

PIXELS IN THE CLASSROOM

**Is technology in schools
worth it?**

By Michael Sterksen & Cherith Wareley



Teachers as Designers: Co-Creating the Future of Learning

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TWO COUNTRIES, ONE TEST



SWEDEN

544

Reversed its requirement that preschools use digital devices, and put money back into printed textbooks.

SOUTH AFRICA

288

Last of 57 countries. Then spent **R7.1 billion** on digital learning in the next three years.

AVERAGE GRADE 4 READING SCORE · PIRLS 2021

In 2021 Swedish and South African Grade 4 learners sat the same reading test, and both countries' scores fell. Sweden averaged 544, reversed its requirement that preschools use digital devices and put money back into printed textbooks. South Africa averaged 288, last of 57 countries, and spent R7.1 billion on digital learning in the three years that followed.

The point is not to copy Sweden. It is that Sweden treated digitalisation as a choice it could reverse, and asked what the devices were for. We have rarely asked that. A meta-analysis covering 469,564 readers found almost no relationship between digital reading and comprehension, an effect of $r = .055$, where print has carried a medium effect for decades. Research comparing reading media keeps finding the same advantage for paper. None of that proves technology harms children, but it undercuts the assumption that a screen is progress.

$r = .055$

The relationship between digital reading and comprehension, across **469,564 readers**. Close to none.

Sweden treated digitalisation as a choice it could reverse, and asked what the devices were for.

THE DEVICE CAME FIRST



81%

of our Grade 4 learners cannot read for meaning. That is why the assumption that a screen is progress matters more here than anywhere.

Our response to that has usually started with the object. Devices went first to quintile 1 to 3 schools, which was understandably framed as redress. Yet two decades after the White Paper on e-Education promised universal learner capability by 2013, roughly 6 percent of Grade 12 learners take Computer Applications Technology or Information Technology: 20 percent in quintile 5 against 2 percent in quintile 1.

GRADE 12 LEARNERS TAKING CAT OR IT



**Poor schools received the hardware.
Wealthy schools kept the capability.**

CAPABILITY IS NOT A DEVICE



CAPABILITY IS...

1

Connectivity that survives a lesson

2

A teacher trained rather than counted

3

Support when something breaks

4

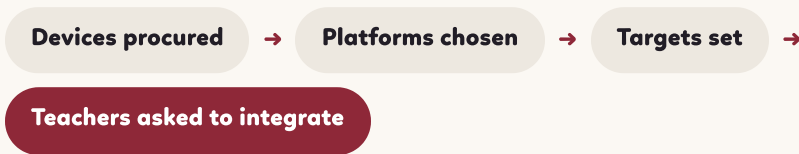
Freedom to adapt the tool to the children in the room

A tablet is an input; what changes depends on the person expected to make it work, and she is usually last in the chain. Devices procured, platforms chosen, targets set, teachers then asked to integrate decisions already taken.

Yet teachers know which learner cannot yet decode a paragraph, where connectivity disappears during a lesson, and whether logging into a platform takes two minutes or twenty.

Treating them as implementers rather than co-designers narrows their agency and produces worse decisions.

HOW IT USUALLY RUNS



THE COSTS NOBODY PHOTOGRAPHS



It carries costs, too. Research on teachers' digital work shows how these systems add monitoring and administration while narrowing professional discretion. Those costs rarely appear in photographs of device handovers and are harder still to see in reporting.



WESTERN CAPE EDUCATION DEPARTMENT REPORTING

The Western Cape recorded 6,211 educators engaged in one period, then switched to counting engagement instances and recorded 19,338. Changing the unit makes activity look different without saying what changed in a classroom.

The department can change its measure when the number disappoints. A teacher cannot change the learners in front of her.

THEN THERE IS THE MONEY

The DBE has told Parliament that digital rollout is an unfunded mandate carried by provinces out of the equitable share, the same budget that pays for textbooks, teaching posts and school meals. Almost everything in education has some benefit, so benefit is the wrong test. The question is whether it beats what the same rand could have done elsewhere, and cost-effectiveness research is blunt: devices must be weighed against books, coaching, and teaching time. For a wealthy system, a failed programme is expensive.

For ours, it is a textbook not bought and a post left vacant.

WHERE SCREENS EARN THEIR PLACE



None of this makes the screen useless. Research on personalised learning in low- and middle-income countries finds real effects where software adjusts to the level a learner is actually working at. That is a different proposition from putting a child in front of a screen. Forty tablets in a school of hundreds become useful when a teacher designs around them:

ONE LESSON, FOUR GROUPS

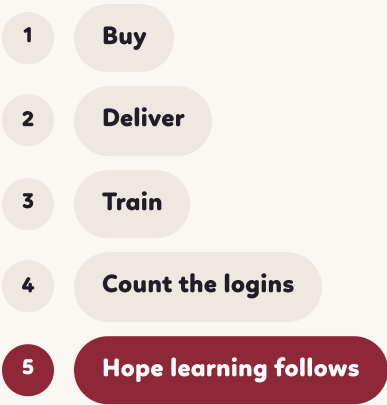
40 tablets · hundreds of learners

A**With the teacher****B****Writing offline****C****Peer feedback****D****Targeted practice on
tablets**

The technology did not design that lesson.

THE DESIGN CAME BEFORE THE DEVICE

Apex Education makes the point at scale. It built its blended model around an educational problem, wrote content for South African learners, and paired the technology with one teacher and facilitators working with large groups. Not every school can reproduce that. The lesson is that the design came before the device. Too often we run it the other way round:



THREE CHANGES



1

Define the educational problem first, with teachers in the room before procurement rather than after it.

2

Report what changed for learners rather than what was delivered, broken down by school context so inequality cannot vanish in a national total.

3

Protect a teacher's room to adapt, because technology that works only when a classroom behaves as its designers imagined is a compliance system.

BEFORE BILLIONS MORE ARE COMMITTED

In the Foundation Phase, where literacy is still being built, a screen should have to prove it earns the place it displaces. Before billions more are committed, we should be able to say:

What problem are we solving?

What could the same money have done elsewhere?

Did the teachers expected to make it work have any say in it?

If we cannot answer those, the problem in our classrooms is not a shortage of technology.

It is that nobody asked the people already standing in them.

READ FURTHER



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