Lefa AI

RAPID RESEARCH · THEME 4 OF 9

AI and Curriculum

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: Curriculum, Pedagogy and Assessment

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 about 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, alongside expert interviews

18

expert interviews

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

Where this conversation starts

South Africa's curriculum, **CAPS, was written before generative AI existed**, yet many learners are already using AI to study, write and find answers, often before their schools have offered any guidance. This raises a question the curriculum was never designed to answer:

What should learners know in an age of AI, and how should curriculum respond, in a system where access to devices, connectivity and support is deeply unequal?

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 · THIS BRIEF
Curriculum
What we teach

4B
Pedagogy
How we teach

4C
Assessment
How we know learning has happened

01 Countries are choosing different models for where AI literacy lives in the curriculum.

A standalone subject, embedded in an existing one, a cross-cutting theme, or an external opt-in programme. Many countries have not yet done so, this is **a snapshot, not an exhaustive list.**

COUNTRY	INTEGRATION MODEL	SUBJECT(S)	GRADE RANGE	DELIVERY MECHANISM
China	**Standalone or embedded**	Own AI subject, or Science/IT	Primary to senior high	Mandated, tiered, AI-specific content throughout; schools choose whether to teach it as its own subject or fold it into science/IT
UAE	**Embedded in existing subject**	Within Computing, Creative Design and Innovation	Kindergarten to Grade 12	Official subject, but taught within existing subjects
Uruguay	**Cross-cutting competency, with opt-in programme**	Computational thinking across subjects; Computer Science in Grades 7–8	Initial education to end of secondary	Computational thinking is one of ten general competencies. Ceibal, a state agency, supports delivery with the public education authority ANEP through its Computational Thinking and Artificial Intelligence programme and a teaching framework for AI
Estonia	**Programme**	None (tool access, not a subject)	Grades 10–11, expanding to all upper secondary	AI Leap 2025 is a comprehensive national initiative to integrate AI tools and skills into Estonia's education system, providing AI applications and training to students and teachers across Estonia
Brazil	**Cross-cutting theme**	Woven across existing subjects	Early childhood to upper secondary	AI literacy as staged "Learning Sets" building in complexity
Kenya	**Cross-cutting competency (digital literacy)**	Integrated across all learning areas	Pre-primary to senior school	Digital literacy is one of seven core competencies for every learner. The framework predates generative AI
India	**Extra-curricular**	N/A	Classes 8–12	YUVAi, a national programme run with the Ministry of Electronics and Information Technology. Teachers nominate students, who take part in online sessions, project work and a boot camp

02 Whether curriculum needs to change in response to AI, and how far, is a current and unresolved debate among South African experts.

SOUTH AFRICAN EXPERTS WERE DIVIDED

VIEW 1

Keep CAPS

CAPS is well established and does not need to be restructured. Schooling should keep its focus on **deep conceptual knowledge**.

VIEW 2

Shift to competencies

A competency-based curriculum giving more weight to **critical thinking, metacognition, creativity and collaboration**, alongside content knowledge.

VIEW 3

A question for pedagogy

AI is mainly a question for **pedagogy and teacher guidance**, not curriculum design.

Source: Theme 4 expert interviews.

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03 In an age of AI, human competencies become more important.

> The OECD's AI literacy framework deliberately centres human capabilities within AI-specific competences, ensuring learners can effectively leverage AI while **maintaining qualities that technology cannot replicate**.
>
> OECD, 2025, P. 60

South Africa's Department of Basic Education was already moving in this direction before generative AI, with the development of the **Basic Education Framework (BEF)**. It sets out what every learner should develop, including critical thinking, collaboration, metacognition and resilience. This framework and the competencies it incorporates need to be integrated into policy decisions around AI in basic education.

THE BEF SETS OUT, FOR EVERY LEARNER

Knowledge	Skills	Character and attitudes	Values

SEE 4B Brief 4b looks at the teaching approaches through which these competencies are built.

Sources: OECD, 2026; Weston et al., 2024.

04 Foundational subject knowledge remains essential in the age of AI.

While AI can supply answers on almost any subject in seconds, learners' own subject knowledge remains critical for many reasons.

One aspect of this is being able to **assess AI outputs critically**.

> ⚠ AI systems can **"invent information that sounds plausible but is not factual"**. Learners need a secure foundation of disciplinary knowledge to verify AI-generated outputs against trusted sources, rather than accept them uncritically.

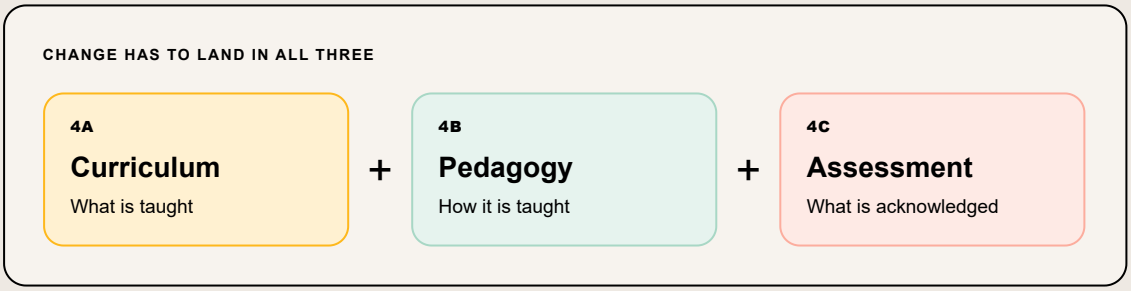
SEE BRIEF 5 AI and Learning Outcomes

Sources: OECD, 2025.

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05 Curriculum change is only effective if assessment and pedagogy change with it.

Without alignment across all three, high-stakes exams keep rewarding recall regardless of what the curriculum includes, so **the exam becomes the de facto curriculum**.



INTERNATIONALLY

Reimers et al. (2026) found most AI-driven curriculum innovation they reviewed was **"bolted onto" existing curricula**, rather than fixing the underlying misalignment between curriculum, pedagogy and assessment.

IN SOUTH AFRICA

Subject matter experts describe assessment as currently **performative, prioritising pass or fail accountability**. AI curriculum change not paired with assessment reform risks amplifying that.

Source: Reimers et al., 2026.

WHAT THIS MEANS

Decisions for South African basic education

AI is already in South African classrooms, so the real question is how curriculum should respond, and how it can do so across a deeply unequal system. The following decisions follow from the findings above:

01

What should learners know and be able to do in response to AI, and when should this be taught?

South Africa needs to decide what AI literacy should encompass, and whether it should be integrated across subjects, taught explicitly, or follow a combination of approaches across different phases of schooling.

02

How can human competencies be strengthened in the curriculum as AI becomes more widespread?

Existing work, such as the Basic Education Framework (BEF), already sets out many of the competencies this brief's findings point to, and could be one avenue for doing this.

03

How much curriculum time and content should be given to AI literacy?

If AI literacy or AI-related skills are added to an already full curriculum, something has to make way. That trade-off needs to be made deliberately, not by default, and not at the expense of subject knowledge.

04

How should curriculum change be aligned with pedagogy and assessment?

If AI changes what learners need to know and be able to do, changing the curriculum alone is unlikely to be enough. Curriculum, pedagogy and assessment need to be considered together, so that what is taught, how it is taught and what is acknowledged through assessment remain aligned.

LOOKING AHEAD

Areas for further *research*

South African evidence on AI and curriculum is still limited, which is why this brief draws mostly on international examples. The areas below are where local research could most strengthen future decisions.

01 **Baseline AI understanding in South African schools.** What do learners and teachers already know and do with AI, and how does this differ between well-resourced and under-resourced schools? A national survey across school types, provinces and phases would show where AI literacy would be starting from.

02 **Device-free AI literacy.** Can AI literacy be taught effectively where devices and connectivity are limited? Comparing their outcomes with those of learners who do have access would show whether device-free approaches build the same understanding, or whether they risk widening the divide they're meant to close.

03 **Learner perspectives.** How do South African learners experience AI in their schooling, and what do they think they need to learn about it? Participatory research with learners across different school contexts would bring in the learner voice and perspectives.

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Lefa AI

In an age of AI, what we teach matters *more* than ever.

Foundational learning remains essential. The question is how AI literacy, subject knowledge and human skills can build on those foundations, not compete with them.

SCOPE

A rapid review of existing research alongside 18 expert interviews with South African stakeholders.

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

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 look directly at how the curriculum is responding to AI, and fewer still come from contexts like South Africa's.

LIMITATIONS

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.

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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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