



# WE Learn:


## Building the 21st Century Classroom through the use of 3G and 4G Technologies in Singapore

In Phase I of WE Learn, Qualcomm® Wireless Reach™ collaborated with both the public and private sector to put the power of computers in the pockets of 3rd and 4th grade students at Nan Chiau Primary School in Singapore. The WE Learn mobile education project used 3G-enabled smartphones to transform learning from a traditional, teacher-centric model to a student-centric, inquiry oriented, collaborative model. By enabling 24/7 access to resources in and out of the classroom, the project allowed students to acquire and practice 21st century competencies and knowledge. In Phase II, researchers from Singapore's National Institute of Education (NIE) helped teachers in two additional public schools build capacities in inquiry-oriented teaching methods, using 4G tablets as enablers for collaborative learning.

## SINGAPORE

### 2018 Statistics\*

Population (est.)  **5.9 million**

Life Expectancy  **85.2 years**

GDP Per Capita (2017 est.)  **US\$93,400**

Mobile Penetration  **144.9%**

### Challenge

- Schools are seeking ways to provide holistic learning experiences that go beyond academic outcomes to include 21st century competencies, requiring educators to modify teaching approaches and learn how to effectively use mobile and wireless technologies in the classroom.
- In its fourth Masterplan for Information and Communications Technology (ICT) in Education, the Singapore Ministry of Education (MOE) laid out a framework to enhance the development of 21st century competencies through the shift from teacher-directed approaches to student-centered inquiry and the use of always-on, always connected advanced technologies.<sup>1</sup>

## Solution

### Phase I

- Provided students and their teachers with 3G-enabled smartphones, mobile broadband connectivity and educational applications.
- Supported self-directed and collaborative learning with 24/7 access to educational content, web-based resources and a broad range of mobile learning tools.
- Used advanced mobile technologies to enable teachers to become facilitators who provided guidance and offered students the means to take responsibility for their own learning.
- Created customized, school-based curriculum in English and Science that leveraged the benefits of mobile, Internet connected learning devices.

### Phase II

- Provided 4G-enabled tablets powered by the Qualcomm® Snapdragon™ 801 mobile platform to two additional public primary schools in Singapore to design and implement inquiry-based science lessons for students.
- Supported school-based professional learning and worked with teachers to co-design inquiry-based learning experiences for students that integrated the use of ICT tools.
- Provided teachers extended mentorship through feedback on lesson design.

\*Sources: CIA World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/>); Mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence.

## Impact



### Increased Access for 1550 students

Students were provided with access to advanced mobile technologies, broadband connectivity, and educational applications.



### Improved Test Scores

The intervention resulted in a significant improvement in self-directed and collaborative learning skills test scores.



### Strengthened Teachers' Curriculum Development Skills

School-based learning efforts enabled over 50 teachers to establish collegial networks, take ownership of their practices, and develop school-based Science curriculum for students of diverse abilities.



### Successful ICT Integration

Observed shift in teaching practices and mindset from a teacher-centric approach to inquiry-based learning involving more student participation and voices in the classroom.

## Program Stakeholders



<sup>1</sup> <https://ictconnection.moe.edu.sg/masterplan-4/mission-and-goals>

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### Qualcomm® Wireless Reach™

Qualcomm believes access to advanced wireless technologies can improve people's lives. Qualcomm Wireless Reach is a strategic initiative that brings wireless technology to underserved communities globally. For the last ten years, Wireless Reach has invested in programs that foster entrepreneurship, aid in public safety, enhance the delivery of health care, enrich teaching and learning and improve environmental sustainability, impacting over 11 million beneficiaries.

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