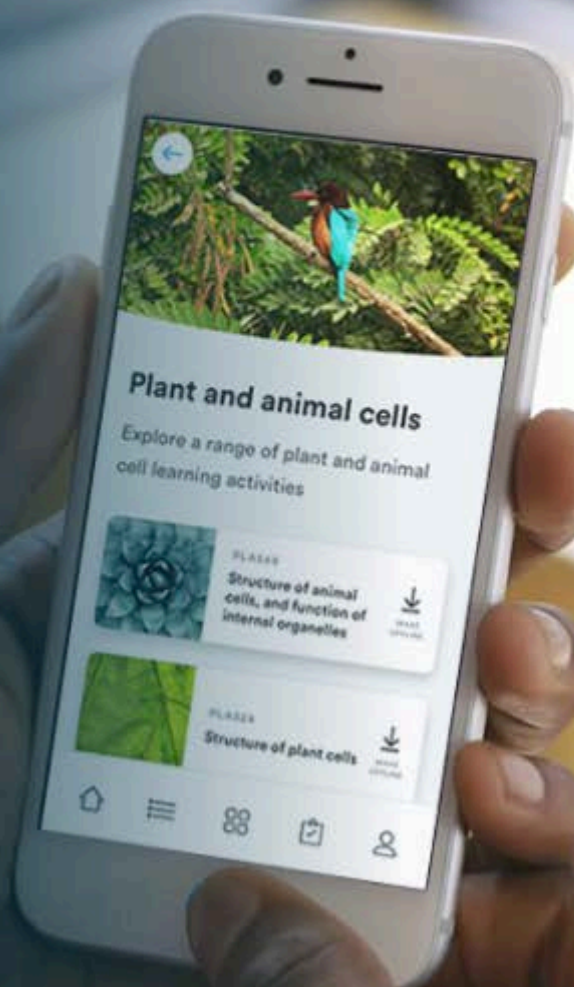




Pacific eLearning Program

Transforming Science Education
Through Digital Learning and
Teacher Development



Project snapshot

Country: Cook Islands, Fiji, Samoa, Solomon Islands, Vanuatu

Partner institution: Ministries of Education in four Pacific countries - Solomon Islands, Samoa, Cook Islands, Vanuatu and the University of the South Pacific

Donor: NZ MFAT

Duration: July 2020 - March 2024

Project value: NZD\$5,394,314 / USD \$3,192,204

Catalpa role: Co-design and technical implementation partner supporting Ministries of Education to strengthen science teaching through contextualised digital learning resources, teacher professional development, and system readiness for e-learning.



Background and Context

Across the Pacific, Ministries of Education and teachers had long called for science learning that felt more relevant, more practical, and more achievable, especially in geographically dispersed contexts where connectivity was limited, and resources were stretched.

In many Year 10 classrooms, non-specialist teachers taught science with limited access to lab equipment, updated teaching materials, or ongoing professional development. At the same time, Ministries had been exploring how ICT-enabled approaches might strengthen teaching and learning, provided solutions matched school realities, calendars, cultural norms, and diverse linguistic and community contexts.

In response, New Zealand's MFAT established the Pacific eLearning Program, a multi-country initiative delivered in Vanuatu, Solomon Islands, Samoa, and Cook Islands, in partnership with each Ministry of Education and the University of the South Pacific.



Image captions: (Left) Teacher using the Pacific Learn app to project a diagram to support science learning in the classroom. (Right) Teachers using the Pacific Learn app during an in-person school-level workshop.

What we set out to do

PeP aimed to improve scientific knowledge among young people by strengthening teaching quality through better learning resources and continuous professional development for Year 10 science teachers.

Together with the relevant Ministries, the program aimed to:

1. **Make science learning more engaging and relevant for students through contextualised, hands-on, student-centred activities (structured pedagogy)**
2. **Provide teachers with accessible, continuous professional development that worked in low bandwidth and remote settings**
3. **Build Ministry capability to plan, design, and advocate for elearning approaches that aligned with operational realities and community expectations**

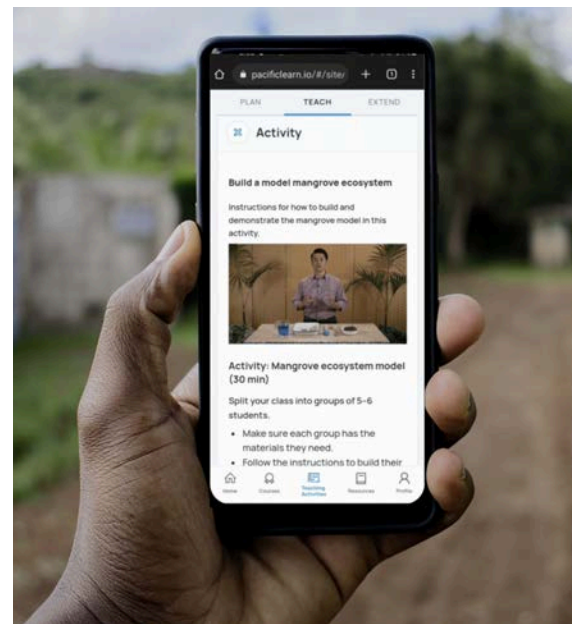
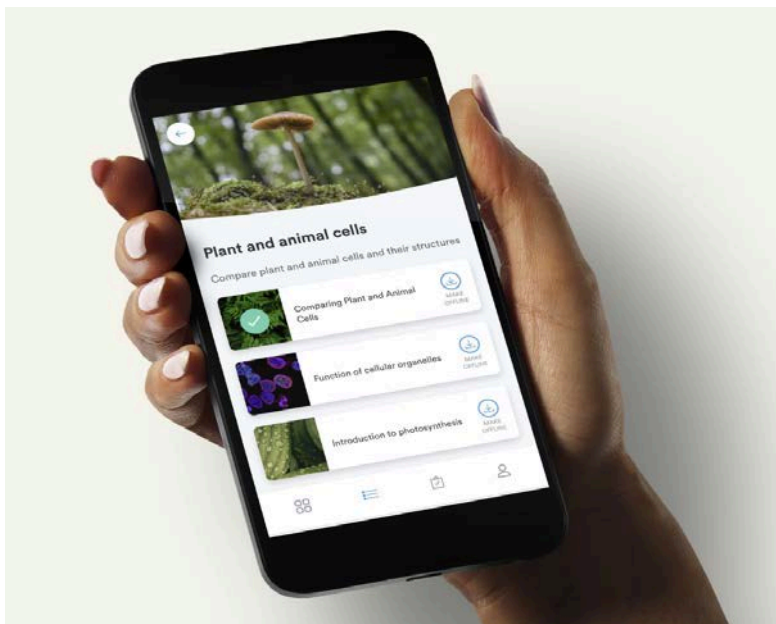


Image captions: (Left) Screen grab of the Pacific Learn app. (Right) Example of structured learning content in the Pacific Learn app.

Central to the program was co-designing science teaching and learning resources, grounded in structured pedagogy, with teachers, Ministry staff, and a diverse group of Pacific Science Fellows, ensuring alignment with national curricula and integrating local knowledge, examples, language, and cultural perspectives.

PeP brought together local scientists and practitioners (e.g. beer brewers, national science organisation staff, and former teachers) and international experts to co-develop and quality-assure 100 learning activities through online workshops and shared drafting, resulting in learning resources grounded in Pacific examples. These localised examples included using a canoe to teach Archimedes' Principle and a lovo (earth oven) to teach heat transfer. These additions ensured activities connected to students' lived experiences and enabled hands-on science even without laboratory equipment.

Teachers themselves were active partners in this process. Through storian/talanoa sessions, classroom visits, communities of practice (CoPs), and in-app feedback, they guided iterative refinements to the Pacific Learn app user experience and features, the learning resources, and the continuous TPD materials. The learning resources included semi-scripted, curriculum-aligned lesson plans that translated learning outcomes into practical classroom steps; hands-on activities using locally available materials; teaching tips to support teachers with challenging concepts or pedagogy; projectable images and videos; and formative assessment activities to check student understanding. For example, the app supported 'kitchen science' activities that could be carried out without a laboratory, and instructional videos modelled hands-on activities using resources teachers and students could find in their communities. Teachers' recommended adaptations, such as applying PeP activities in other subjects or creating school-based mentoring, demonstrated genuine ownership.

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“This PeP programme helps me a lot in teaching science topics in class with the year 10 students. The activities, the projectors and the phone have help me to broaden my knowledge in teaching science and make my science lesson very interesting.”

— Female teacher, Vanuatu

Impact

PeP delivered a mobile-first platform (Pacific Learn) that made it easy for teachers to access curriculum-aligned learning resources and microlearning teacher professional development (TPD) courses that supported improvements in teaching quality.

The programme also strengthened system-level capabilities by training Ministries to use ICTs for teaching, developing guidelines for safe ICT use, and adopting practical digital tools to enhance data use and accessibility.

The programme reached over 3,300 students, 94 teachers, school leaders, and participating Ministry staff. School-based and Ministry staff alike strengthened their capacity to plan, design, and advocate for effective elearning and digitally-enabled continuous TPD across their systems.

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“The programme has contributed to enhancing learning and teaching in the classrooms of the pilot schools.”

— Ministry of Education, Sports and Culture staff, Female, Samoa

Program results were published in [International Education Journal: Comparative Perspectives](#), and an [independent evaluation](#) found PeP to be an “innovative program supporting teaching and learning in science” and “meets the challenges of the country contexts, where many schools face difficulties connecting to internet or accessing resources.” It also found that PeP was highly relevant to Pacific governments' objectives and demonstrated value for money.

Additionally, internal monitoring found the following impacts and results:

- **Strengthened Ministry capability for eLearning**
 - 82% of targeted Ministry staff reported greater confidence in planning and designing eLearning support.
 - MoEs incorporated PeP into annual plans and budgets, signalling early system institutionalisation.
 - High value for money and sustainable technology choices e.g. Only 15% loss of low-value ICT items over the programme and no loss of items over NZD \$1,000; Solar systems installed in 10 remote schools ensured reliable access to power.
 - Strong inclusion outcomes across gender and geography: Equal participation opportunities for women and men, with deliberate supporting approaches based on context; Rural teachers were among the most active users of the app and communities of practice.
- **Improved teaching practice and classroom engagement**
 - Significant reduction in students being off-task, copying, or waiting during science lessons: from 20% to 8% of observation blocks.
 - Teachers increasingly used hands-on, interactive lessons, with endline observations showing increased active learning.
 - Teachers reported higher confidence in teaching science, with 72% of surveyed teachers more confident post-PeP.
- **Increased student engagement and relevance of learning**
 - 72% of teachers reported increased confidence
 - 79% of students found the content relevant to their lives, and
 - 77% of teachers completed micro-courses, indicating sustained engagement
 - 76% of teacher respondents reported that the Pacific Learn app “teaching tips” are helpful for classroom practices.
 - 65% of teacher respondents said they apply what they learnt through PeP when teaching science and other subjects.

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“The attendance to class when using of technology tools are more than when writing on the blackboard”

— Male teacher, Vanuatu



Image captions: (Left) Teachers working together to learn how to use the Pacific Learn app and projector. (Right) School visit to a secondary school that was part of the PeP programme in Solomon Islands.

Catalpa's role

Catalpa served as the lead technical implementing partner, supporting Ministries to strengthen science teaching through co-design of contextualised digital resources, teacher professional development, and broader e-learning readiness. In this role, Catalpa led program delivery and management to successfully implement the project across four countries, with a central team based in Fiji. This included responsibility for the program management cycle, across relationship and contract management, partnerships with downstream partners Nanogirl Labs and Wintec/TePukenga, financial management, communications, monitoring and evaluation, and governance.

To ensure strong governance arrangements for the program, Catalpa drew on our extensive experience supporting high-level governance mechanisms to ensure the complexity of a multi-country partnership did not get in the way of best practice. The PeP program was strategically managed by a Steering Committee composed of MFAT, USP, and a high-level representative from each country's MoE, with the chair rotating every quarter to ensure equal participation across implementing countries. Catalpa teams prepped Steering Committee members and encouraged active participation.

We coordinated cross-country and regional collaboration by linking national ministries with USP-IOE, program partners Nanogirl Labs and Wintec/TePukenga, and local Science Fellows. This collaboration strengthened regional learning networks. We also worked with national training authorities to secure recognition of on-the-job learning through our continuous teacher professional development model.

Catalpa embedded staff within Ministries to support the program's rollout and long-term sustainability by working side by side with Ministry counterparts. For example, our eLearning Specialists acted as cultural navigators, ensuring decisions reflected Ministry priorities, teacher perspectives, and local expectations around pacing, hierarchy, and collective dialogue. This way of working meant PeP adapted continuously to context, whether responding to low-connectivity environments, COVID-19 disruptions, or teachers' varying levels of digital confidence.

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“The wealth of knowledge imparted by PEP has been invaluable to my team, particularly in identifying tools that ensure learning can take place anytime and anywhere. I have taken note of several tools and am eager to explore them further, intending to incorporate these into our practices within the ministry.”

— MOET staff, Female, Vanuatu



Learning and adaptation

Across four diverse Pacific education systems, PeP learned that meaningful, sustainable progress in elearning and continuous TPD depended on approaches that respected cultural norms, local expertise, and existing ways of working. The program's adaptive management approach—rooted in design-based implementation research (DBIR) and continuous learning cycles—enabled the team to respond to context, strengthen ownership, and refine its model throughout implementation.

A central lesson was the importance of working through existing relational and cultural structures within Ministries, schools, and teaching communities. A key component of these structures were the aforementioned “cultural navigators”, the Country-based staff embedded in MoEs served not only as technical support. PeP learnt that it was crucial to engage respectfully, build trust, and adapt its approaches to local expectations around communication, authority, and collective decision-making. This relational way of working underpinned the other lessons, outlined below.

1. Strengthening teacher connection and confidence through culturally aligned continuous TPD models:

PeP demonstrated that professional learning flourishes when it aligns with Pacific norms of collaboration, reciprocity, and shared problem-solving. Communities of Practice (CoPs), initially facilitated by PeP's eLearning Specialists, evolved into vibrant teacher-led communities in Samoa, Solomon Islands and Vanuatu. Monthly virtual CoPs on Zoom brought together teachers from rural and urban schools, reducing professional isolation and enabling cross-country exchange of ideas. The PeP team worked alongside teacher leaders to co-develop topics, prompts, and facilitation techniques, reinforcing ownership and confidence.

Through this process, champion teachers emerged organically. During the Extension Phase, these teachers took on Peer Teacher and Model Teacher roles, facilitating CoP sessions and demonstrating good practice in their own classrooms. This shift from program-led to teacher-led learning reflected PeP's adaptive approach and strengthened sustainability within existing cultural hierarchies in schools. Teachers described CoPs as valuable spaces where they could “learn from other teachers” and build professional relationships beyond their own schools.

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“I am a Biology teacher. In the absence of the Physics teacher at the beginning of the year, I was assigned to teach Physics. Physics lessons [on the Pacific Learn app] really helped to freshen my understanding of Physics.”

— Female teacher, Samoa

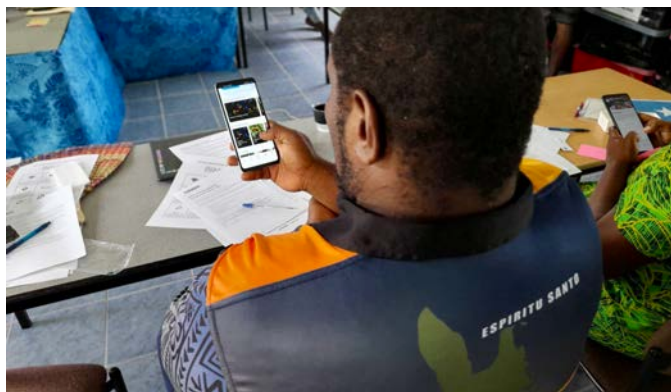


Image captions: (Left) [teacher in Vanuatu learning how to use the Pacific Learn app in hands-on training session]. (Right) [meet-up of PeP staff and Science Fellows in Samoa to discuss co-design process].

2. Responding to diverse contexts and supporting less experienced teachers

Teachers with limited science backgrounds or early in their careers, in particular, valued PeP's microlearning courses, teaching tips, and scaffolded, structured pedagogy learning activities. These features became informal mentoring tools, prompting in-school discussion, shared lesson planning, and peer coaching. Teachers frequently used the app to support collaborative professional learning with colleagues, demonstrating how structured digital prompts can strengthen local professional learning cultures.

Where strong middle-tier instructional support already existed, PeP's adaptive approach included Heads of Department in continuous TPD activities, leveraging existing leadership structures rather than creating parallel ones. This alignment with local organisational norms helped keep the workload manageable while fostering genuine engagement.

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“Students love the lesson and the assessment too.”

— Male teacher, Vanuatu

3. Cascading and local adaptation of practices

A notable learning was how far teachers adapted and shared PeP practices beyond the program's original scope. Teachers borrowed projectors, repurposed learning activities for other subjects, conducted in-school workshops on using the Pacific Learn app, and introduced colleagues to teacher-led PD approaches. In several schools, science teachers' use of PeP equipment prompted other subject teachers to adopt similar methods, demonstrating a natural spread powered by local champions rather than program directives.

Catalpa ensured inception workshops helped Ministries identify priority areas across delivery models, pedagogical focus, and curriculum alignment. Ministries selected working-level focal points and Pacific Science Fellows who then worked alongside our team to co-create policies, conduct joint school visits and classroom observations, and develop science learning activities that were realistic for low-resource classrooms and explicitly foregrounded Pacific Indigenous knowledges. This early investment in listening and shared decision-making created clear roles, mutual accountability, and strong ownership from the outset.

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“It will be helpful to introduce this app to other teachers apart from science teachers and not only year ten teachers but all level teachers.”

— MOET staff, Male, Vanuatu

4. Adaptation to connectivity, geography, and school realities

PeP learned that teachers in remote areas were often the most active participants in digital TPD when solutions reflected their realities. Offline functionality, portable projectors, solar kits, and a mobile-first design enabled equitable participation across geographic regions and digital literacy levels. The limited difference in engagement between rural and urban teachers confirmed that the programme’s approach effectively addressed common barriers, including travel costs, time constraints, and unreliable internet access.

Teachers consistently highlighted the practicality and flexibility of accessing TPD “anytime, anywhere,” which aligned well with Pacific teachers’ multiple professional and community responsibilities.

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“Greatly appreciate this model. It can be used in other activities. An effective model that can be used during times of disaster.”

— MEHRD staff, Male, Solomon Islands

5. Continuous learning and reflection as core practice

PeP’s use of iterative feedback loops—qualitative check-ins, app analytics, quarterly sensemaking, and country-level and regional talanoa/tok stori/storian sessions—allowed the team to identify emerging challenges early and adjust the model accordingly. These reflective practices mirrored local cultural approaches to dialogue, consensus-building, and learning through collective discussion, helping the program maintain momentum despite COVID-19 disruptions, staff turnover, and shifting Ministry priorities.

This adaptive cycle informed decisions such as:

- shifting to more teacher-led CoPs
- strengthening peer mentoring roles
- adjusting lesson activity formats to better fit classroom timing
- refining MERL tools for local use
- supporting MoEs to take up digital tools that complement their workflows

6. Value for money through cultural and contextual alignment

PeP’s blended delivery model proved highly cost-effective because it aligned with existing systems, respected teacher workloads, and harnessed local capabilities. The combination of digital teaching and learning resources, peer-led TPD, offline access, and local mentoring provided flexibility unmatched by traditional TPD workshops or fully online courses. Teachers’ preference for practical, relevant, context-specific content reaffirmed the importance of culturally grounded design in achieving both impact and efficiency.