TANGIBLE

Expanding Career Dreams
The Tangible Story

Jean Greyling

NELSON MANDELA UNIVERSITY

Change the World

TANGIBLE

Who are we

- Engagement project of Computing Sciences
- Implemented by NPO Leva Foundation



TANGIBLE

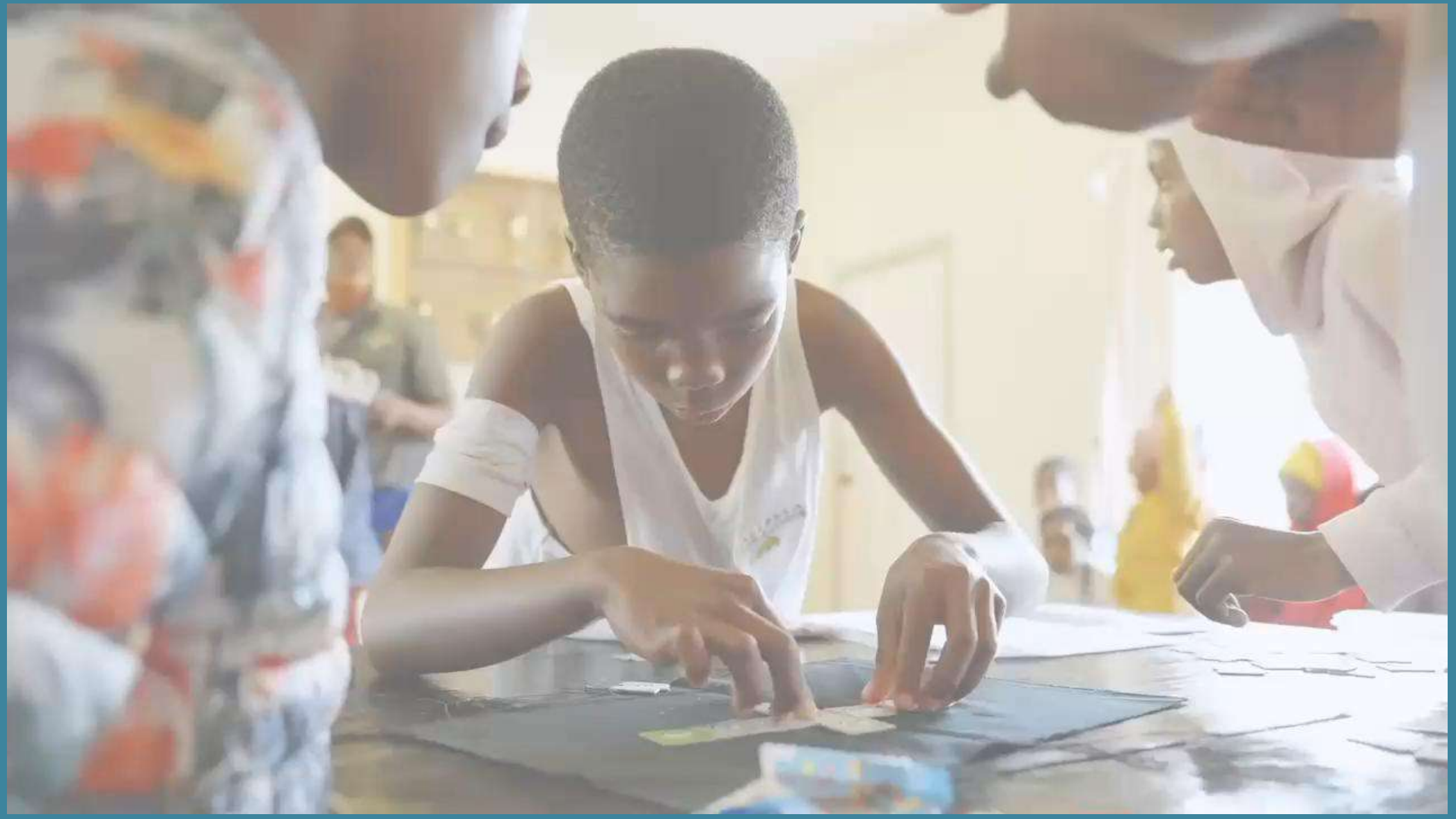
“Towards the end of Grade 11 I had no idea what I was going to do after school. I thought I I did not have many options.”



TANGIBLE

“Prof, I want to introduce coding to learners who do not have computers”





TANGIBLE

- *Inclusivity*
- *Engagement*
- *Quality*
- *Impact*





Inclusivity



- *No computers*
- *No electricity*
- *No internet*
- *Doable for teachers*
- *FUN*

Batteson, B., Greyling, J. "Investigation and Development of an Inexpensive Educational Tool Suite for an Introduction to Programming". 2nd Innovative and Creative Education and Technology International Conference, Spain, June 2018

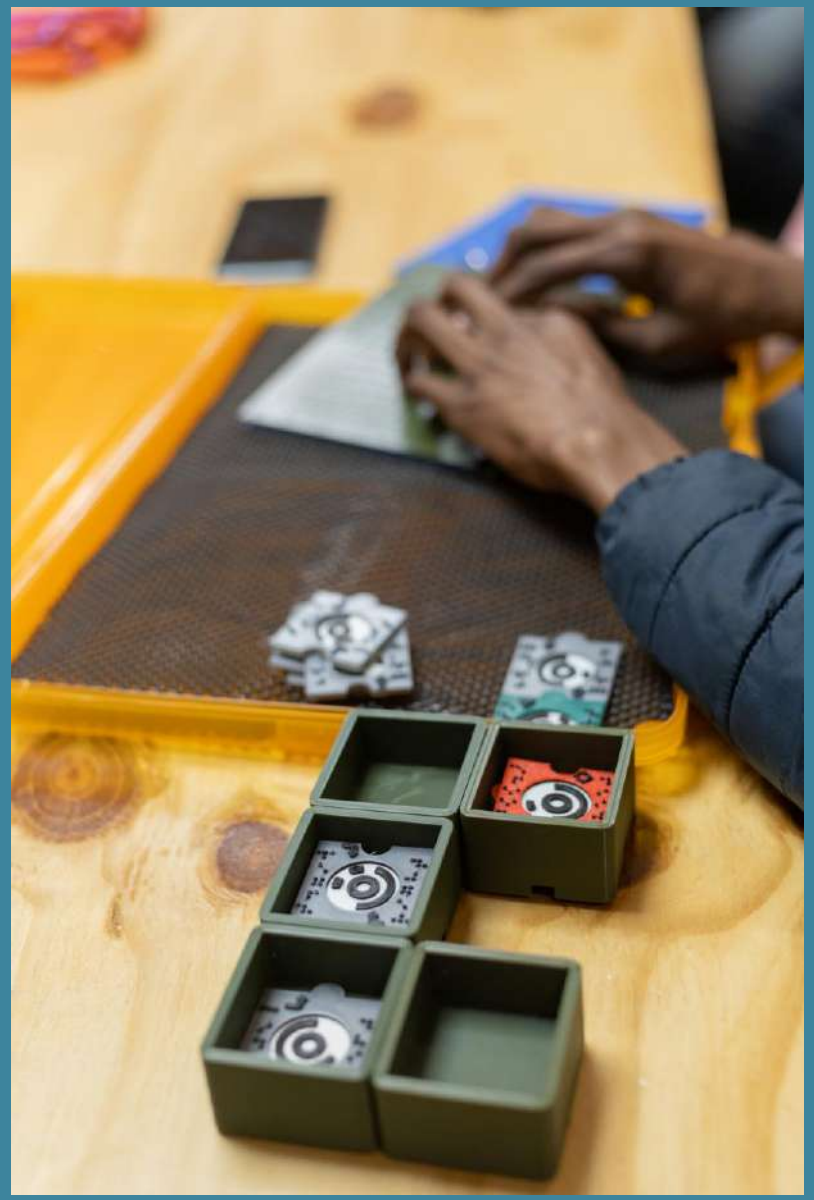


I really appreciate your belief that every child could participate irrespective of their environment.

My principal and my colleagues are widely smiling; seeing potential in their kids."

Greyling, J & Tokosi, 2022, T. TANKS tangible game facilitators lived experiences: Roles, competencies, and challenges. Management and Economics Research Journal, Special Issue on Global Economic Issues. 2022

Special Needs





Shani van Heerden. Honours Study. Tangible coding for the blind

Low Budget

No Budget











Engagement

Coding 4 Africa

50 000 learners
513 Schools









Embeth van der Wal – PhD Study - Teacher efficacy development for integrating Coding and Robotics in the Foundation Phase

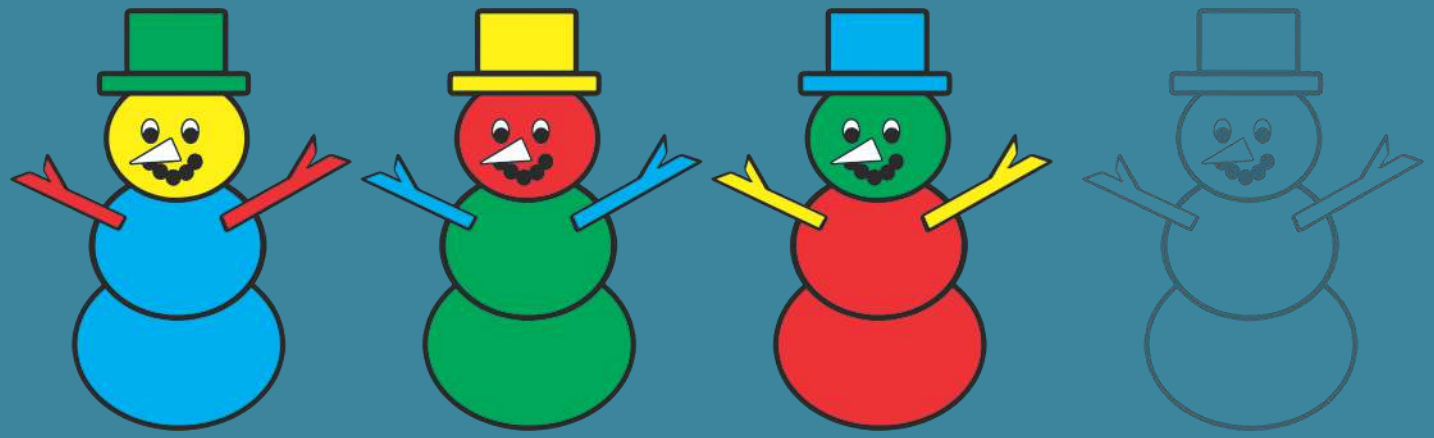
ONE OF THE FIRST CONCEPTS THAT DEMYSTIFIES CODING TO LEARNERS AND TEACHERS, IS THE FACT THAT A COMPUTER PROGRAM IS A LIST OF INSTRUCTIONS THAT TELLS A COMPUTER WHAT TO DO.

Sumaiya Ismael. Understanding the influence of primary school teachers' motivation on their teaching practices in the teaching of tangible coding. Masters – University of Pretoria

Goba-Hlongwane, Callaghan, Greyling. Preparing Foundation Phase teachers in KZN to teach coding. SACLA 2024



Quality

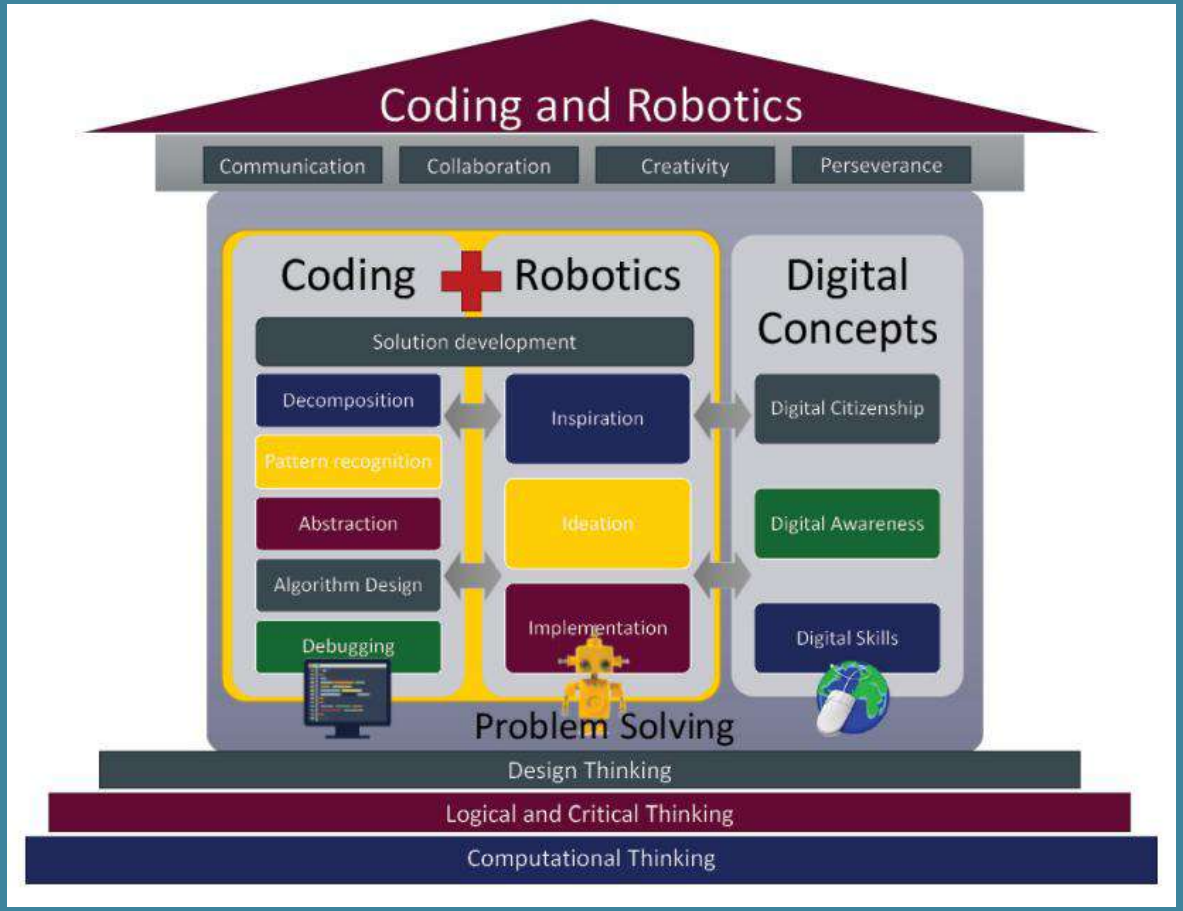


Computational Thinking



Greyling, J. **Its not about coding: the unplugged story**. Coding and Robotics Symposium MAKING CODING AND ROBOTICS ACCESSIBLE FOR ALL LEARNERS. University of Pretoria, 28 September 2022.

Coding and Robotics Curriculum





Stephan Keys. PhD Study. Digital Pioneers – Training of Preservice Teachers within Coding and Robotics Across Intermediate Phase in South Africa



Matthys Pienaar. Masters Study. **Enhancing Teacher Engagement with Course Content Using AI-Powered Chatbots**

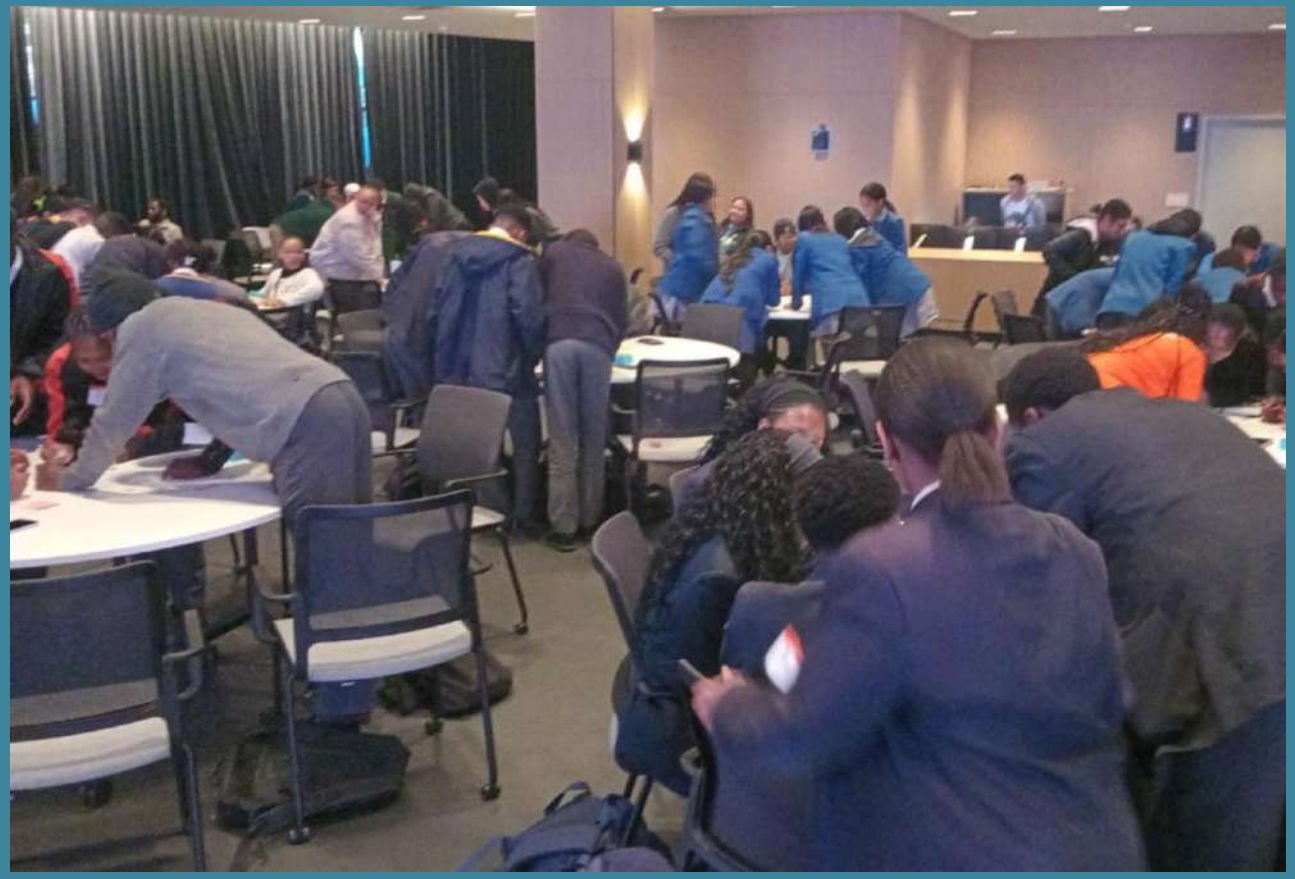
Embeth van der Wal. PhD Study. **Teacher efficacy development for integrating Coding and Robotics in the Foundation Phase**



- *Sequence*
- *Data Types*
- *Input and Output*
- *Functions*
- *Decisions*
- *Loops*
- *Nested Constructs*
- *Debug*
- *Improvement*



Gabriel Goddard. Honours. **Extension of Rangers coding app.**



6 Session Coding Clubs

- *Coding*
- *Design Thinking*
- *Entrepreneurship*
- *Maths and STEM Careers*

Quality Accreditation

QUALITY PEDAGOGY

edtech impact

Member of

Learning Cabinet

UNICEF-led initiative to curate evidence-backed EdTech solutions

learningcabinet.org

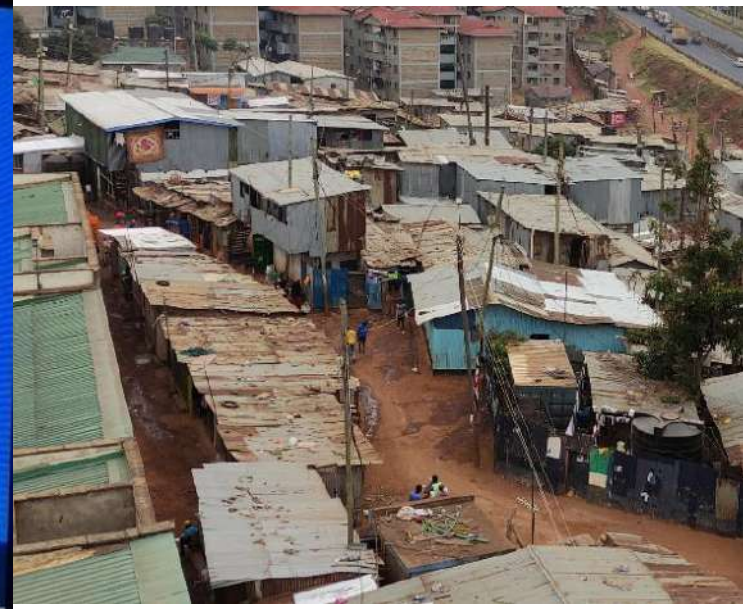


Don Passey. IFIP Report. **Supporting school-based computational thinking and informatics in South Africa with and without computers**

Global Expansion











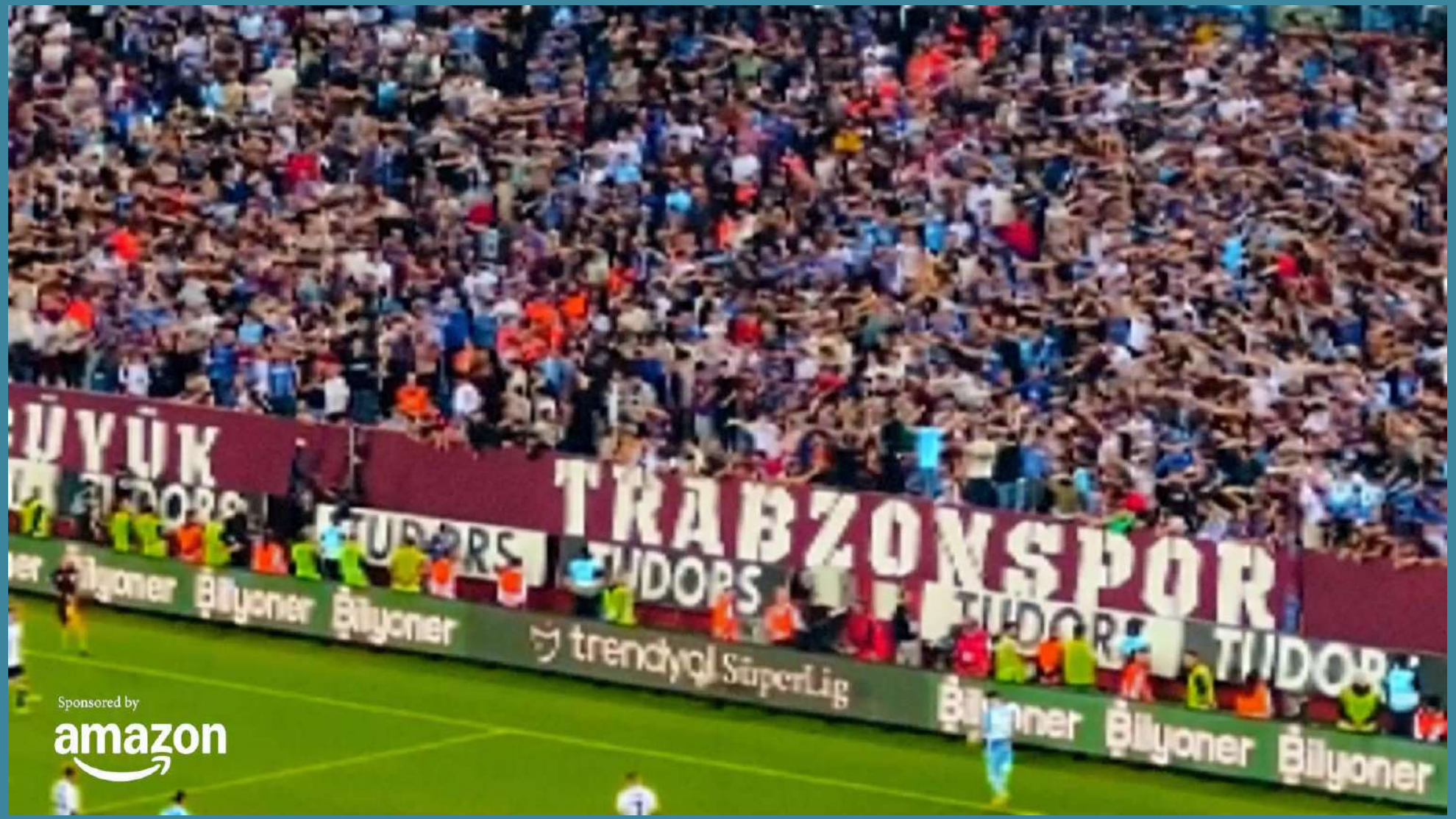
5 Continents

Problem Solving

Human Interaction

Empowering Teachers

National PhD Study in Ireland. **Investigating teacher confidence in incorporating the new Coding and Robotics curriculum for primary schools.**



Caroline Dalbon Reis. Masters study. **Tangible Coding as a Low-Tech Approach: Possibilities of Computational Modelling with Tangible Rangers in Brazil**, São Paulo State University.



Impact

- 350 000+ learners
- 50 000 teachers introduced



YEEES Online Conference, 24-26 March 2021
Greyling, J. Feedback from Unplugged Coding lessons in schools.



Research

- *30 Conference + Journal*
- *12 PhD's*
- *8 Masters*



Premium

Herald LIVE

NEWS ELECTIONS 2024 BUSINESS SPORT OPINION MULTIMEDIA LIFESTYL

NEWS

Tangible coding just clicks with Africa's kids

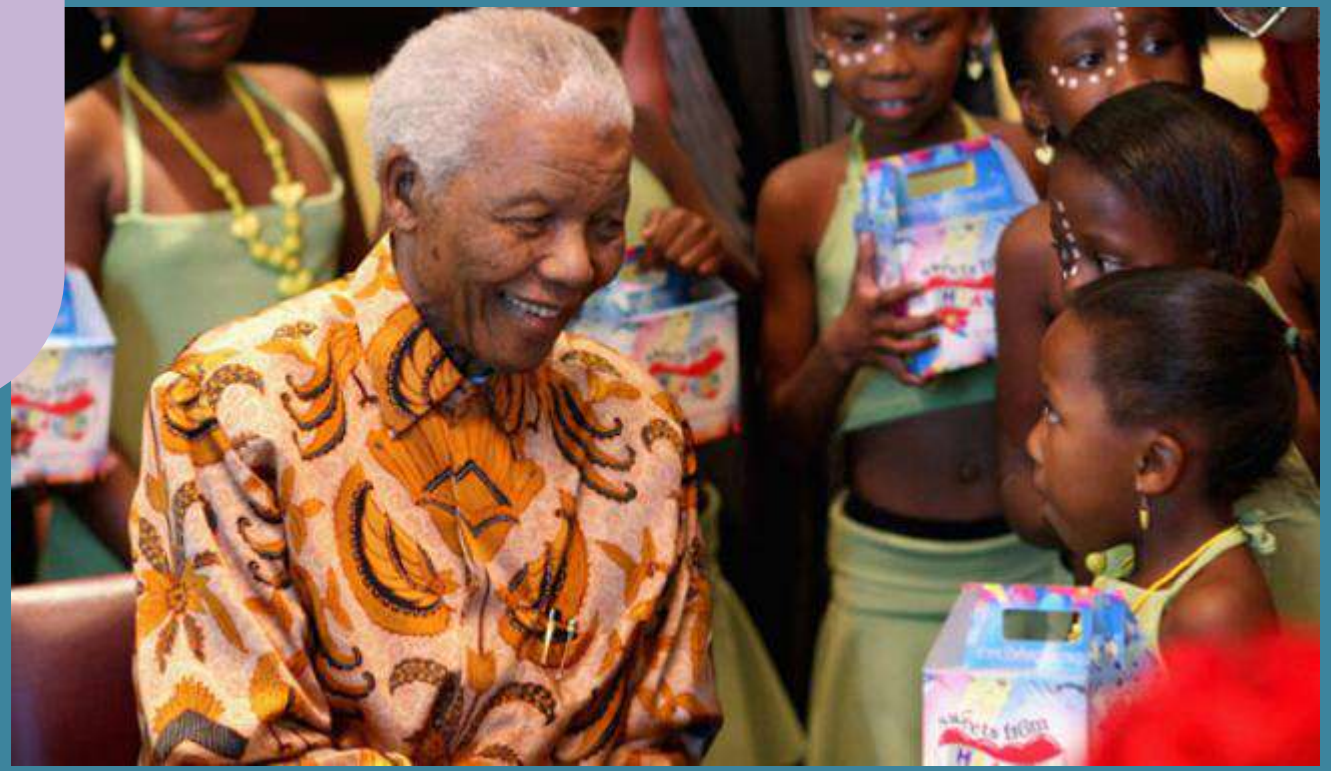
BY HERALD REPORTER - 23 MARCH 2023



Greyling, J.H. 2022b, **Guidelines for Introducing Learners to Computer Programming in a Developing Country**, Springer International Publishing. 2022

“It is through education that the daughter of a peasant can become a doctor,

that the son of a mine worker can become the head of a mine.”











"It is through education that the daughter of a seamstress can become a Business Analyst, that the son of a factory worker can become a Computer Scientist"

“Towards the end of Grade 11 I had no idea what I was going to do after school. I thought I I did not have many options.”



J.H. Greyling. **The Fourth Industrial Revolution – from anxiety to hope**. Volkswagen national leadership colloquium, November 2019

Thank You!





