Lefa AI

RAPID RESEARCH · THEME 3 OF 9

# Enabling Ecosystems: Digital Infrastructure

*What we're learning*

THE QUESTION THIS BRIEF EXPLORES

How does **digital infrastructure** in basic education shape equitable, safe and meaningful access to AI and digital learning for all children, particularly in under-resourced South African communities?

What do **children themselves** say about this access, and what does that tell us about the kind of infrastructure South Africa needs?



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ABOUT THIS BRIEF

# Rapid Research Theme – Enabling Ecosystems: Digital Infrastructure

This is one of nine themes in **Lefa AI**, a rapid research series on what AI means for South African basic education. We produced it quickly and deliberately: decisions about AI in schools are being made now, and we wanted to be useful while those decisions are still open.

That speed came with a trade-off. The series as a whole does not set out to contribute new research to the field. Instead, it draws together existing literature and expert experience to surface insights fast enough to inform decision-making that's already underway in South Africa. This theme also draws on **what children themselves said** across four engagements. Throughout, we've aimed to **weigh opportunities and risks fairly**, not to argue for or against AI in schools.

TO EXPLORE THESE QUESTIONS, THIS THEME DREW ON TWO SOURCES:

**Desktop review**

of existing research and policy documents, including the Giga project work

**4**

**Engagements**

**~450**

**Children**

documented by the Nelson Mandela Children's Fund.

*Thank you to the Nelson Mandela Children's Fund, in particular Anzio Jacobs, Alute Sneke, and Thozeka Tshangela for making this data available for this insight brief and sharing their research.*

## Where this conversation starts

AI tools are already in South African classrooms, and beyond. Some learners are using AI tools for homework, to study for exams, cross-check information and navigate the internet, **mostly without guidance and without having been taught.**

The conversation about this usually begins with devices. Who has one and who does not. In South Africa this is more nuanced. A school can sit inside network coverage, have devices and still not have access to digital connectivity, for all sorts of reasons. **So access is not one thing.**

A **device** without a connection is not access.

A **connection** without permission is not access.

**Permission** without the skills, or without safety, is not access either.

This research therefore did not ask who has a device. It asked **at what point access breaks down, for whom, and what is missing at that point.** It also asked children, because they are the ones with the lived experience.

WHAT WE FOUND

# Key findings

## 01 Having access to a device does not mean you are connected.

NOT WITHIN REACH OF A NETWORK

**<1%**

Almost every school in South Africa is within reach of a good quality network: fewer than 1% are not (Deloitte, 2024).

CONNECTED TO THE INTERNET

**~70%**

of public schools are connected to the internet, based on the data the DBE has shared with Giga. This leaves close to a third without a connection.

EASTERN CAPE PILOT · 203 SCHOOLS

**<10 Mbps**

Where schools are connected, **the connection is often too slow to be useful.** In Giga's pilot of 203 Eastern Cape schools, close to half had download speeds below 10 Mbps, the lowest level Giga measures (see Theme 3 Data Snapshot).

Focus group participants described receiving school tablets that did not accept SIM cards and being denied Wi-Fi access for "safety reasons".

> ONE SAID:
>
> I do have access to a smartphone, but **I do not have any access to the internet when I'm at school.**

**Eight of the 20 participants** in the July 2026 focus group still needed a school lab to get online, even with devices.

*Sources: Deloitte 2024; Giga 2026; Nelson Mandela Children's Fund focus group (July 2026).*



PHOTO CREDIT: UNICEF SOUTH AFRICA

KEY FINDING

**"The problem is that many schools within reach are still not connected."**

## 02

# Children in rural and low-income settings describe being left behind.

Africa Children's Summit (ACS, 2025) | G20 Children20 (Ch20)

At both the Africa Children's Summit (ACS, 2025) and the G20 Children20 (Ch20) engagements, **children from rural areas were particularly concerned about being left behind.** Where devices were shared, access was restricted and children described feeling excluded. During the Ch20 discussions, some concepts needed further explanation for part of the group, showing **how unevenly digital knowledge is spread among children themselves.**

COST COMPOUNDS THIS.

> **"for me, it's no data and lack of network**

Children cited data costs as a barrier, and children at the AI and Digital Justice Summit called on government to **regulate data prices and provide accessible devices.**

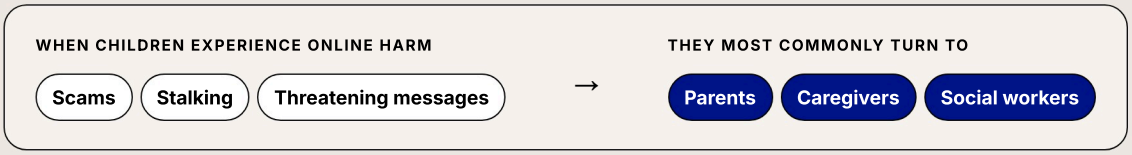
*Sources: Africa Children's Summit Outcome Statement 2025, the Children20 Declaration 2025, the AI and Digital Justice Summit recommendations 2025 and the Nelson Mandela Children's Fund focus group (July 2026).*

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## 03

# Children's AI use extends beyond the classroom, and parents and caregivers need to be equally capacitated to support them.

Much of young people's AI and digital use **happens outside school**, while support structures are largely designed for the school environment.




JULY 2026 FOCUS GROUP

As one participant put it:

> **"I would definitely tell my social worker and my grandmother.**

Several participants described these adults intervening successfully. Regulatory frameworks focused on protecting children online are most effective **when the adults children actually rely on are equipped to respond.** However, that does not mean the burden of online safety should fall solely on parents and caregivers alone.

*Sources: Nelson Mandela Children's Fund focus group (July 2026); Nelson Mandela Children's Fund AI and Digital Justice Summit 2025.*

## 04 Digital infrastructure intersects with gender-based violence, and the evidence base to respond is not yet there.

ONLINE HARMS REPORTED BY FOCUS GROUP PARTICIPANTS

- Harassment
- Exposure to harmful and threatening content
- Violations of personal privacy

Focus group participants reported a range of online harms, including harassment, exposure to harmful and threatening content, and violations of personal privacy. UN Women (2024) identified **technology-facilitated gender-based violence as an under-researched area globally.**

DECLARED A NATIONAL DISASTER, NOVEMBER 2025

**Gender-based violence and femicide**

This makes the gap **particularly urgent in South Africa.** The Girl Power (against violence) Project data suggests boys are also affected, though limited data makes targeted responses difficult to design.

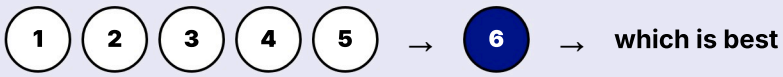
*Sources: Nelson Mandela Children's Fund focus group (July 2026); Nelson Mandela Children's Fund AI and Digital Justice Summit 2025; UN Women 2024.*

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## 05 Children are already using AI with critical awareness, and we need to understand how they are using it.

Children in the July 2026 focus group were using AI tools for exam revision and schoolwork, and **they were not using them passively.**

One participant asks **five different AI tools the same question**, then puts all five answers into a sixth to work out which is best.




*brain rot*

Others are wary of leaning on AI too much: one said that what stopped them was not having time and being afraid of "brain rot".

These instincts echo the research on the risks of cognitive offloading (see brief 5). **Adults do not always see this**, and may restrict these tools where support to use them safely would help more.

*Sources: Nelson Mandela Children's Fund focus group (July 2026); Brief 5: AI and Learning Outcomes.*

# 06 Children have the capacity to contribute to policy and are already doing so.

The research carried out by the Nelson Mandela Children's Fund shows that when children are given **space, voice, audience and influence**, they engage with policy questions with sophistication.

Fifty South African children at the G20 Children20 Social Summit (2025) submitted to the South African Head of State that "technology isn't the problem; unfair access, unsafe spaces and a lack of digital skills are". At the 2025 AI and Digital Justice Summit, children defined their digital rights as free and safe use, accessibility from rural areas to suburbs, privacy, and content verification. They also advocated for AI in the curriculum, age restrictions with multi-factor verification, training for duty-bearers, and the inclusion of AI in the Children's Act 38 of 2005.

**CHILDREN DEFINED THEIR DIGITAL RIGHTS AS**

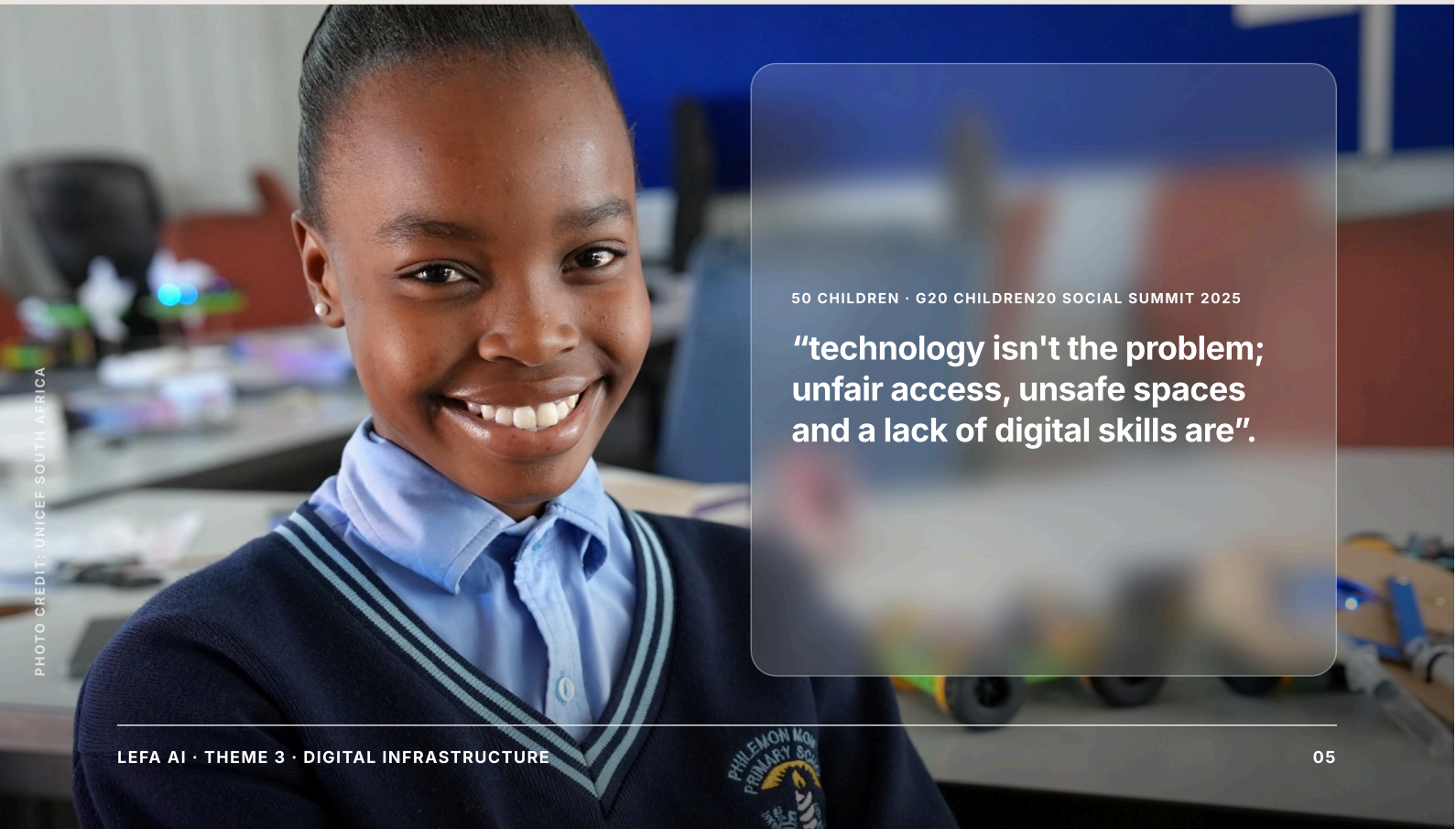
1. **Free and safe use**
2. **Accessibility from rural areas to suburbs**
3. **Privacy**
4. **Content verification**

**THEY ALSO ADVOCATED FOR**

1. **AI in the curriculum**
2. **Age restrictions with multi-factor verification**
3. **Training for duty-bearers**
4. **The inclusion of AI in the Children's Act 38 of 2005**

Across child-led governance forums children are not waiting for frameworks to be designed on their behalf. **They are producing them.**

*Sources: AI and Digital Justice Summit recommendations (2025) and the Children20 Declaration (2025).*



WHAT THIS MEANS

# Decisions for South African basic education

We offer the questions below to support decision makers in thinking about **digital access and AI** in the South African context.

01

### Who is accountable for getting schools connected, and for making sure the connection works for teaching and learning? How could the DBE and the Department of Communications and Digital Technologies plan this together?

Close to a third of public schools are still not connected, even though almost all are within reach of a network. The barriers include electricity, theft and limited capacity to oversee and manage connectivity projects, as well as funding.

02

### What standard should a school's connection meet before it counts as connected?

In Giga's Eastern Cape pilot, close to half of schools fell below the lowest speed tier, and only 25 of 203 met the level suggested for their enrolment.

03

### Where does responsibility for children's safety and data online sit across government, and how will the revised AI policy reflect it?

The draft national AI policy was withdrawn in April 2026, and the national action plan for children does not yet cover AI or digital safety. Children asked for AI to be added to the Children's Act.

04

### How should schools manage access to devices and connectivity, and what say do learners have?

Blocking Wi-Fi responds to real safety concerns without resolving them. Children proposed phone rules agreed with learners and Digital Justice Ambassadors, and asked for AI to be part of the curriculum.

05

### Who equips parents and caregivers to support children when something goes wrong online, and how?

Children turn first to parents, caregivers and social workers, who need practical support to respond.

06

### How can children be included in decision making from the outset, in a way that is authentic and meaningful?

Children are already making specific proposals. Including them well means planning for their participation from the start, so that their views shape what gets decided.

LOOKING AHEAD

# Areas for further *research*

The children's accounts in this brief come from a small group that does not represent all South African children. Areas for further research could include:

01 **What do we need to understand about technology-facilitated violence?** What are the forms, prevalence and impact of technology-facilitated gender-based violence affecting children, and what responses are effective?

02 **What enables children to use AI critically rather than passively?** Some children are already developing strategies to check and question AI outputs. More research is needed to understand how widespread these practices are and what skills, teaching or support help children develop them.

03 **How do digital access and online risks differ across rural and urban under-resourced settings?** What do these differences mean for how policy and infrastructure should respond?

04 **How do children's experiences of digital access, AI use and online safety differ across different groups and contexts?** More research is needed to understand how factors such as age, gender, location, household circumstances and access to devices and data shape children's experiences.

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Lefa AI

# A device does not automatically mean *access*.

Children still need the data to connect, permission to use it, the skills to use it well, and to be safe while they do.



## SCOPE

The research drew on four engagements with approximately 450 children: the Africa Children's Summit 2025, the G20 Children20 Social Summit 2025, the Nelson Mandela Children's Fund AI and Digital Justice Summit 2025, and a focus group of 20 teenagers aged 14 to 17 held in July 2026. Alongside this, it drew on a desktop review of existing research and policy.

This was not an exhaustive review, and it does not claim to cover every relevant study. AI research in education is moving fast, and further work may already exist that was published after this brief was finalised.

## LIMITATIONS

The cohort is small and is not statistically representative of South African children, although it reflects the demographics of the country.

The July 2026 focus group was drawn from Gauteng only, across inner city, township, informal settlement and suburban areas. Rural children's perspectives come through the summits rather than the focus group.

The paper is careful that “under-resourced” does not describe one reality. Under-resourced inner city environments and rural under-resourced areas differ significantly, both in the history of their infrastructure and in the risks children face there. The two should not be read as interchangeable.

## USE AND RIGHTS

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