Lefa AI

RAPID RESEARCH · THEME 4 OF 9

AI and Pedagogy

What we're learning

4a Curriculum | 4b Pedagogy | 4c Assessment

THE QUESTION THIS BRIEF EXPLORES

How should **curriculum, pedagogy and assessment** in South African basic education respond to increased learner access to AI tools?

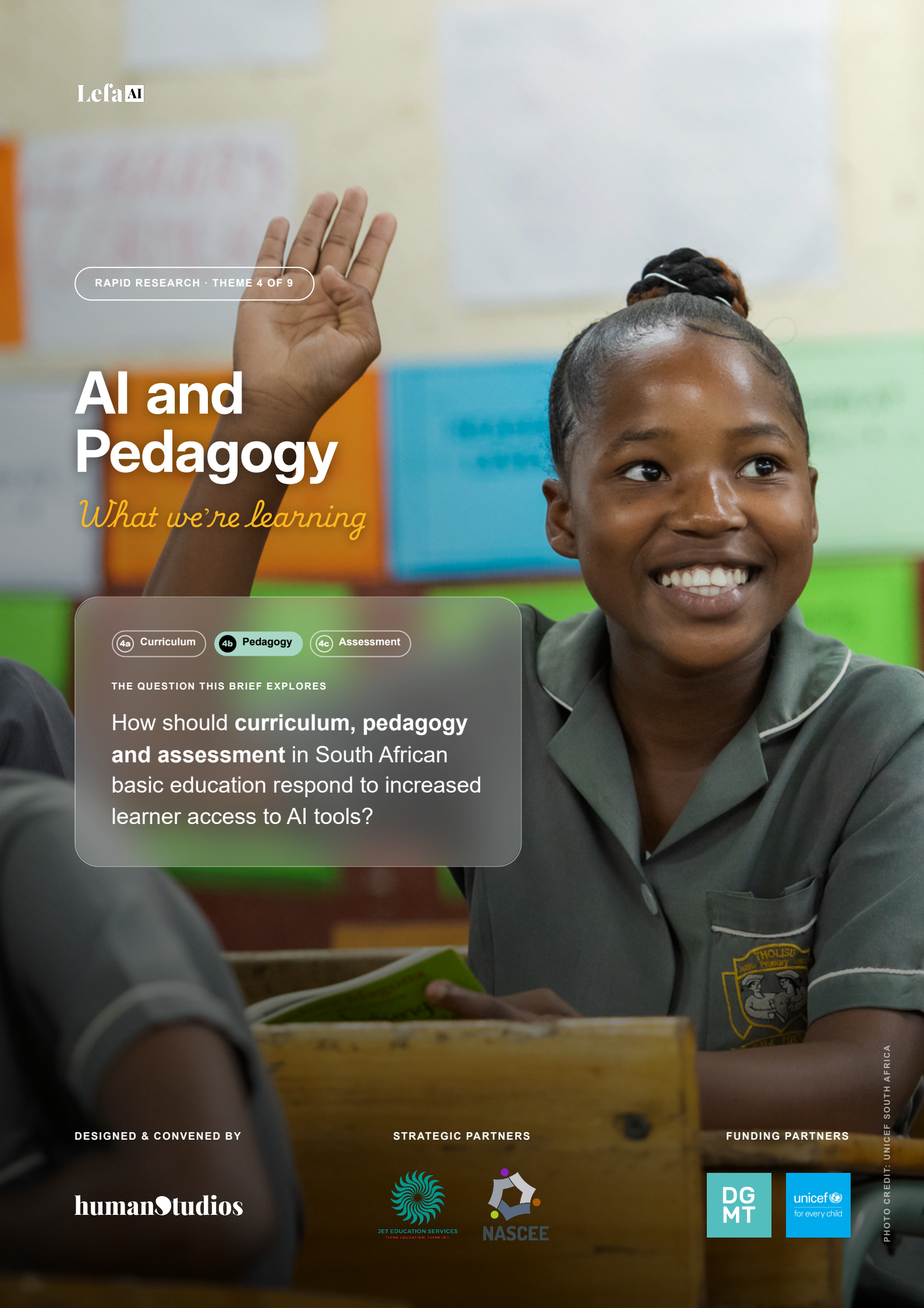


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ABOUT THIS BRIEF

Rapid Research Theme: AI and Pedagogy

This is one of nine rapid research themes in **Lefa AI**, exploring what AI means for South African basic education. The research brings together existing evidence and expert perspectives to inform decision-making in a rapidly changing field. It does not present new empirical research.

This brief is written to support decisions around AI in education for the **Department of Basic Education and its partners**. It is not a guide to classroom practice, though teachers and school leaders may find the context useful. Throughout, we set out to **weigh the opportunities and risks fairly**, rather than advocate for or against AI.

1

Rapid review

of the existing research and interviews

18

Expert interviews

With South African stakeholders, including teachers, psychologists, curriculum and assessment specialists, community activists and sector leaders.

Where this conversation starts

AI is arriving in South African classrooms in a system already under strain. **The question is no longer whether AI will enter classrooms, but how its arrival will be managed.** That will look very different across schools, because the divide is layered: the cost of devices and data, unreliable connectivity, and AI tools that work best in English and draw mainly on knowledge from the Global North.

Teachers' knowledge is unevenly spread too: In South Africa teacher pedagogical knowledge tends to be higher in urban, private and more advantaged schools (OECD, 2026a). How well AI serves learning is likely to depend on **the teaching it lands in**, and on the knowledge and support teachers bring to it.

Sources: TALIS 2024 South Africa country report; Results from the Teacher Knowledge Survey: South Africa (OECD, 2026a)

WHAT WE FOUND

Key findings

Curriculum, pedagogy and assessment are closely linked. We've separated them across three briefs to make them easier to read, but **a change in one area needs to show up in the other two.**

4A	4B · THIS BRIEF	4C
Curriculum	**Pedagogy**	**Assessment**
What we teach	How we teach	How we know learning has happened

Pedagogy is the method, theory and practice of teaching: how teachers create the conditions for deep and durable learning to take place.

Brief 5 showed that learning happens when learners do the thinking themselves, by struggling, working things out and reflecting on what they know. When AI takes away this cognitive struggle, it can hold learning back. Whether AI supports or undermines learning therefore also depends on **the pedagogical approach teachers use with AI**. This brief focuses on how teaching practice may need to change in light of AI.

SEE BRIEF 5 AI and Learning Outcomes SEE BRIEF 8 The role of the teacher

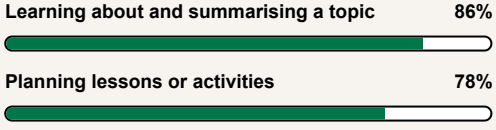
01 South African teachers are using AI, but mostly to support existing preparation and planning practices rather than to change their pedagogy, at this stage.

TEACHERS USING AI IN THEIR WORK, 2024

48% South Africa

36% OECD average

MOST COMMON USES



This matches the wider picture across the Global South, where **AI has so far refined existing teaching rather than transformed it**, and most initiatives remain at pilot stage (Reimers et al, 2026). Guidance on how teaching could change is starting to emerge: Brazil's 2026 national guidelines, for example, describe teachers as "critical mediators" who evaluate AI tools and design learning with and without AI. In classrooms, however, that shift has not yet happened in any widespread way.

Sources: OECD, 2024 - Talis Results; Reimers et al., 2026; Brazilian Ministry of Education, 2026

02 Pedagogy needs to lead, not the AI tool.

The starting point for using AI in teaching is **the learning goal, not the technology**.

> **BRAZIL'S 2026 NATIONAL GUIDELINES MAKE THIS THEIR FIRST PRINCIPLE:**
>
> AI should be used only where it serves **a clear educational purpose** and does better than teaching without it.

Teachers therefore need to be supported to make **pedagogically informed, contextually sensitive judgments** about when and how AI adds value in their specific classrooms, if it does at all.

Sources: Brazilian Ministry of Education, 2026; OECD/European Union, 2026; Reimers et al., 2026

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03 Active learning pedagogies are needed so that learners, not AI, do the thinking.

AI can produce the product of thinking without the learner doing any of the thinking, which has implications for both how we teach and how and what we assess. Active learning pedagogies strengthen the quality of learners' thinking through the cognitive work of questioning, explaining, connecting and judging that builds deep, lasting understanding.

Questioning	Explaining	Connecting	Judging

This is particularly relevant in South Africa, where experts interviewed for this research noted that **many classrooms rely on copying notes and accepting information without question**. There is a risk that learners bring the same unquestioning trust to AI.

Of learners surveyed,

43%

agree to rely on common sense and less on scientific studies

In the PISA 2025 international study, most 15-year-olds across OECD countries agreed that information should be checked against other reliable sources, yet **43% also agreed that it is important to rely more on common sense and less on scientific studies.** Agreeing in principle is not the same as doing it.

Pedagogy that treats AI output as **something to question, test and improve on** can keep the thinking with the learner.

Sources: OECD, 2024 - Talis report; OECD, 2026b

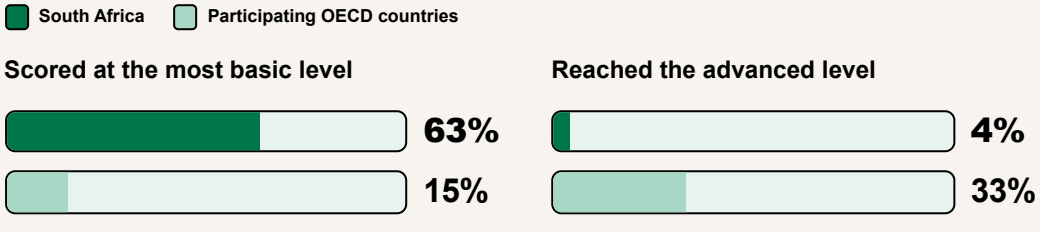
04

Using AI well is supported by strong teacher pedagogical and content knowledge.

AI can produce fluent, confident answers that are wrong or pedagogically weak. Telling the difference depends on teachers knowing **both their subject and how learners learn**, and AI-generated lesson plans add little value if teachers cannot evaluate and adapt them.

TEACHER PEDAGOGICAL KNOWLEDGE, LOWER SECONDARY, 2024

The first international test of teachers' pedagogical knowledge: how learners learn, how to design instruction and how to assess.



<half

REACHED MASTERY IN SUBJECTS THEY TEACH

Teachers' subject knowledge (taken from SACMEQ 2013) found that **fewer than half** of Grade 6 reading and maths teachers reached mastery in the subjects they teach.

Sources: OECD, 2026a; Spaull & Jansen, 2019; Reimers et al., 2026

05

Teachers need professional development that covers how AI tools work, how AI can support their own work, and how to teach with AI where appropriate.

36% of South African teachers surveyed said they had **a high need for professional development** in using AI for teaching and learning.

57% of teachers surveyed who reported not using AI said they **lacked the knowledge and skills**.

PROFESSIONAL DEVELOPMENT COULD USEFULLY COVER THREE THINGS

1. **How AI tools work**
   Including their limits.
2. **How AI can support teachers' own work**
   Such as planning and administration.
3. **How to teach with AI**
   When, where, and if it serves learning.

UNESCO's AI competency framework for teachers also includes **ethics and a human-centred mindset**.

⚠ **One-off workshops have a poor record of changing teaching practice**, and access to AI tools without training in judging their outputs may even make teaching worse.

SEE 4A If AI literacy becomes part of the curriculum, as brief 4a discusses, teachers will also need support to teach it.

Sources: OECD, 2024 - Talis Results; UNESCO, 2024; Reimers et al., 2026; OECD/European Union, 2026

WHAT THIS MEANS

Decisions for South African basic education

Early findings suggest that the effects of AI on learning depend largely on how it is used, and that it may be most useful when **active learning pedagogies lead** and learners stay engaged in the cognitive struggle that learning requires. In a system as unequal as South Africa's we offer the questions below to support decision makers in thinking about AI in basic education.

01

Who decides how AI is used in teaching: national guidance, schools or individual teachers?

02

How can changes in teaching be aligned with curriculum and assessment, so that what is taught, how it is taught and what is assessed stay in step?

03

What kind of pedagogy do we want AI to serve in South African classrooms, and how can that be supported in every school, so that AI narrows rather than widens inequalities?

04

How can gaps in teachers' knowledge be addressed alongside, or ahead of, building AI skills?

05

How can pedagogy keep learners' home languages at the centre when AI tools currently work best in English?

06

How can sustained professional development in AI and pedagogy be made available to all teachers, when budgets are limited and one-off workshops rarely change practice?

LOOKING AHEAD

Areas for further *research*

South African evidence on how AI is changing teaching practice is still limited, which is why this brief draws heavily on international sources and guidelines. Areas for further research could include:

01 **How does teacher knowledge shape the way AI is used?** Do teachers with stronger subject and pedagogical knowledge use AI differently, and does this lead to better learning? How might AI help strengthen teaching and learning by providing 1-to-1 teacher professional coaching?

02 **Active learning with AI in South African conditions.** Which AI-supported pedagogies work in large classes, with shared or no devices, and in learners' home languages? Does it help or hinder learners compared to well resourced classrooms?

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Lefa AI

In an age of AI, learning still happens through *cognitive* struggle.

Pedagogy that protects that struggle needs to lead, before appropriate and relevant AI tools are introduced.

SCOPE

This research did not observe or test AI use in South African classrooms, and it makes no claims about the impact of particular pedagogical approaches in this context.

This brief focuses on teaching practice. The role of the teacher is explored in more depth in brief 8.

EVIDENCE BASE

Much of the available evidence comes from international policy guidance and a small number of studies, many of them short or limited to a single subject or setting.

Few studies test AI-supported pedagogy directly, and fewer still come from contexts like South Africa's.

LIMITATIONS

The interviews did not include learners, so this brief does not reflect how learners themselves experience AI in their learning.

Expert interviews reflect the views of a small number of South African specialists. They are included to add local perspective, not as representative findings.

This was a rapid review, not an exhaustive one. AI in education is moving quickly, and relevant research may have been published after this brief was finalised.

USE AND RIGHTS

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For corrections or to request the underlying source list, contact the Lefa AI programme team at connect@humanstudios.org.

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