SCHOOLS 2030

HOLISTIC
LEARNING
INNOVATIONS

T-LEARNING MODEL

Country: Tanzania

Target Age: 5-10 Years

Learning Areas: Numeracy | Literacy | Problem-solving | Collaboration | Confidence | Creativity

THE CONTEXT

School name: Toangoma Pre and Primary School
Location: Temeke, Dar es Salaam, Tanzania

Toangoma Pre and Primary School is an inclusive government school located in Dar es Salaam, serving 4,058 learners, including children with disabilities, supported by 54 teachers.

The school serves a densely populated urban community where many families face socio-economic challenges. Parents are largely engaged in informal employment, which limits the time and resources available to support children's learning at home. Despite strong community interest in education, many learners enter school with limited exposure to early literacy and numeracy activities.

The school's key educational priorities include strengthening foundational literacy and numeracy (the 3Rs), improving learner confidence, and ensuring inclusive, engaging teaching approaches for early-grade learners. Teachers observed that many children struggled to read letters, write basic words, and count accurately, which affects progression.

Within this context, the school identified the need for low-cost, interactive, and learner-centred solutions that could improve engagement and mastery of basic skills while accommodating diverse learning needs.

Wande (right) and fellow teacher pitching the solution during the HCD workshop

THE CHALLENGE

How might we improve preprimary children's ability to read, write, and count by using low-cost, available resources?

The challenge identified focused on pre-primary learners' difficulty in mastering basic literacy and numeracy skills (3Rs). Teacher Solomon Mkonyi Wande observed that many children were unable to recognise letters, form simple words, or count accurately.

Evidence supporting this challenge included:

- Classroom assessments showing low literacy and numeracy mastery below 50%
- Progression data, where 40% of learners failed to transition to the next year.
- Teacher observations of low learner confidence and engagement

Interviews and discussions with learners and parents highlighted difficulties in practicing skills at home.

Through the Human-Centred Design (HCD) process, Solomon engaged learners, parents, and fellow teachers to better understand the root causes of the challenge. Learners expressed that traditional teaching methods felt difficult and unengaging, while parents noted limited tools to support learning outside the classroom.

These insights guided the decision to design an interactive, hands-on learning solution that would actively involve learners and make literacy and numeracy enjoyable and accessible.

"Before, I was just teaching. Now I first ask: what is the problem, and how can I solve it?"

Solomon Mkonyi Wande, Pre-Primary Teacher

THE INNOVATION

THE T-LEARNING MODEL

The T-Learning Model is a physical, interactive learning tool designed in the shape of the letter "T". It is a hands-on pedagogical innovation that supports the teaching of reading, writing, and numeracy through play-based and learner-centred methods.

The model uses kete (cards) containing vowels, consonants, or numbers, which are placed on the horizontal arms of the T-shaped structure. During lessons, the teacher guides learners through interactive activities. For example, a learner is invited to select a letter or number from a mixed pile, identify it aloud, and place it correctly on the structure. This process is repeated with different learners, encouraging participation, peer learning, and confidence-building.

The solution was developed through multiple prototyping phases:

I. Cardboard paper prototype – tested for usability and learner engagement.
II. Wooden prototype – developed to improve durability and sustainability.

The materials are locally sourced, low-cost, and easy to replicate, making the solution feasible for public schools.

The innovation was implemented primarily in pre-primary classes (ages 4-6), with approximately 120 learners directly involved during the initial phase. But it has also been successfully adapted for Standard 1 and 2 learners (ages 7–8) to teach more advanced numeracy skills such as multi-digit numbers.

T-Learning Wooden Prototype (Version 1)

T-Learning Improved Wooden Prototype (Version 2)

Competencies Targeted

The graphics below show the selected domains that Schools2030 Tanzania have prioritised for each age group, in line with national curricula. Highlighted are the domains that this specific solution addresses.

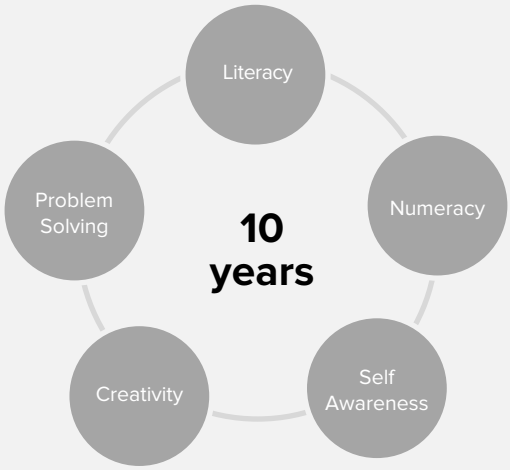
5-year-old Domains

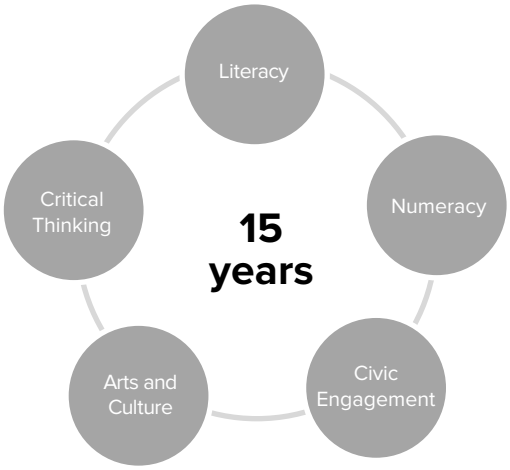
The innovation primarily targets children aged 4–6 years, but it has also been successfully adapted for Standard 1 and 2 learners (ages 7–8) to teach more advanced numeracy skills such as multi-digit numbers.

Targeted competencies include Literacy *(letter recognition, reading readiness, writing), Numeracy (counting, number recognition, basic operations), Confidence and self-belief, Active participation and collaboration*

Indirectly, the solution also supports *creativity, problem-solving, and social interaction.*

10-year-old Domains





15-year-old Domains

Jamali Ally, a pre-primary student interacting with T-Learning to learn numbers.

"I like learning with the letters because it feels like playing."
Jamali Ally, Student

"My child now counts numbers at home and reads letters with confidence."
Michael Paulo, Parent

THE IMPACT

Increased engagement and progression in early learning

The T-Learning Model has been implemented for a couple of years in multiple pre-primary classrooms, originally at Toangoma Primary School, and in more than 30 primary schools across Tanzania. It has directly reached over 2,400 learners, with particularly strong results among pre-primary pupils.

Before implementation, many learners were unable to read letters, write simple words, or count accurately, leading to poor progression outcomes. After consistent use of the model:

- 85% of learners showed clear improvement in reading, writing, and counting
- Learners demonstrated increased confidence and participation.
- The number of learners successfully progressing to Standard One increased.

The solution was later tested with Standard 1 and 2 learners, where it proved equally effective in teaching larger numbers and reinforcing foundational skills.

Implementation challenges included initial difficulty in idea generation and prototype durability. These were overcome through collaboration with fellow teachers, continuous testing with learners, and iterative improvements guided by HCD facilitators.

It is now also being used by teachers across Kenya to teach subjects like music, geography and all sorts of other subjects.

Meet the Teacher

Solomon Mkonyi Wande
Pre-Primary and Primary School Head Teacher

About me

I have worked as a teacher at Toangoma Pre-Primary and Primary School for 31 years, teaching mathematics and languages to young learners aged 4–6. My favourite part of teaching is helping children gain confidence and discover their abilities through learning.

The Human-Centred Design process has transformed how I approach teaching. I now focus on understanding learners' challenges deeply and designing solutions together with them. This process has helped me become more creative, reflective, and innovative in my work.

My ambition is to further develop the T-Learning Model into portable, electronic, sound-based, and braille-inclusive versions, so that it can support more learners, including children with disabilities. I also hope to mentor other teachers in using HCD to develop impactful, scalable innovations that improve learning outcomes locally and nationally.

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