



Enhancing TVET access in Small Island

Developing States through AI and virtual reality

An inclusive, immersive and flexible learning approach for women and youth in rural, maritime and underserved communities in Fiji

Promising Practice

Implemented by: Fiji National University with support from the Asian Development Bank

Where: Fiji

Status: January 2026 – ongoing

Summary: This initiative uses artificial intelligence and virtual reality to digitize traditional TVET programmes in Fiji that were costly, time-consuming and risky to deliver, removing key barriers to participation.



Overview

Fiji is a Small Island Developing State facing persistent challenges in delivering quality TVET to a geographically dispersed population. Limited physical infrastructure, high delivery costs and the safety risks associated with certain technical training areas restrict access to TVET, particularly for women and youth in rural and maritime communities. The integration of artificial intelligence (AI) and virtual reality (VR) into TVET delivery offers a promising response to these challenges, enabling flexible, immersive and inclusive learning that can reach communities where conventional delivery faces significant barriers.

The National Training and Productivity Centre (NTPC), the workforce development and productivity arm of Fiji National University (FNU), a UNEVOC Centre, leads this initiative as part of its mandate to build national workforce capability, improve productivity and support inclusive economic development. The initiative was developed under a project supported by the Asian Development Bank (ADB).

Description

Fiji's TVET system faces gaps in access, quality and relevance.

Key challenges:

- Limited access to quality practical training due to geographic dispersion, high costs and constrained physical infrastructure
- Skills mismatches between TVET graduates and evolving industry needs, especially in technology-enabled and high-risk work environments

- Under-participation of women and youth in technical and traditionally male-dominated training areas due to safety concerns, limited exposure and traditional delivery models
- Capacity gaps among TVET institutions and instructors in integrating emerging technologies, including AI, in a structured and ethical manner

To address these challenges, the FNU leverages AI and immersive technologies, while strengthening teaching and institutional capacity and creating a scalable and transferable model for resource-constrained and geographically dispersed contexts.

The initiative began with a structured needs assessment involving TVET instructors, industry partners and policy-makers to identify priority skills areas where AI-enabled simulations can enhance learning outcomes, safety and participation. Based on these findings, the FNU is designing and piloting VR-based training modules for specific TVET courses that were previously costly, risky or impractical to deliver in remote areas. Instead of physical training with real machinery or tools, students use VR simulations to practice the same skills safely and repeatedly.

TVET instructors deliver the training, supported by practical guidelines on how to use the AI and VR tools ethically and effectively. Instructors receive capacity-building training specifically on the pedagogical and ethical use of these technologies. Training is delivered through short, modular VR-based sessions of approximately 15 minutes, designed to fit around the time constraints of women with caregiving responsibilities and reduce reliance on prolonged on-site presence.

Key elements:

- **Context-responsive use of AI and VR:** Rather than adopting high-cost or experimental technologies, the initiative applies AI-supported simulations and VR to address real constraints in TVET delivery, such as geographic isolation, limited equipment and safety risks.
- **Focus on women and youth inclusion in rural, maritime and underserved communities:** The approach intentionally lowers barriers to participation for women and youth, particularly in technical and traditionally male-dominated training areas, by providing safe, flexible and confidence-building learning environments.
- **Human-centred and ethical AI integration:** AI is positioned as an assistive tool for instructors, not a replacement, with explicit attention to ethical use, data protection, transparency and accessibility, in line with UNESCO guidance.
- **Capacity-building alongside technology adoption:** Innovation extends beyond technology to include trainer upskilling, curriculum alignment and institutional readiness, ensuring sustainable adoption rather than one-off pilots.
- **Scalable and transferable model:** Designed for resource-constrained and geographically dispersed contexts, the model is adaptable for other Pacific Island countries and developing countries facing similar TVET challenges.

Outcomes and impact

Expected and early outcomes:

- Improved access to TVET training for women and youth, particularly those in rural and maritime communities
- Enhanced learner engagement and confidence, as well as better learner retention and improved employability outcomes
- Improved training quality and relevance, with closer alignment between TVET curricula and industry validated competencies
- Strengthened instructor capacity to integrate AI and immersive technologies effectively and ethically into teaching and assessment

System impact:

- Improved institutional readiness for AI adoption in TVET, including clearer guidelines, processes and governance considerations, ensuring that technological change remains inclusive and human centred

Key highlights

- **Improved access for women with caregiving responsibilities**

Many women in Fiji take on primary caregiving roles and are only able to pursue skills training later in life, when time availability and opportunities are limited. VR-based training compresses long practical sessions into short immersive experiences, enabling women to engage in skills development despite significant time constraints.

- **Increased participation of women and youth in technical training**

AI-supported VR simulations provide safe, flexible and confidence-building learning environments, encouraging greater participation of women and youth, including in technical and non-traditional training areas.

- **More flexible and efficient TVET delivery**

The initiative demonstrates how AI-enabled immersive learning can deliver high-quality practical training in shorter, more flexible formats, improving learner engagement and supporting a more inclusive and future-ready TVET system.

Insights and challenges

Challenges

The initiative faced three main implementation challenges. First, unpredictable weather and transport limitations can affect travel to outer islands and remote communities, delaying on-site training, equipment deployment and follow-up support. Second, participants have varying levels of language proficiency, literacy and digital confidence, requiring training materials and VR content to be highly visual, simplified and culturally appropriate. Third, while immersive training builds skills efficiently, an ongoing challenge is ensuring continued mentoring and support to translate newly acquired skills into practical initiatives and income-generating activities, particularly in informal and community-based settings.



Responses to challenges

To address the identified challenges, the initiative adopted three specific responses. First, it developed modular VR-based training that can be delivered in short, self-contained sessions and deployed flexibly when travel windows allow, reducing reliance on prolonged on-site presence. Second, training content and VR simulations were designed to be highly visual, intuitive and language-light, allowing participants to learn through observation and practice rather than text-heavy instruction. Third, the initiative integrated post-training mentoring, peer support and linkages to local partners to encourage participants to apply their skills in real-world settings and explore income-generating opportunities beyond the training itself.

Lessons learned

As this is a current, ongoing initiative, lessons and strategies are still emerging and will continue to evolve as the project matures. A key insight is that technology adoption in TVET is most effective when it is designed around the real constraints of learners rather than around the technology itself, including time availability, literacy levels and cultural context. The experience also confirms that sustainable impact requires going beyond the training session, pairing skills development with continuous instructor support and post-training mentoring to bridge the gap between learning and earning.

Conclusions and next steps

The initiative will be sustained and expanded as part of a broader digital transformation agenda at FNU and across the Pacific. Future plans include scaling AI and VR enabled approaches across additional programmes at FNU, supported by ongoing research and development, embedding digital transformation practices into curricula, trainer development and quality assurance systems, and strengthening regional collaboration to share lessons and support replication across Pacific TVET institutions. These steps aim to support long-term sustainability and contribute to inclusive education and training systems in Fiji and the Pacific.

Learn more

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