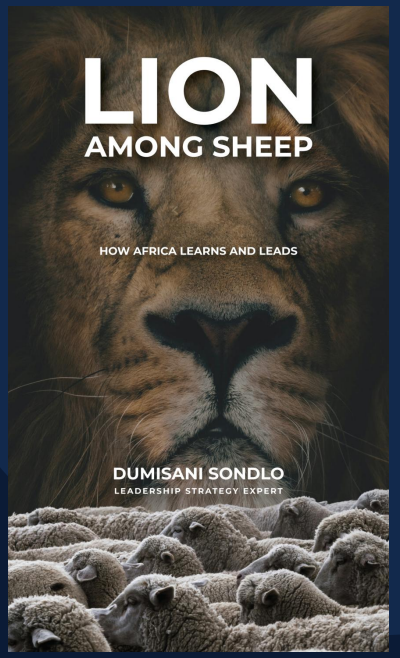
DIGITAL ENTERPRISE AFRICA NPC

NSTF / proSET DISCUSSION FORUM



· ARTIFICIAL INTELLIGENCE IN STEM EDUCATION

Indigenous Knowledge, STEM & Africa's Authentic Contribution to AI:

"Teach the machine our games!"

18 August 2026, 11:30

Dumisani Sondlo: **Founder & Managing Director, Digital Enterprise Africa NPC**
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WHO WE ARE

20+ Years, Nationwide

400+

(Yr 1998 -2005) Alumni across ICT & data

200

Active senior ICT mentors

6

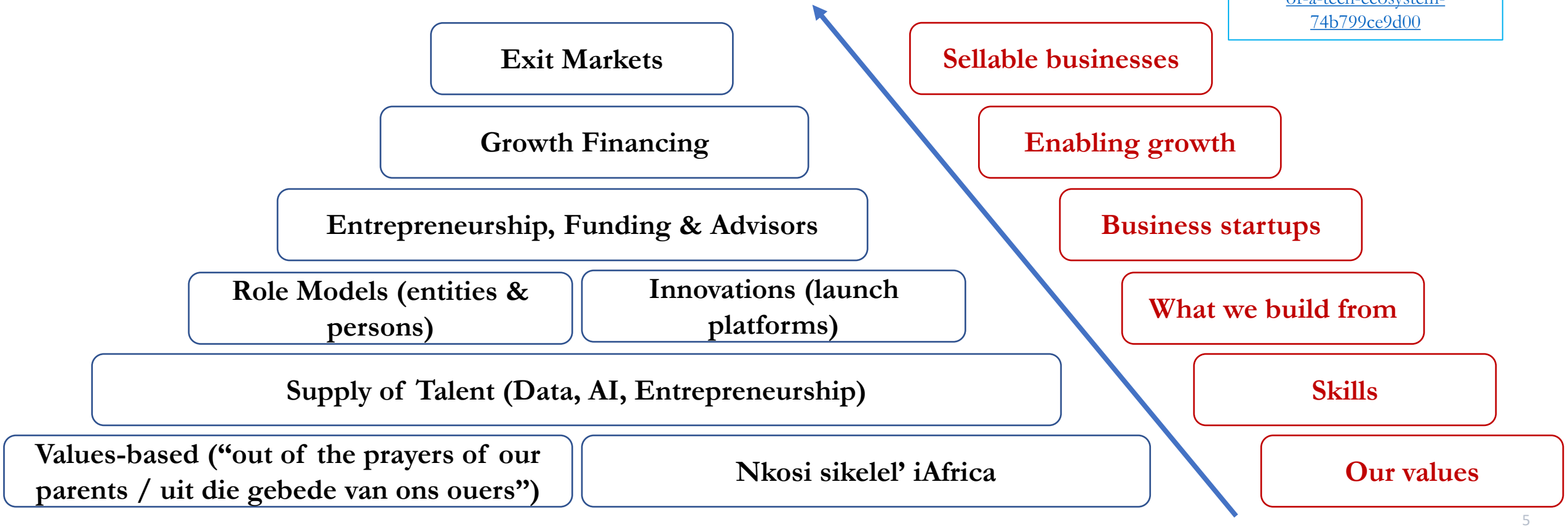
AI certification Stages (provided in NEMISA LMS)

Digital Enterprise Africa (DEA) NPC — founded by the alumni of the Institute for Satellite & Software Applications (ISSA) – providing platforms for certified AI training , innovations mentorship, and practical entrepreneurship support through a national network of competent practitioners.

Building blocks of the ecosystem



https://medium.com/crossing-the-pond/the-building-blocks-of-a-tech-ecosystem-74b799ce9d00

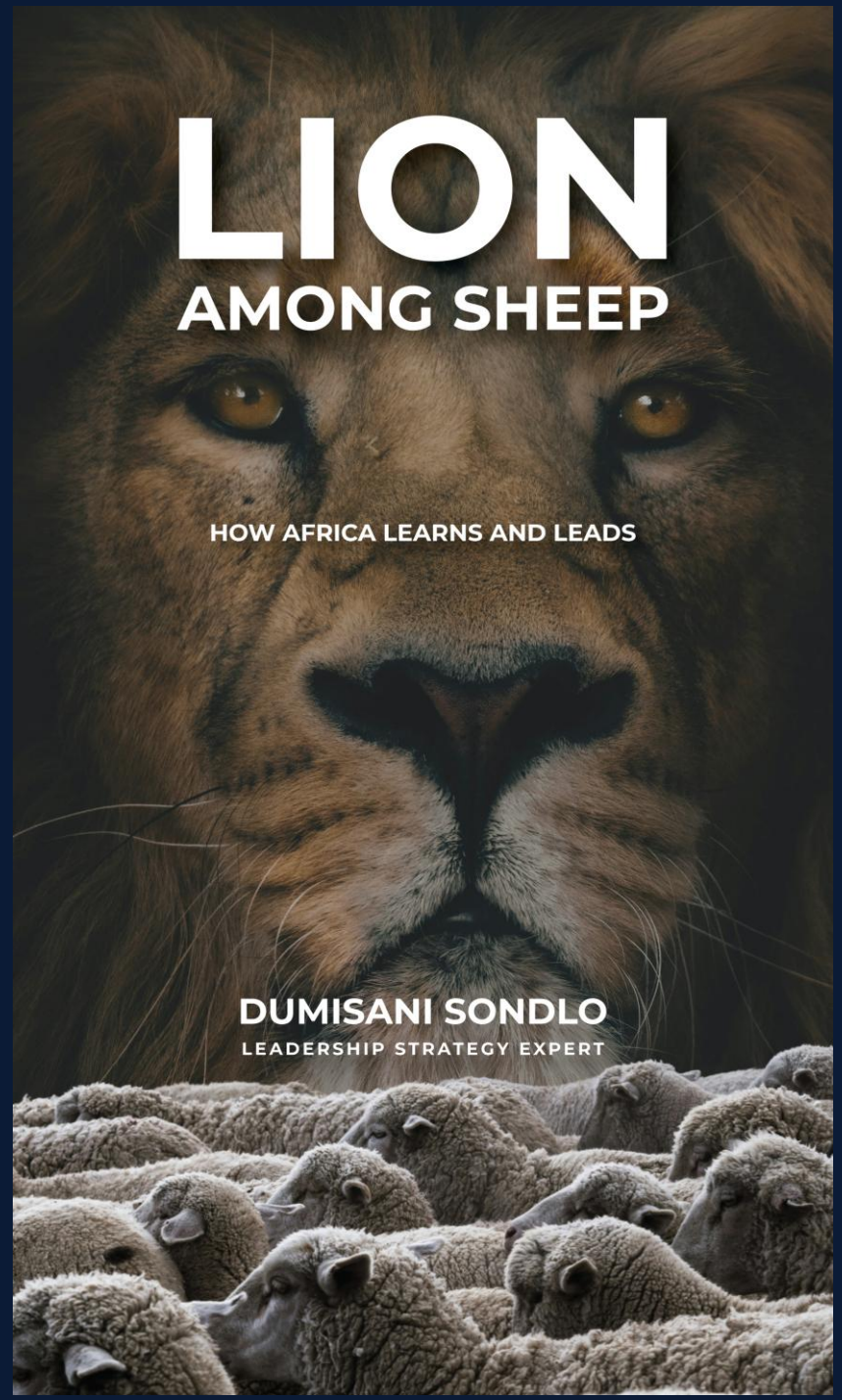


Every learner has the potential to adapt to the system placed around them.

The question this forum must ask is “which system is that?”

—

and “whose voice does it teach them to use?”



Colonized / Fitting in	Voiceless / Powerless	No impact on own environment	No ownership

Are these seemingly comfortable foreign frameworks adequate for teaching STEM to African children?

Altered & Appropriated	No strategy from "elders"	No questioning. No learning.	Fearful. Settling for less.

This is not a portrait of failure. It is a portrait of total, brilliant fluency. Fluency in a self-perpetuating status quo.

How Africa is often treated

*Backward, needs catching up

*In need of aid & civilization

*Risky for investment

*A taker, not a contributor

Yet the truth is

This is a continent with complete mastery of someone else's systems.

The muscle for thinking was never missing.

It was based on someone else’s premise, the whole time.

Long Before Any Classroom, Africa Was Already Training STEM



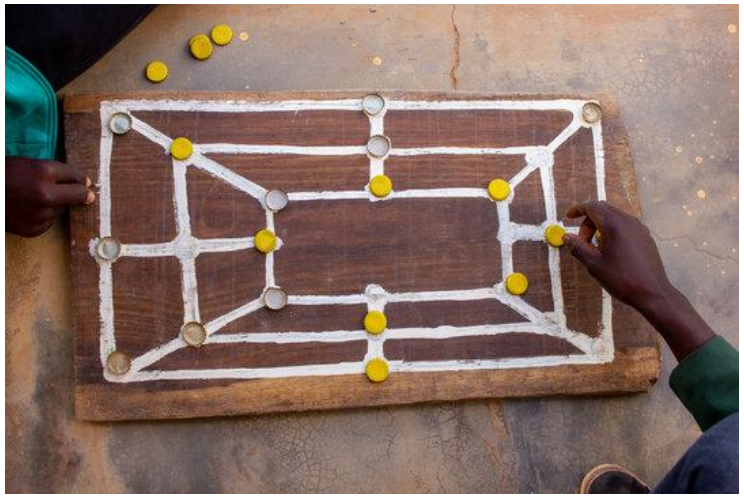




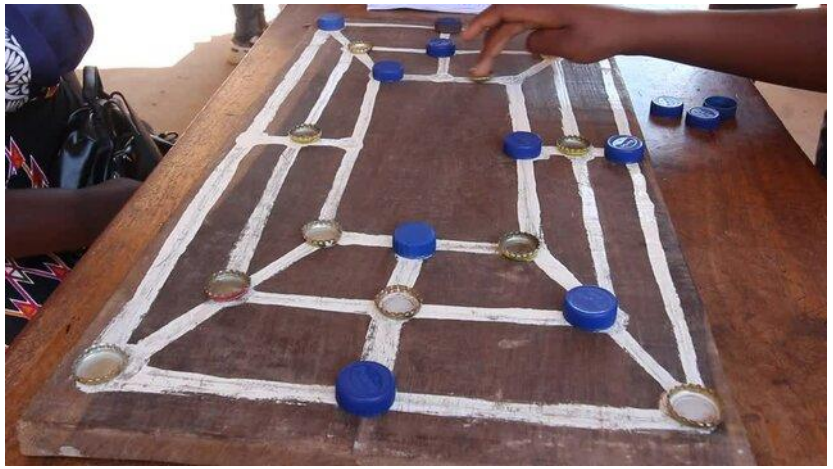


Diketo "upuca": ***A game of sowing and counting:*** Distributing seeds pit by pit, tracking captures, and planning ahead.

Long Before Any Classroom, Africa Was Already Training STEM







Morabaraba "umlabalaba": ***A game of strategy and blocking:*** Forming lines, blocking an opponent, thinking several moves out.

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Long Before Any Classroom, Africa Was Already Training STEM





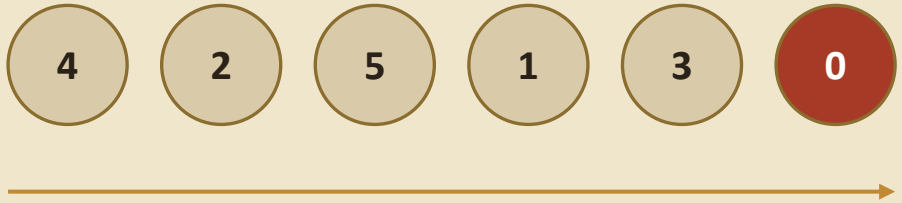


Shooting Dice: ***A game of chance and probability:*** Learning likelihood and expected value by feel, at a gathering.

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Sowing, Capturing, Looking Ahead

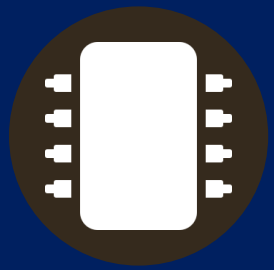
Diketo "upuca": *The Board*



seeds distributed pit-by-pit → last seed captures

Every match is a small exercise in resource distribution and reading two or three moves ahead - the same discipline a search algorithm formalises.

The AI Concept

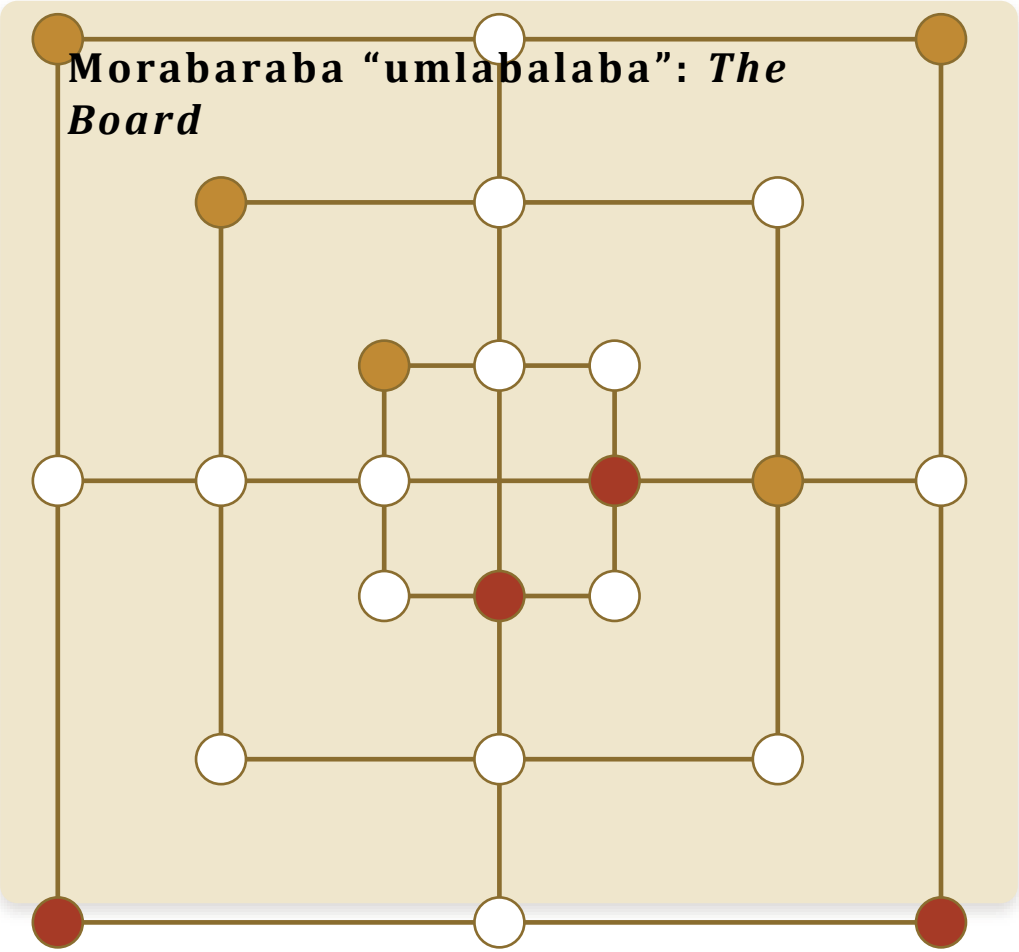


Search & Look-Ahead

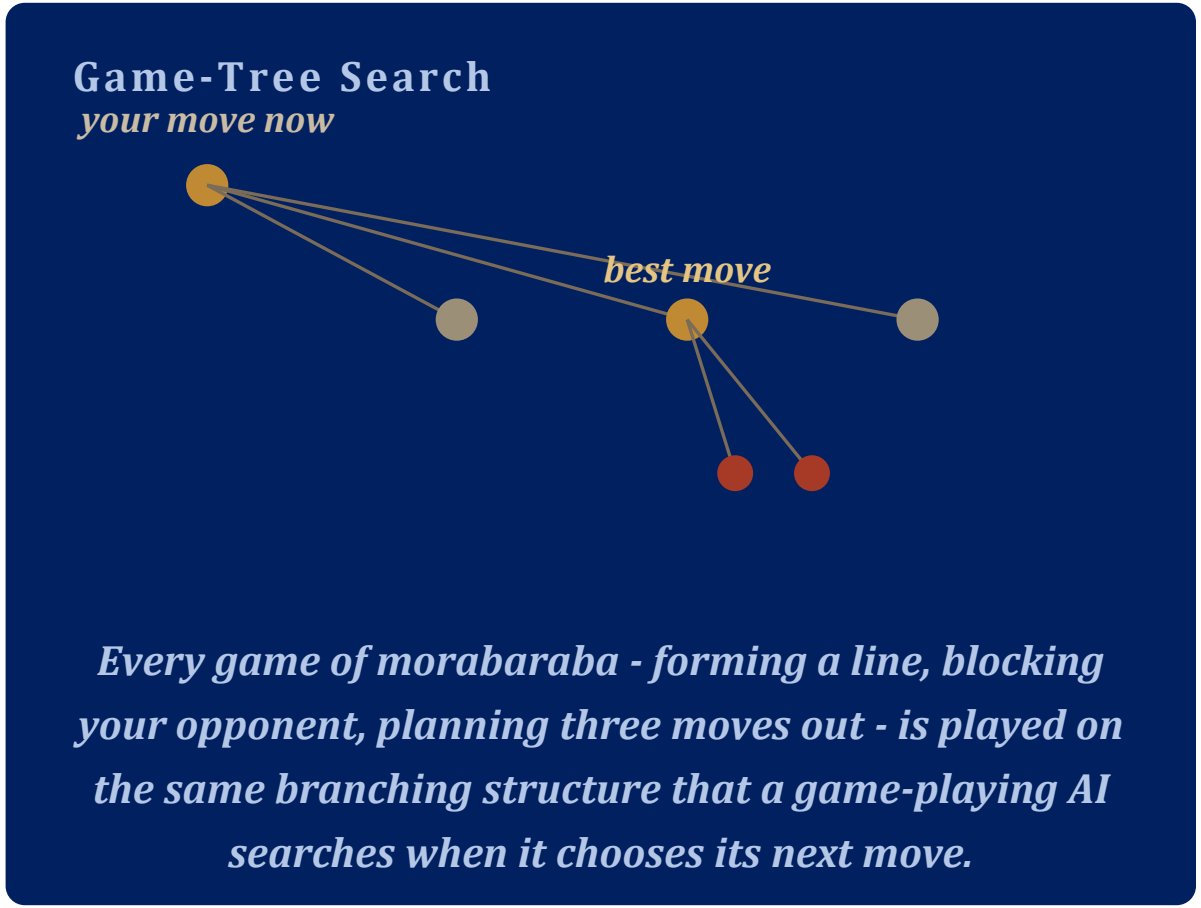
Strip away the board and you're looking at the same pit-by-pit distribution and look-ahead thinking that underlies the search algorithms taught in an introductory AI course.

Games played with seeds, stones and boards - no electricity, no data bundle, no permission required

The Board Is Already a Game Tree



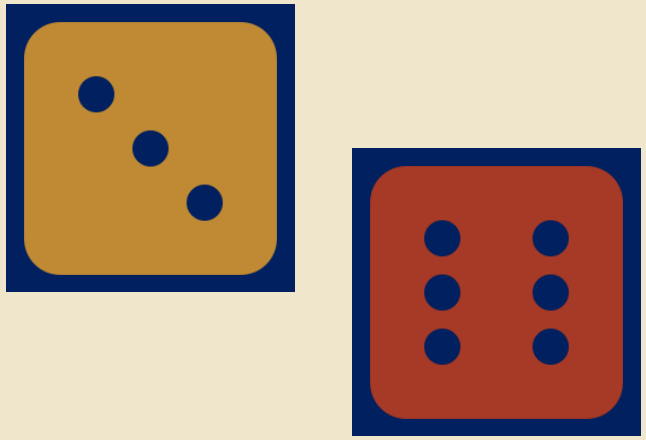
a formed line (“mill”) captures a piece



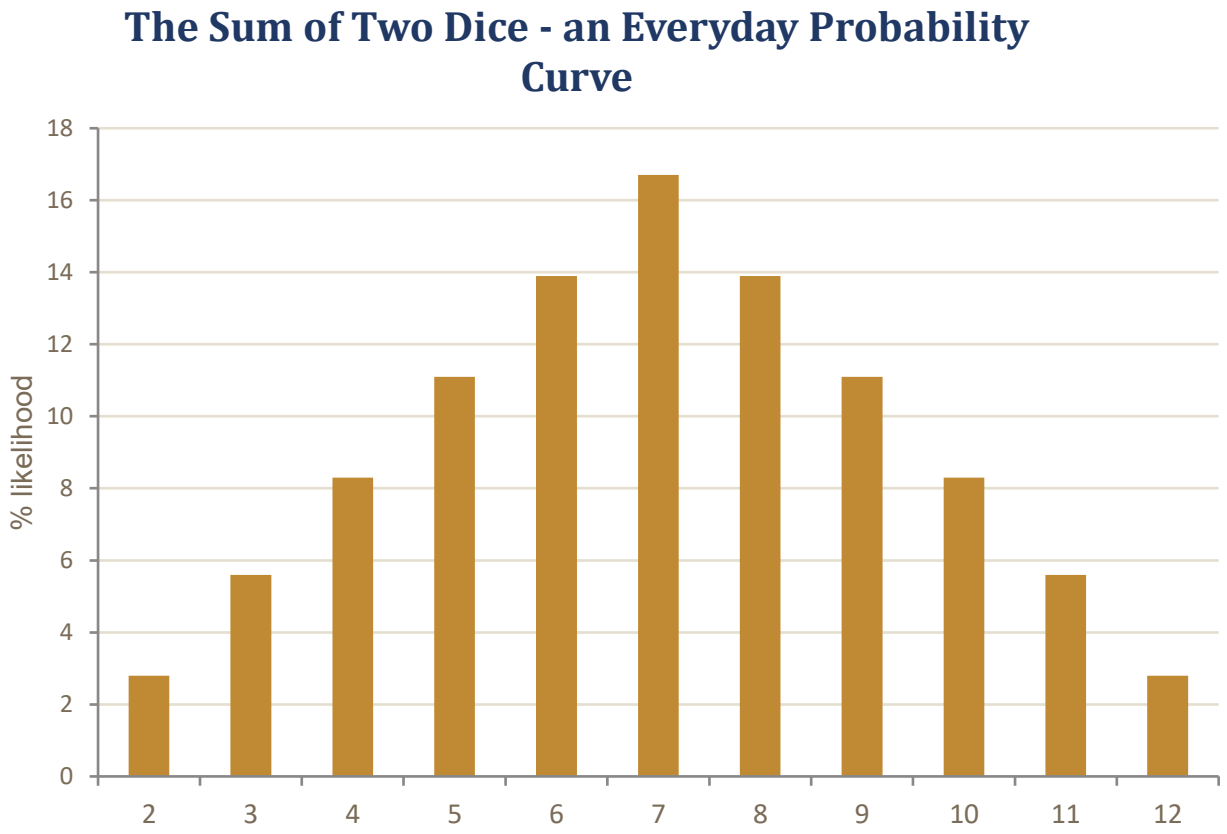
Every game of morabaraba - forming a line, blocking your opponent, planning three moves out - is played on the same branching structure that a game-playing AI searches when it chooses its next move.

Probability, Learned by Feel

Shooting Dice: *Statistical Probabilities*



Long before the word “probability” appeared in an African textbook, it's already been learned at a village gathering - rolled, counted and argued over.



Games played with seeds, stones and boards - no electricity, no data bundle, no permission required

Other Games: **1. Ugqaphu / Kgati / Ntimo; 2. Diketo / Upuca / Magave; 3. Morabaraba / Mlabalaba; 4. Ncuva / Ntijwa / Tsoro / Tshimaya / Moruba; 5. Dibeke / Diwiki / Snuka / Skununu / Umabhorisha; 6. Jukskei; 7. Kho-Kho; 8. iintonga / Melamu / Iziduku; 9. Drie Stokkies; 10. Three Tins**



Do we recognise what's already there?

Morabaraba and diketo already train foresight, hypothesis-testing and probabilistic reasoning - informally, for free, across generations. The danger isn't AI arriving in the classroom. The danger is AI arriving as a replacement for the thinking which learners were already practising under a tree. Instead of arriving as the next, formal chapter of a scientific method they've been rehearsing their whole lives.

Describe the game explicitly. Name what it's training. AI is not contradicting African scientific thinking - and instead, extends it.

GUIDING QUESTION 3:

Best Practice, Taught as the Rules of a Game

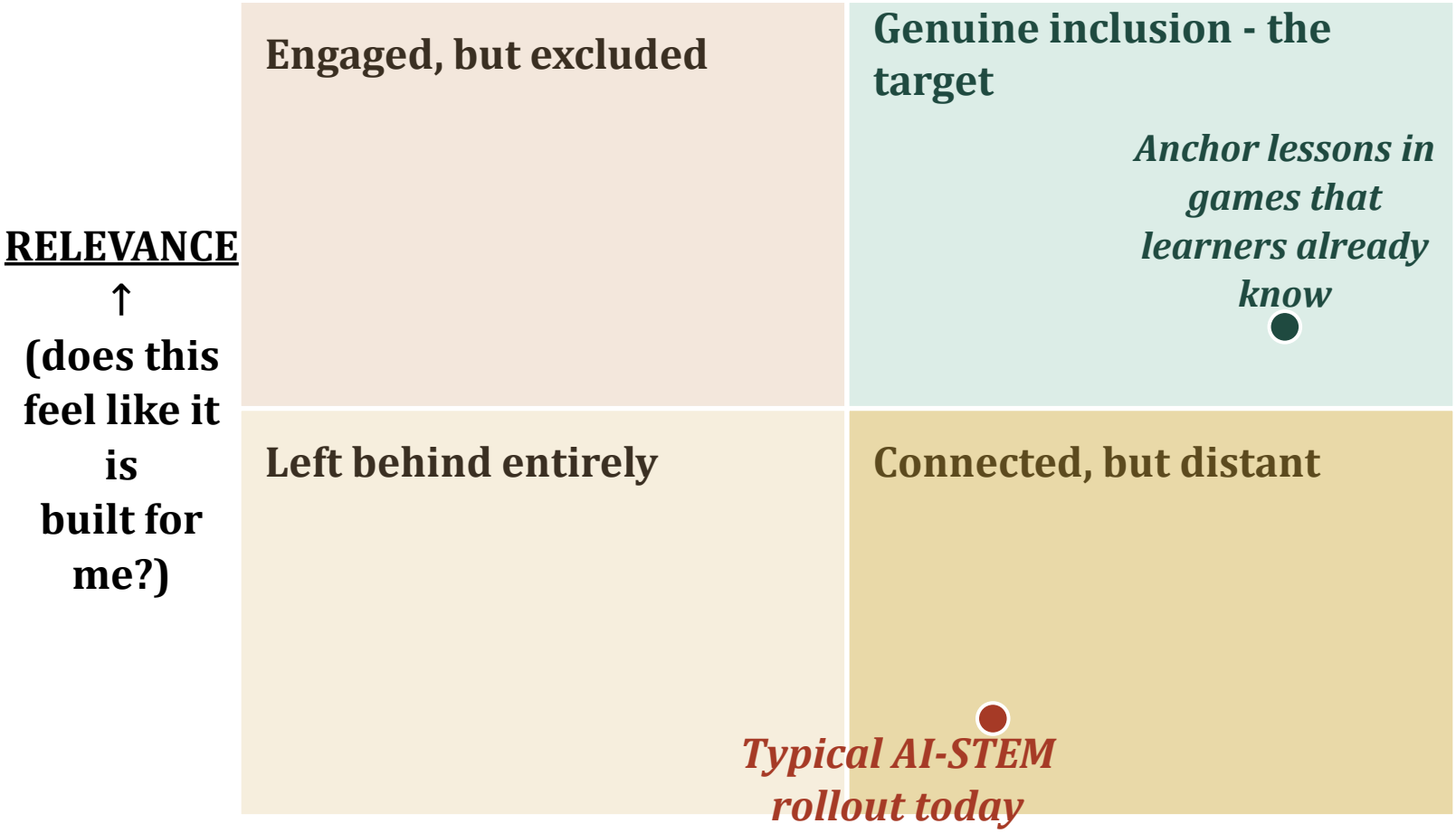
What best practice guidelines should be taught to students/learners for using AI to solve technical problems?

1	**Play Your Own Move First**	**Attempt the problem before consulting AI - the look-ahead muscle only strengthens if it fires first.**
2	**Show Your Working**	**Treat an AI answer like a claimed capture in diketo: you must be able to recount the reasoning yourself, not just accept the count.**
3	**Verify the Capture**	**Check the AI's answer against a test, a calculation, or a rule - the way a mill in morabaraba is checked, not assumed.**
4	**Consult the Table, Not Only the Machine**	**AI is one voice at the board. For anything that matters, cross-check with a teacher or mentor before you trust it.**
5	**Record the Miskick**	**Good players remember their losses. Log every AI mistake the class finds - build a shared, growing book of them.**

GUIDING QUESTION 10:

Two Digital Divides, Not One

Issues of access and the digital divide: Does the integration of AI in curricula widen or narrow the digital divide?



The infrastructure divide is real and documented. But there's a second, quieter divide underneath it - RELEVANCE. A learner who only meets AI through foreign examples feels distant from it even with a laptop open.

Close the RELEVANCE gap first - it costs nothing, and it can be done before a single rand is spent on connectivity.

PRACTICAL SYNTHESIS

Teach the Game First

One recommendation to leave with the room:

1

Play the Game

Morabaraba, diketo or a counting game - in pairs, no devices, no preamble.

→

2

Map the Strategy

Together, sketch the moves just made as a simple decision tree on the board.

→

3

Name the AI Concept

Show how a game-playing or probabilistic AI does something structurally related.

The rigour was never missing from African knowledge systems. Only the label was.

A Couple of Tries to Find Own Voice

1. “Is Africa Even Able?”

Bleating. Instead of roaring.

2. “One Step Forward, One Step Back”

Africa’s real roar - cut short by doubt & fear.

3. “This… Is Who You Are”

Good for finally see you, Africa.

Before We Sit Down

1. Open AI-STEM units with a familiar indigenous game as the first lesson - not a cultural footnote.

2. Name explicitly which scientific or computational concept each traditional game is already training.

3. Treat the digital divide as two gaps - infrastructure and relevance - and close the relevance gap first.

4. Explore African games and oral-strategy systems as genuine training material for AI, not only teaching material about it.



All that Africa needs is bold courage, and united action.

The Book “Lion Among Sheep” on Take-a-Lot

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https://www.takealot.com/lion-among-sheep/PLID101551853

