

Making the Leap: Putting Technology at the Heart of Policy Reform for 21st Century African Education Systems

Dr Patrick Brazier, Chief Executive
Education Development Trust





Who we are

We are an international not-for-profit organisation that works with governments around the world to improve school systems and provide quality careers advice and guidance.

Our Mission

To provide evidence-based sustainable solutions that transform lives through education.



A young girl with dark skin and short hair, wearing a dark blue sweater over a light blue collared shirt, is sitting at a blue wooden desk. She is holding a red pencil over an open notebook with lined pages. The notebook has some faint handwriting on it. The background is slightly blurred, showing other students in similar uniforms. The text is overlaid on the left side of the image.

In partnership with
governments, we design
and deliver large scale
reform programmes

Our research programme focuses on bright spots in education reform.

Report by Tony McAleavy, Alex Hall-Chen, Sarah Horrocks and Anna Riggall

Technology-supported professional development for teachers: lessons from developing countries



Education
Development
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London
Connected
Learning
Centre

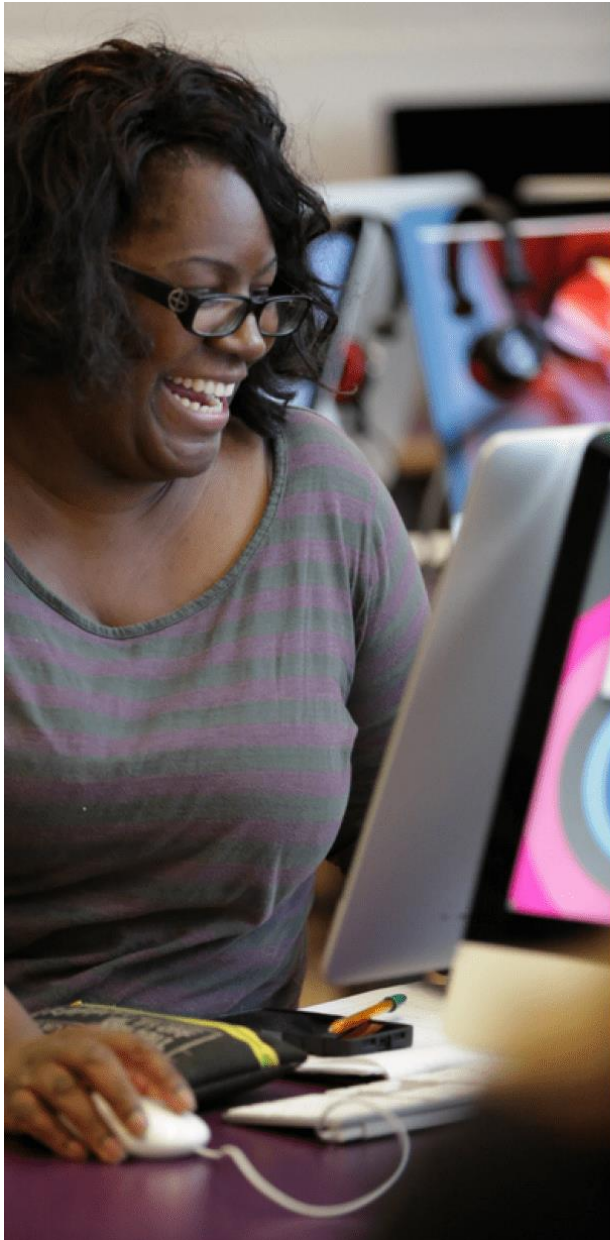
Serena Rossignoli and Anna Riggall

Innovation and achievement: the work of four not-for-profit school groups



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Computing Subject Leaders' Development Programme

Course start dates:

Autumn, Wednesday 8th Nov
Autumn, Thursday 11th Jan
Spring, Wednesday 21st Feb
Spring, TBC



Ensure outstanding teaching and learning in computing with London Connected Learning Centre's unique programme specially designed for primary subject leads.

Led by the CLC's team of expert teachers, computer scientists and online safety specialists the programme, now in its sixth year, supports the development of computing throughout the whole school, giving teachers a deep understanding of the subject and its requirements. Sessions cover **curriculum planning, progression, assessment, online safety and current policy.**

In the UK we run a centre dedicated to excellence in the use of educational technology.



ENHANCING LEARNING THROUGH EDUCATION TECHNOLOGY



Drawing on our organisational experience, I ask 4 key questions:

- Where is the promising practice?
- What are the reasons why technology reform often fails?
- What should we be teaching students about technology?
- How can we get teacher buy-in for technology reform?



What 'bright spots' are there in the world of educational technology?

Technology has the potential to enhance almost every aspect of each school system

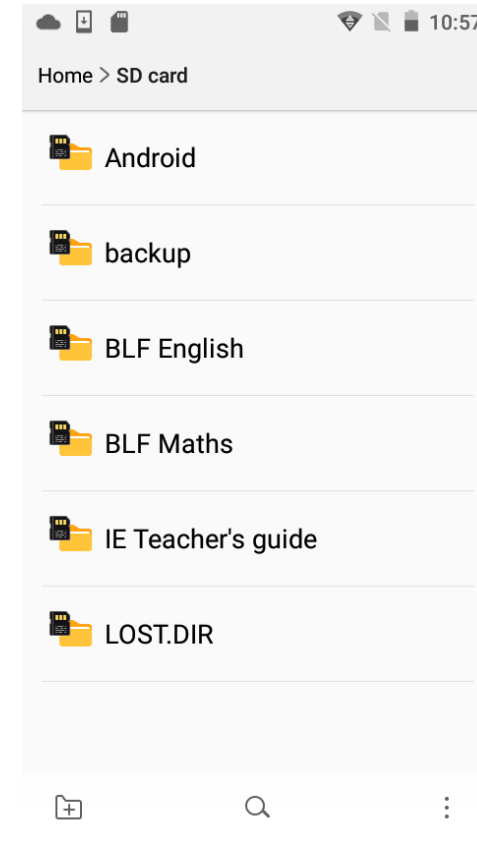
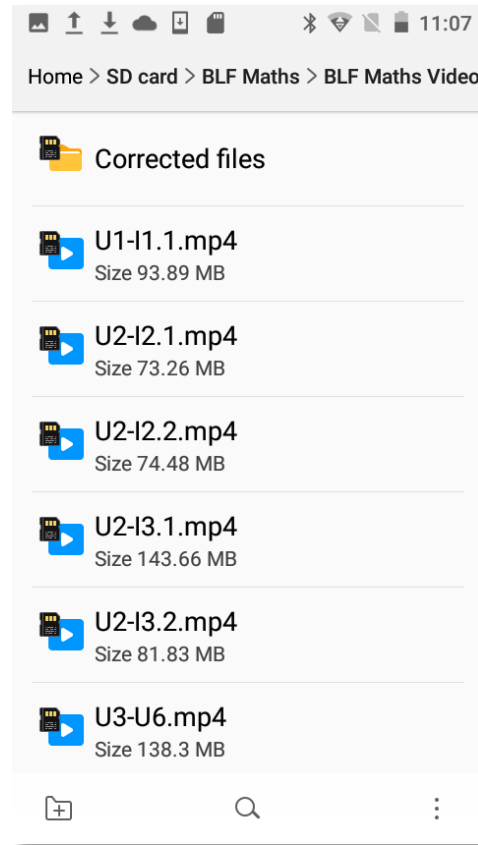
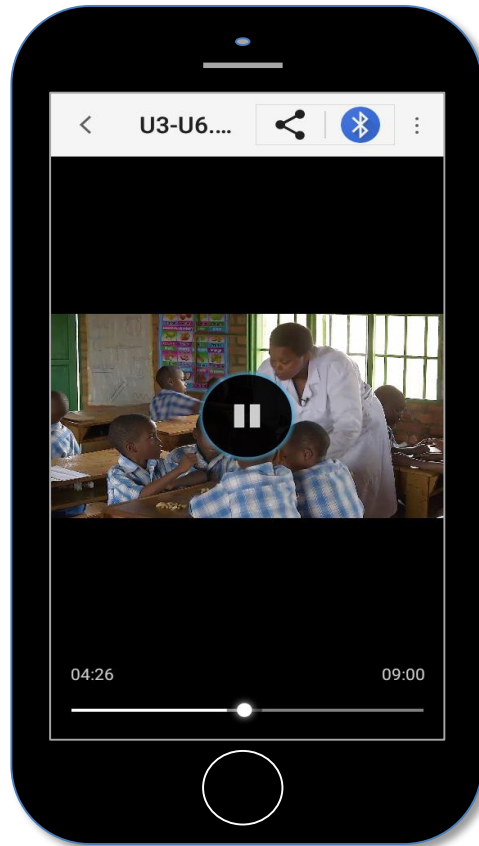


The power of SMS text messages to and from parents.

We empowered women in rural India to gather data about teacher absenteeism.



Audio and video content as part of a teachers toolkit - used for self study by teachers for their professional development.



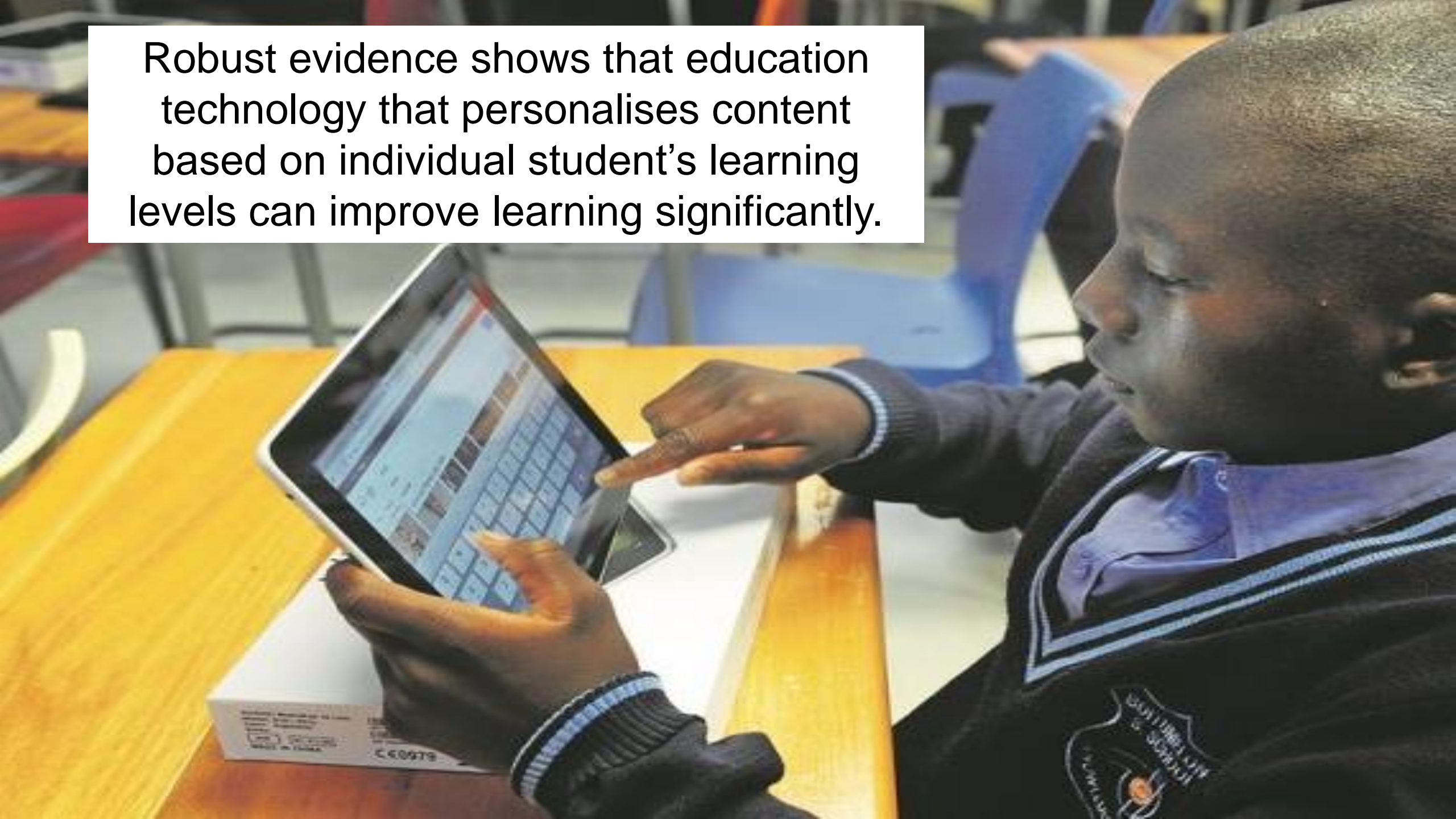
Videos used during community of practice meetings



Teachers watching a lesson together as part of video for reflection activity



Robust evidence shows that education technology that personalises content based on individual student's learning levels can improve learning significantly.



Technology reforms often fail.

Why?



In the UK Tony Blair spent millions on school computers but learning outcomes did not improve.



Millions of dollars were spent on the One Laptop Per Child Programme. It is now widely seen as a wasted investment.



MOOCs for Teachers were seen as a transformative initiative. The drop out rate of early courses were very high.

M

MASSIVE

There may be 100,000+ students in a MOOC.

O

OPEN

Anyone, anywhere can register for these courses.

O

ONLINE

Coursework is delivered entirely over the Internet.

C

COURSE

MOOCs are very similar to most online college courses.



1. The Blair government invested in hardware without training teachers and school leaders.
2. The global One Laptop Per Child Programme assumed that students were capable of self-directed learning.
3. MOOCS for teachers initially depended entirely on online learning. Most adult learners need some face-to-face interaction.





WILL TECHNOLOGY TRANSFORM EDUCATION FOR THE BETTER?

This publication summarizes a forthcoming academic review paper on education technology, "Upgrading Education with Technology: Insights from Experimental Research."

OVERVIEW AND POLICY ISSUES

In recent years, there has been widespread excitement around the transformative potential of technology in education. In the United States alone, spending on education technology has exceeded \$13 billion.¹ Programs and policies to promote the use of education technology (or "ed tech")—including hardware distribution, educational software, text message campaigns, online courses, and more—may expand access to quality education, support students' learning in innovative ways, and help families navigate complex school systems. However, the rapid development of education technology in the United States is occurring in a context of deep and persistent inequality.² Depending on how programs are designed, how they are used, and who can access them, education technologies could alleviate or aggravate existing disparities.

While access to computers and internet is expanding, approximately five million school-age children still do not have a broadband internet connection at home,³ putting them at a disadvantage for homework assignments, access to online resources, and digital literacy development. Low-income students and students of color in particular disproportionately lack access to technology.⁴

It is important to step back and understand how technology can help—or in some cases hinder—student learning. In this executive summary, we synthesize the experimental literature on technology-based education interventions, focusing on literature from developed countries.⁵ We share key results and highlight areas for future inquiry.

¹ Technology for Education Consortium. "How School Districts Can Save (Billions) on Edtech." Accessed December 20, 2018. https://marketbrief.leadweek.org/wp-content/uploads/2017/03/How_School_Districts_Can_Save_Billions_on_Edtech.pdf.

² Reardon, Sean, Demetra Kalogrides, and Kenneth Shores. "The Geography of Racial/Ethnic Test Score Gaps." CEPR Working Paper No. 16-10. Stanford Center for Education Policy Analysis, Stanford, CA, 2018.

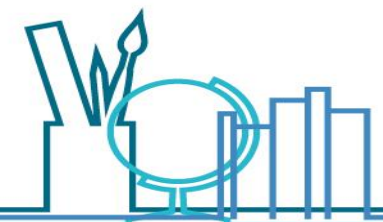
³ Pew Research Center. "Digital divide persists even as lower income Americans make gains in tech adoption." Accessed December 20, 2018. <http://www.pewresearch.org/fact-tank/2017/03/22/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/>.

⁴ Bulman, George, and Robert Fairlie. "Technology and Education." *Handbook of the Economics of Education* 5 (2015): 219-280.

⁵ This policy brief also references studies from developing countries when relevant.

Will Technology Transform Education For The Better? J-PAL, 2019

Initiatives that expand access to computers and internet alone generally do not improve kindergarten to 12th grade students' grades and test scores.



Throwing equipment such as tablets or laptops at schools without addressing the training of teachers hasn't resulted in any sustainable solutions on the continent.

Professor Ulrike Rivett,
University of Cape Town



The deal with the teachers:

Excellent technology resources in
return for higher levels of
professionalism and better teaching.



Policymakers need to do a deal with teachers.

‘We will invest in technology resources but we have high professional expectations of you and expect you to teach more effectively with the new resources’.



Is it enough to teach students how to use information technology?

The need for a curriculum that focuses on understanding computer science.

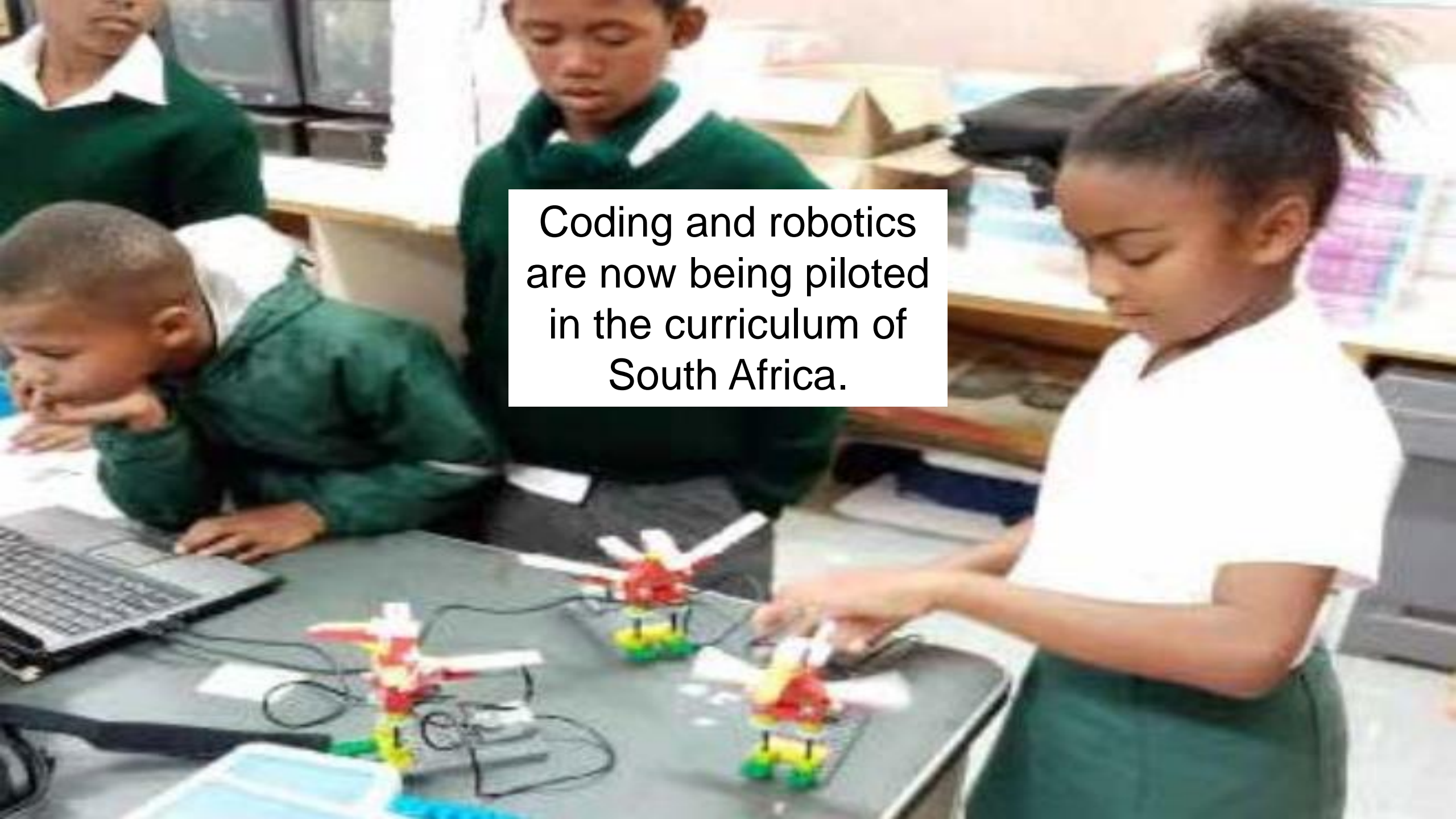


From a young age students can learn about coding, computational logic and robotics. They learn valuable problem-solving and thinking skills.



- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.
- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.



A group of students in a classroom are engaged in a hands-on learning activity. In the foreground, a young girl in a white shirt and green skirt is focused on adjusting a small, colorful LEGO Mindstorms robot on a dark grey mat. To her left, a boy in a green sweater is leaning over a laptop, looking at the screen. Another boy in a green sweater stands behind him, also looking at the laptop. In the background, another student is partially visible. The table is cluttered with several similar robots, some with white wings, and various cables. The setting appears to be a computer lab or a dedicated classroom space for technology education.

Coding and robotics
are now being piloted
in the curriculum of
South Africa.