow students, they share their views, working in groups helps them to express what a student knows, to get confidence and to learn more from others. (Teacher)*

“

*Girls now feel empowered as they are able to lead groups and present ... they participate equally in my class. I have one girl with a hearing disability, she is able to participate because in those small groups she is with her fellow students so she no longer feels ostracised. Students have gained skills of asking and answering because after the lesson they are given a chance to present or ask question. (Teacher)*

Two learners, however, felt that more intelligent or talkative peers were preferred by the teacher to them or that during group activities they are not listened to. Further, two teachers mentioned a lack of training in supporting learners with special educational needs (SEN) - see Section 3.3.2.

### 3.3 What factors and conditions support or constrain schools' uptake of LtPT approaches?

#### Key findings



- **Training and follow-on support are key enablers for maintaining the LtPT approach**
- **Teachers would like more peer learning and training in supporting learners with SEN and in digital skills**
- **The key challenges in integrating the LtPT approach include digitisation, management of large classes, lesson length and language of instruction**
- **Parental engagement is needed to support learners at home with SET**
- **The LtPT approach is beginning to have positive effects both in and beyond school**

#### 3.3.1 Supporting factors for LtPT

##### **Training and follow-on support are valued and are key enablers for maintaining the LtPT approach**

The intended support to implement the LtPT approach is outlined below.

For teachers:

- training, including on Making/Tinkering, Coding and Robotics<sup>3</sup>
- coaching and mentoring from headteachers or director of studies on the approach
- peer learning, in the form of Community of Practice (COP) workshops and Continuous Professional Development (CPD).

For headteachers and director of studies:

- training on coaching teachers in the LtPT approach and RCA assessment
- training on models of how to effectively provide feedback on lesson observations and coaching conversations with teachers
- peer support including exchange visits to other schools.

Teachers spoke highly of the LtPT training which had supported them to improve their pedagogical practice, particularly in, for example, creating lesson plans which included learning objectives at the start of the lesson to orient learners to the purpose of the lesson. Other teachers highlighted the training on learner-centred practice, for example: 'Most helpful was tinkering and making, where you can give a child a free space to make their own materials in some local materials like

<sup>3</sup> Teachers had not received the Robotics training at the time of writing this report.

papers, boxes, and plastic bags. Before we taught in a theoretical way without doing any activity related to the lesson.’

Teachers reported receiving the intended coaching from their school leaders, which mainly consisted of classroom observations and conversations around good practice, and that this had helped to improve their practice (see Section 3.1). One school leader - a director of studies (DOS) - noted that training for two of the school leadership team (headteacher and DOS) was useful to help embed the LtPT approach and mitigate against absence and staff turnover.

Both headteachers and teachers found the communities of practice (COPs) to be highly beneficial and emphasised the importance of peer learning for knowledge exchange, sharing successes, challenges and building knowledge. Teachers, in particular, highlighted that the participatory approach, which encouraged discussion with their peers in the COPs, supported them to address gaps and issues in their knowledge and practice.



*I find this aspect of sharing challenges [COP] extremely beneficial. There have been instances when I have encountered struggles with certain teaching concepts or methodologies. However, another teacher may share their own approach or solution to a similar challenge. This exchange of ideas and experiences allows me to gain valuable insights and discover new strategies to overcome my own difficulties.  
(Teacher)*



### 3.3.2 Additional support required and challenges around LtPT

Some of the key support requested by teachers was around peer learning; training in supporting learners with SEN; and in digital skills, as presented in Box 1 below.

#### **Box 1: Teacher responses on further support needed for delivery of LtPT**

Some teachers felt that more time needed to be allocated to COP workshops as increased peer learning opportunities would allow them to embed good practices more effectively. Three teachers indicated that SET-specific Continuing Professional Development (CPD) was needed, and that the CPD they attended lacked relevance, for example:

*Most useful aspect is the opportunity to meet with other SET teachers from different schools but not enough time is given for this and there tends to be a focus on giving us a revision about previous trainings rather than facilitating teacher-led discussions and idea sharing. (Teacher)*

*Most of the time CPD is organised by [another] teacher who misses many points. The way we teach SET is not as they teach [other subject] - we should have a CPD related to SET. (Teacher)*

Two headteachers conveyed the challenge of not being able to provide coaching support as they felt they did not yet have the requisite digital skills. However, most of the responses on the need for more digital literacy training were from teachers, for example: ‘... for the introduction to topics like scratch and E-toys, they did not give enough time for people who are not digital literate.’ Gaps in familiarity with the designated hardware were also highlighted: ‘We are not familiar with using XO laptops, that is the great challenge; it takes me much effort to practice and prepare a lesson before teaching it.’ A need for further coding training was also raised:

*Regarding the coding aspect, I felt that the allocated time was not sufficient. We received training on three different programs and each program contained a substantial amount of information that needed to be covered. Having more time dedicated to each program would have allowed for a deeper understanding and more comprehensive learning experience. If possible, they can prepare for refresher trainings. (Teacher)*

Teachers used mixed ability grouping as a strategy for supporting learners with SEN, by encouraging peer learning. Two teachers, however, expressed that they needed more focused training, for example: ‘We did not get enough training on this matter [teaching learners with SEN] but they told us that these children are capable children just like others. They asked us to pay more attention to their progress than to look at the results.’

*The area where I require support is in assisting children with special needs. Perhaps they can provide us with training on sign language and other necessary techniques to help these children study effectively. (Teacher)*



**Many of the key challenges in integrating the LtPT approach into SET lessons are around English as the language of instruction, digitisation, management of large classes and lesson length**

There were a number of other, intertwined challenges reported by interviewees which were not related to training and peer learning. As previously highlighted, English as the language of instruction made understanding the technical terms in SET difficult for some learners, as exemplified by a learner: ‘Kinyarwanda is our language, we all feel more comfortable studying it than SET - we do not understand many SET terms as they are in English.’ Some teachers described explaining the terms in Kinyarwanda first to help address this challenge.

Teachers reported that inadequate teaching and learning materials, specifically projectors, were needed to manage large class sizes of up to 65 learners and that they found it difficult to explain the lesson content and to model activities to learners without a projector. They also explained that a shortage of charged up devices impeded their lesson preparation and relatedly, that poor internet connectivity at school was an issue.

Two headteachers also commented on infrastructure challenges which they felt limited opportunities to implement the play and practical activities in the LtPT approach. Inadequate space was cited as a particular issue: ‘... specifically outdoor play areas, there are no areas for play here – no playground. There is a lot of dust.’ and further: ‘... large class sizes and constraining classroom space. It is difficult to get materials that are enough for the class ... the more space we have, teachers can start to put students in smaller groups and it could help.’ Teachers described how ICT issues impeded their practice, for example:



*Yes, we have a problem of computer access. It is very limited for us teachers; it is not easy to borrow computers for practice ... I am not able to attend to all questions from students. We have a problem of not having strong internet as teachers we need to always do research. Not having adequate materials for example, we do not have the extensions to use while charging those computers or when we are teaching. We don't have the projectors to use, this limits us because we have large classes to manage and a problem of not having enough teaching time. We have only 40 minutes to teach. (Teacher)*



*Classroom management is difficult when we are using ICT. It is recommended that we use two teachers, one to monitor what the children do on the computer, and the other to teach. Since children are very excited when they get to computers, it is very difficult for them to understand the instructions. (Teacher)*

Teachers also expressed that they found it difficult to manage lesson time while implementing the LtPT approach; this was reflected by learners. These respondent groups conveyed that the heavy SET curriculum made some of the LtPT approach difficult to fully incorporate within a 40-minute SET lesson.

“

*Many times teachers are trying to hurry so that they don't take time of the teacher who is coming next. So if you follow the process fully and follow everything 100%, time is short. Even the coaches/assessors mostly critique us on time management. The teacher has tried to hurry but also wants to follow all the suggestions of having children play with the materials, manipulate and explore. So I would ask them to see if anything can be done to increase practical unit time. In coding, when we are using the XO laptops and you give these to the children, it takes them a long time to even open them up and you find that so much time passes just to set everything up. (Teacher)*

“

*What I wish is for us to have more dedicated time for studying SET. The current duration of 40 minutes is not sufficient to cover all the topics and engage in meaningful group activities. Often, the period ends when we still have many tasks to complete or discussions to carry out in our groups. Having additional time for SET would allow for more in-depth exploration of concepts and ample opportunity for collaborative learning. (Learner)*

### **Parental engagement is needed to support learners at home with SET**

Although parents were not specifically aware of the LtPT approach, there was generally positive feedback on the more learner-centred approach and the use of materials now implemented in SET. The parent FGD itself created curiosity about SET and the different approach to teaching.

Although some headteachers had made attempts to inform parents about the LtPT approach through parent's meetings at school, parents requested familiarisation with it, in particular the technology element, so that they could support their children in the same way as in other subjects.

A parent expressed, for example, that 'It would be good to be educated about the activities of the project, to help ourselves and our children.'

Where schools lent laptops to be taken home, parents requested familiarisation with the devices to support their children's ICT learning, and to learn how to safely operate them at home.

Encouragingly, however, there were no limitations reported of taking the laptops home.

There were other parents who felt that they did not have English language, or general literacy skills and that this precluded them from providing

support to their children, as expressed some parents: 'They [children] speak to us in English about school and we don't understand. At least in Kinyarwanda lessons we can maybe support them.' and 'The project can see how they can support illiterate parents so that we know how to support

“

*We would also be interested in the idea of using a laptop to help children with technology lessons or provide training on project activities. We are worried when the child brings the machine, I can't touch it because I know I will damage it, I can't even put it on electricity because I know I can damage it. But when I have the knowledge it can help me and be able to turn it off whenever he left it on, etc. (Parent)*

our children.’ These language and literacy themes were reflected in learner responses, for example: ‘I do not tell my parents about SET because we study in English yet my mother does not understand it as she studied in the Francophone method.’ and ‘We do not talk about studies as my parents are illiterate, they cannot support me.’

### 3.3.3 Wider effects of LtPT

#### **Despite the challenges, the LtPT approach is beginning to have positive effects both in and beyond school**

There were responses from across the headteacher, teacher and parent stakeholder groups which attributed learners’ improved attainment and school attendance to increased motivation in SET. A parent commented on their child’s changed attitude towards SET: ‘The changes were evident because the example I would give is that my child’s grades have increased and we should not ignore how the child likes to go to school.’ Teachers also noted a link between increased engagement in SET and improved attendance and achievement: ‘I have seen the change in students’ interest in SET subjects, the attendance has increased as I have seen the number of those who are absent reduced.’ and ‘Before using LtPT methods, students performed poorly and they didn’t like the SET lesson. Now it has enhanced performance and collaboration. I have one of the P5 classes where the best SET performer is a girl.’



*We really do see changes. There are times when students liked to skip school but since they started learning through play, we see that they attend school more... you find that boys and girls help each other and they are all enthusiastic to learn. The results are clear in their grades. (Headteacher)*

Learners also spoke of how they engaged with some lesson content at home and how SET lesson topics could prepare them for employment after school. Box 2 below presents some of these responses.

**Box 2: Learner responses on the application of their SET learning outside the classroom and their career aspirations**

Both girls and boys embedded their learning by practicing and sharing their knowledge at home. One learner reported supporting their father to repair damaged cables and other learners described how they make and fix things at home, for example, using batteries to generate electricity.

*We generally do not discuss my SET lessons at home, except for one particular day. It happened on a weekend when my parents were out, returning late at night. To their surprise, they found our home illuminated with light, despite not having electricity. They were curious about what had happened, so I explained to them that in SET we had learned how to produce light using wires, radio batteries, and bulbs. They were delighted to see that we were not only learning new things but also able to apply them independently. (Female learner)*

*You go home and share what you've learned with your father, who is a mechanic. You can explain to him how you now know how to take care of his tools and materials. (Male learner)*

Learners' increased interest in SET extended to considerations of SET for some girls and boys, and for others, to skill them in case they could not continue their schooling.

*SET lessons offer valuable insights into various career paths, such as electricity, mechanics, carpentry, medicine, agriculture, and more. This exposure to different fields allows us to gain foundational knowledge and explore potential career options. By having this fundamental understanding through SET, it sparks our thinking about the career paths we may choose in the future. (Male learner)*

*I would like to continue studying SET in the future, I would like to be a scientist who can create and discover different things. I heard that a scientist who created the robots that can speak and do different things, so I want to learn how that works. (Female learner)*

*I like these activities because I can also do them at home and teach them to my siblings. It's enjoyable to engage in these activities together. Additionally, one of the reasons I like these activities is that they can potentially provide an income if, for some reason, I am unable to continue my studies. For instance, creating and selling clay pots can be a way to generate money. (Female learner)*

## 4 Conclusions

In this section, we summarise the key findings of the study for each research question.

### How do teachers and learners experience and engage with LtPT approaches in SET lessons?

We found that headteachers monitor teaching practice more supportively and are more understanding when their teaching staff request materials for SET lessons. This has supported and improved working relationships. Teachers have improved their lesson preparations by writing lesson plans, to ensure that the key LtPT considerations (tinkering and making time; RCA questions, child agency and teacher-learner interaction) are incorporated in their teaching. Teachers deploy a wide range of learner-centred and participatory teaching methods and use formative assessment to check and monitor learners' understanding of lesson content. The learner-centred, play-based approach is preferred and enjoyed by most learners, and teachers. However, the technical terms in SET, when taught in English, present problems for learners, some of whom prefer Kinyarwanda and other subjects as they are more comfortable with this language, compared to English.

These findings suggest that teachers feel better supported to reflect on their practice, to engage learners in creative ways, and feel more motivated. PIP is helping teachers and headteachers tailor their existing educational experience to create more positive teaching environments and ability to operationalise the LtPT approach in practice. This in turn improves student engagement, which further increases teacher motivation.

### What emerging signs of learners' holistic skills (generic competencies) are there since engaging with LtPT approaches?

Teacher, headteacher and learner responses indicated that the greater use of groupwork and teacher-learner and learner-learner interaction has helped to develop learners' skills of collaboration and communication. Learners ask teachers questions to support their understanding and experiment and discuss different outcomes in their groups. Teachers and learners also noticed an increase in confidence and reported that that shy learners were more willing to interact with their peers. Teachers address any conflict in groups by talking the issue through with the learners. Groupwork is mixed gender and ability, and teachers are aware of including both girls and learners with special needs. They do this by ensuring that they ask questions to all learners and encouraging learners with SEN to consult with their peers when they need support in groupwork. It is unclear, however, whether teachers differentiate teaching and resources for learners with SEN.

These findings indicate that teachers have built on their experience of setting groupwork for learners and observe the development of learners' collaborative and communication skills. They are supportive of mixed gender and ability grouping to promote gender equity and inclusion. They

are also becoming adept at devising strategies for conflict resolution by talking issues through with learners, thereby modelling positive behaviours to learners.

### What factors and conditions support or constrain the uptake of LtPT approaches in schools?

The key enablers are around the Right To Play training on the LtPT approach and the follow-up support, which comprises coaching and in-school CPD for teachers and COPs for both teachers and headteachers. The training and support underpin many of the positive findings, as summarised in the previous two research questions in this section. Headteachers value that another member of the senior leadership team is trained in coaching; this can help to mitigate against staff absence and to embed the approach in case of senior leadership staff turnover.

There is, however, some variation in the level of support across schools. Teachers feel that more time is needed for peer learning opportunities and that CPD needs to be more relevant to SET. There is also demand for further training on technological aspects of the LtPT approach around digital skills. Classroom management training, including supporting learners with SEN, is also considered important.

Teachers are able to grasp the principles of learning through play, and value and enjoy this approach, but there are other practical and technical challenges which are interconnected, and which hamper the full implementation of the LtPT approach. Some of these relate to access to computers and a lack of accessories for teachers to prepare for lessons, and of projectors needed for teachers to introduce and model lesson content to large classes of up to 65 learners. Other issues are around infrastructure: poor internet connectivity in school, inadequate outdoor space for play and small classrooms which cannot accommodate the large classes; and time management for incorporating the required elements of the LtPT approach.

English as the language of instruction can be difficult for children to understand, particularly for technical terms used in SET and lessons are not long enough to fully incorporate the required elements of the LtPT. Parents feel they would benefit from having more information on the LtPT methods and where learners were lent laptops to take home, familiarisation with the devices, to support their children's studies.

Despite the challenges, the LtPT approach is beginning to contribute to positive, wider effects, both in and beyond school, including reported improved attendance and attainment; learners' application of their learning at home and an increased interest in SET for future employment, for some.



## 5 Recommendations

This study found that the utility and value of the LtPT approach was evident in all stakeholder groups and that schools are willingly integrating LtPT teaching methods into SET lessons. Further, the LtPT approach has the potential to be a multiplier in terms of wider, positive effects. Many of the challenges are around additional support needed by all stakeholder groups. While some of challenges are at the system level, others could be addressed at the school and project level.

In moving forward, we offer recommendations for the PIP project. These are based on the positive effects and enablers, as well as the challenges outlined in the previous sections and are presented broadly in order of priority for the continued implementation of the LtPT approach.

### 1 **Right To Play should continue to support headteachers and teachers with peer learning opportunities in school CPD and COPs, and support knowledge and experiences to be widely shared.**

School staff highly value these opportunities to share successes and challenges. There were some examples of resourceful and solution-oriented practices outlined, for example, explaining key concepts to learners in Kinyarwanda where these are not understood in English. Recycling paper from tests and cardboard to be reused where replenishment is not affordable was also mentioned. This is a sustainable practice (and sustainability is a topic in the SET curriculum) so Right To Play could support school leaders to promote this by providing posters to display in school and encouraging teachers to engage learners in recycling materials safely. Some schools are also lending learners laptops to take home to practice and embed learning from the classroom. Encouragingly, there were no reports of damage to the devices. Right To Play should support school leaders to evaluate the benefits of learners taking laptops home and if clear advantages are found, for example, that learners' performance in ICT assessments is supported, this practice could be scaled to all schools. Where this is not feasible due to cost or other issues, laptops could be made available for learners to practice on in school, as an extracurricular activity.

Right To Play should support schools to document these resourceful strategies via CPD and COPs and share these across schools to help scale up best practice.

### 2 **A consideration of SET-specific CPD and more frequent COP meetings is needed by Right To Play.**

The study findings indicated that teachers need further support with some of the more technical aspects of SET, rather than tinkering and making, in particular, digital skills for coding, and using XO laptops. Teachers also expressed that some of the in-school CPD was less relevant to SET activities and that more COPs for sharing SET teaching experiences were needed. Right To Play should support school leaders to develop the necessary training for in-school CPD, possibly through a trainer of trainers model where one staff member is trained in digital skills and the training cascaded to others, either in

school or in a COP workshop. The digital skills training needs can also inform the planning of the training for Cohort 2.

Right To Play should also consider ensuring increased time for COPs so teachers can share learning from peers in other schools, particularly as the LtPT approach is fairly new. A possible challenge on ringfencing adequate time for SET-related CPD and COPs is that training in English as the language of instruction also needs to be delivered. In this case, Right To Play could conduct a small-scale study or needs assessment on the content of CPD and COPs, and provide recommendations to headteachers and the REB.

**3 Right To Play should consider resourcing further training on supporting learners with SEN.**

The findings from this study suggested that teachers were making SET lessons accessible for girls, however, some teachers highlighted a need for training on inclusion for learners with additional needs. Teachers may need training on differentiation, for instance, setting activities at different levels, or asking less challenging questions to learners with SEN, where appropriate. Since gender and disability are often intersectional, it would be useful to provide specific training to support all learners with SEN, and in particular girls with disabilities and other SEN, are included and progressing. Classroom observations could be used to measure the effectiveness of the training.

**4 Time management of lessons in large class sizes was a common theme; Right To Play should consider an exploration of the issues around SET lesson length for application of LtPT.**

Teachers reported that 40-minute lessons were inadequate for the necessary LtPT practical activities to be incorporated in the context of large class sizes and considering the time absorbed by lesson set up and packing up. Right To Play should consider: 1) whether the LtPT approach can be adapted to be more suitable for a 40 minute lesson, or whether 'double' SET lessons of 80 minutes (as exemplified in the coaching manual) are more appropriate and feasible for school leaders to work into the timetable; 2) whether teachers need more training / strategies to manage time; and 3) whether they can work with school leaders to better plan for SET lessons. This would also support part of the PIP project Outcome 4, which is senior leaders' planning for LtPT.

**5 In collaboration with like-minded organisations, Right To Play should identify advocacy opportunities to help draw attention to system-level challenges.**

One of the PIP Theory of Change assumptions is that schools have the necessary infrastructure to implement LtPT. Concerns were raised around the lack of resources in



school which impede LtPT implementation, including access to computers for lesson preparation; lack of projectors to deliver lesson content to large class sizes, of outdoor space for play, and poor internet connectivity in school. As part of feedback to MINEDUC, Right To Play should recommend that MINEDUC supports teachers to procure their own laptops for lesson preparation. Right To Play could support on the provision of projectors for demonstrating activities to classes, alongside other PIP EdTech kits.

English as the language of instruction can also be an issue for learners, but teachers appear to be able to explain concepts in Kinyarwanda first, then in English to learners. This may, however, impede time management in lessons (see Recommendation 4), so Right To Play should consider advocating for multilingual SET teaching materials to support learners, teachers and parents as part of resources for the SET curriculum. In the interim, and at the school level, school leaders and teachers should be supported to create multilingual teaching and learning materials. These could include key SET terminology in English, Kinyarwanda and French, displayed on classroom walls as posters or printed key words, with booklets for learners to take home to help parents support them.

6

#### **Right To Play is well positioned to support school leaders in facilitating parental engagement sessions.**

Most parents were not aware of the LtPT approach, only that their children were requesting materials for SET lessons. The FGDs in this stakeholder group revealed that parents wanted to support their children's SET studies as they did in other subjects. Parental requests for support broadly fell into two types: details of the LtPT approach in SET lessons, and training on laptops which some learners brought home, in some cases to avoid damaging the devices and in others, to learn how to support their children in ICT studies. Some parents also conveyed that they were not equipped to support their children as they did not have English language skills (see Recommendation 5 on the development of multilingual materials to help address this). Right To Play should explore the possibility of implementing such engagement via existing mechanisms or structures, for example, the Parent-Teacher Associations.

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