stem.T4L

A three-year journey

An overview of the research on the stem.T4L Project

BACKGROUND

Since the start of the stem.T4L Project, ongoing research has been carried out to measure the impact and effectiveness of the program in diverse NSW school settings. Research outputs include:

8 reports

2 literature reviews

3 podcast episodes

METHODOLOGY

Mixed-methods approach:

- baseline and follow-up surveys
- focus group interviews
- social media analysis
- school case studies

RESPONSES

Term-based baseline and follow-up online surveys, from approximately:

10,000 students

3,000 teachers

OUTCOMES FOR **STUDENTS**

FINDINGS

1

Improvements in 21st Century skills

2

Higher STEM career aspirations

3

Improved creativity and collaboration amongst secondary students

4

Female students' **increased likelihood to pursue STEM** career pathways

5

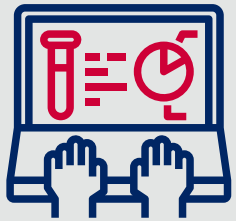
Improvements in student learning outcomes

1 Improvements in 21st century skills

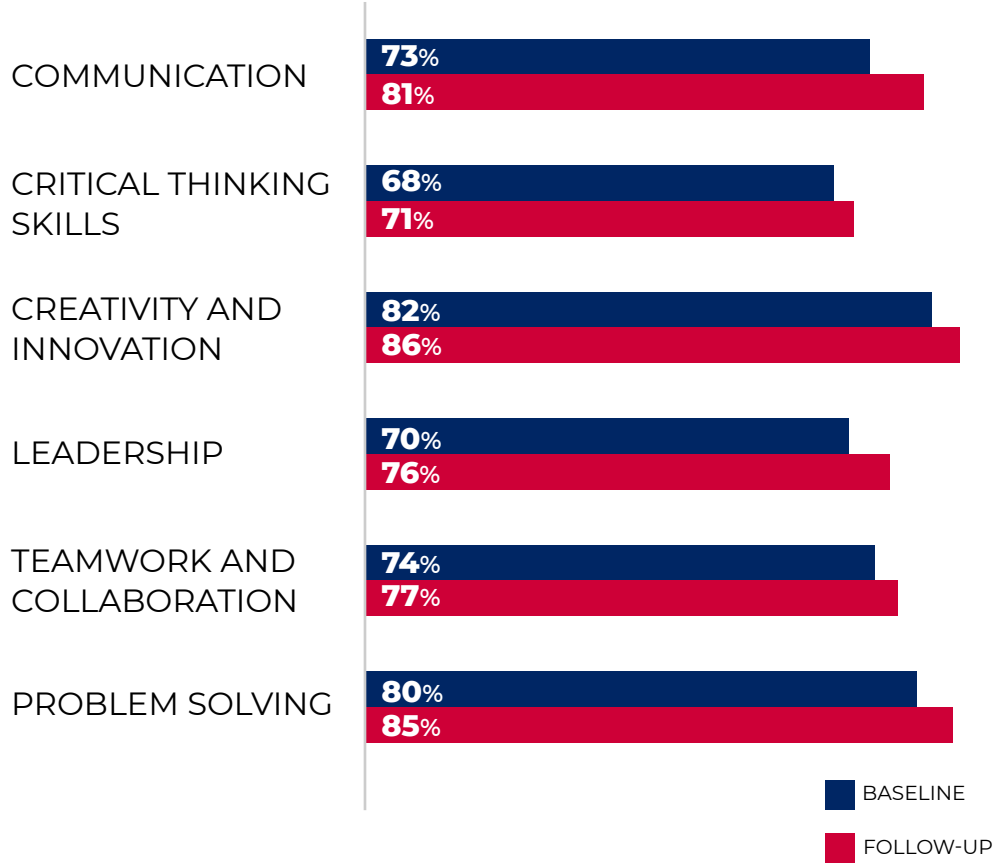
RESULTS

Exposure to stem.T4L technology enhanced students' self-perception on collaboration, creativity, higher-order thinking skills, problem-solving abilities, and leadership.

Working with the equipment had the greatest impact on students' problem-solving skills, communication, and leadership as they had the highest growth (6%), compared to other capabilities.



Self-perceived 21st century skills at baseline and follow-up



Data Source: Survey | 2,151 baseline & 799 follow-up

2 Higher STEM career aspirations

BASELINE SURVEY

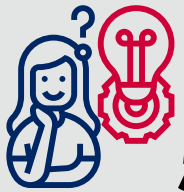
only **45%** **interested in STEM fields** before their participation in the project

51% **opted for non-STEM jobs,** with artistic and creative careers attracting the highest interest from students

VS

FOLLOW UP SURVEY

5% **increase observed** in students' STEM interest level post survey



55% agreed there was a **change in their perspective towards STEM** and their likelihood to choose a STEM career

Data Source: Survey | Semester 1, 2019 | 3,484 students (80% primary and 20% secondary)

3 Improved creativity and collaboration amongst secondary students

71% of students surveyed, had an **overall positive** experience in the program

89% identified **'creativity' and/or 'collaboration'** as key competencies students improved in as result of working with equipment

Data Source: Term 3, 2020 | Focus Group - 40 Students | Survey - 503 baseline, 185 follow-up

4 Female students' increased likelihood to pursue STEM career pathways

50% boys vs **41%** girls

expressed **STEM aspirations** at the outset

54% boys vs **47%** girls

likelihood to **choose STEM fields** post program

Engagement with stem.T4L prompted a **higher percentage of girls' reappraisal of their abilities to succeed in STEM** (girls 6% vs boys 4%).

FINDING

When provided opportunities to participate in STEM activities that promote collaboration, team work, and creativity, **girls are more likely to demonstrate higher STEM interests and aspirations.**

Data Source: Survey | Semester 1, 2019 | 3,484 students (80% primary and 20% secondary)

5 Improvements in student learning outcomes

94% of surveyed teachers believed the project has had a definite **positive influence on student learning**

Factors contributing to improved learning in a stem.T4L learning environment

- Opportunities for **trial and error**
- Opportunities to produce **a real-world product**
- Heightened **sense of curiosity** among students
- Stronger and **tangible links** between Key Learning Areas

Data Source: Survey | Semester 2, 2020 | 408 Teachers

To read the full report and for more information, please visit T4L.link/stemresearch or email stem.T4L@det.nsw.edu.au

NSW GOVERNMENT