Blackboard
Digital Teaching Symposium 2026

Gordon Institute of Business Science
University of Pretoria

Innovation and Accessibility: A Learning Design Journey for Every Learner

PRESENTED BY:

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“Image.”

A little about me

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gibs / digital-education / unofficial-lab

The story The lab The standard The takeaway The README

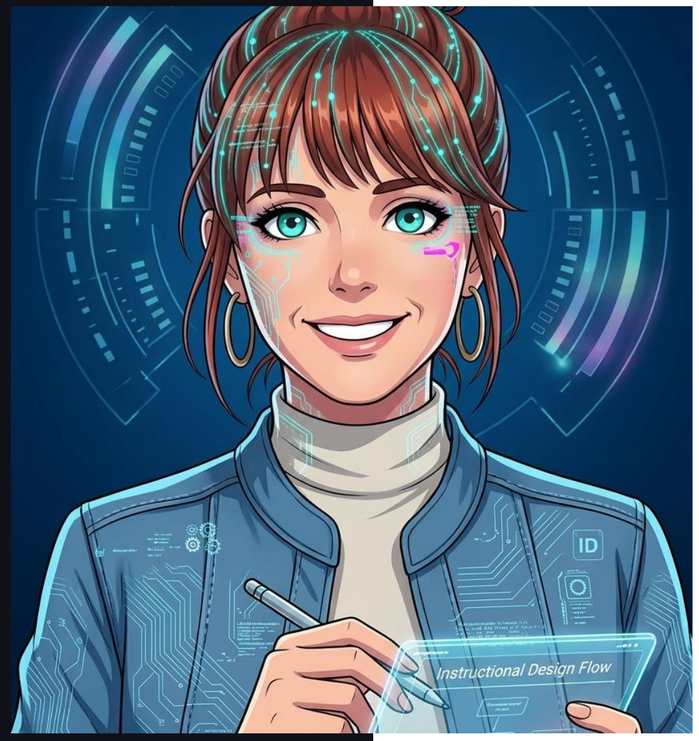
The Designer Who (Almost) Learned to Code

A very unofficial lab of things I probably wasn't supposed to build — and what happened when an instructional designer, not a developer, started asking AI dangerous questions.

See the lab ↓ Read the story ↓

liezl@gibs — history

school	Turbo Pascal. I made a box move. That was basically it.
varsity	Scratch, because it was cool. And the Ruby book, read like a storybook.
early career	iframe-hosted LTIs, H5P, Storyline, Captivate, Articulate.
turning point	Blackboard's AI couldn't "see" inside my iframes. If AI can't see it — can a screen reader?
now	Native HTML. Built by asking AI what if, over and over.



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It looked awesome

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We inherited

Voice-over PowerPoints from the COVID years

Learners asked

For blended options in courses that used to be face to face

We built

Beautiful lessons in H5P, Storyline and Rise, embedded in the LMS

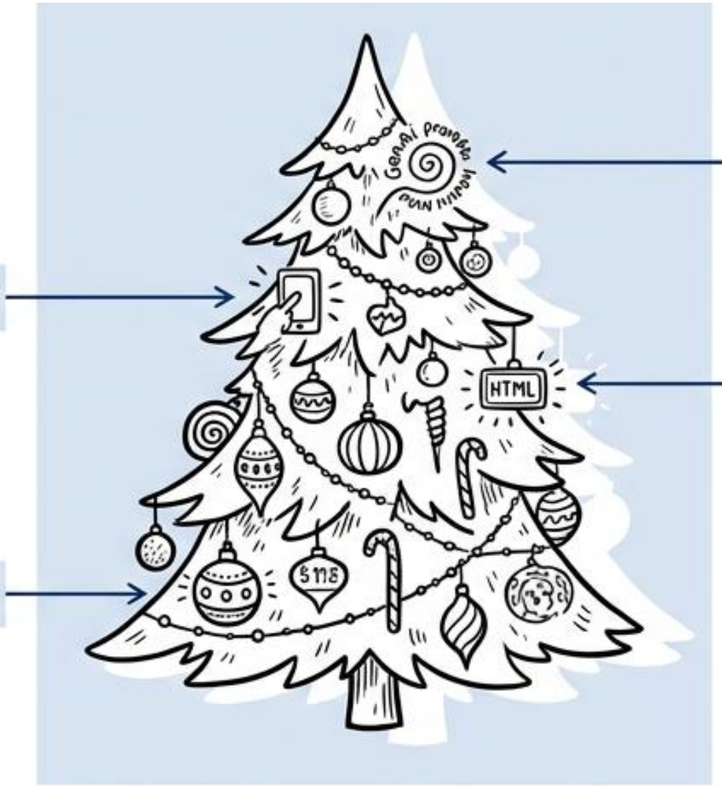
Then I asked: is it accessible?

- What does this image mean to someone who can't see it?
- Can someone get through this activity without a mouse?
- What does a flickering animation do to a learner with epilepsy?
- How does a page full of movement feel to a neurodivergent learner?

The Christmas Tree Illusion

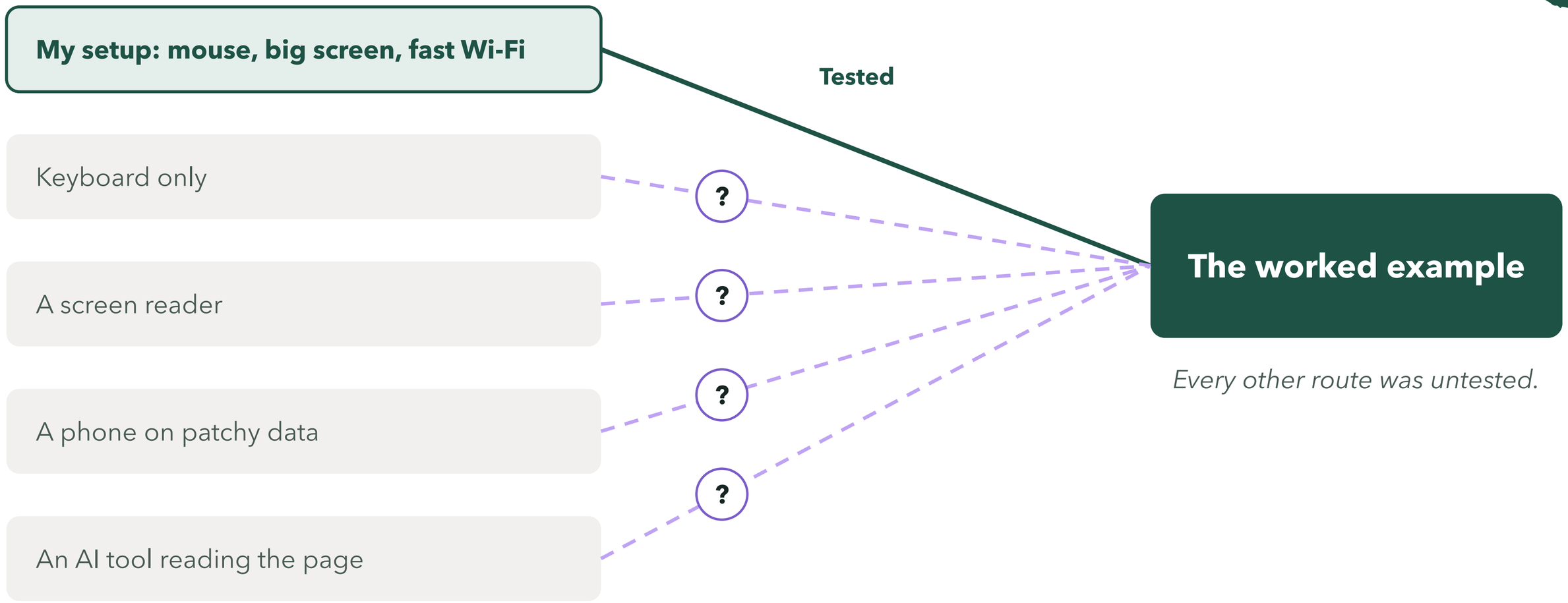
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When generative AI properly arrived in our world at GIBS, our courses very quickly started to look like **Christmas trees**.



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The route I tested



Every other route was untested.

What if the design decision that makes a course accessible is the same one that makes it AI-ready?

Our journey today

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01 It looked **beautiful**

02 **Reach:** every reader, every route

03 **Teach:** what the AI can use

04 **Demonstrate**: the evidence

05 **Scalability** by design



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2024/25 in Blackboard Learn.
Every line here is a picture.

$$\mathbf{FV} = Principal \times (1 + InterestRate)$$
$$\mathbf{FV} = R1,000 \times (1 + 0.04)$$
$$\mathbf{FV} = R1,000 \times 1.04$$
$$\mathbf{FV} = R1,040$$

01 It looked beautiful

It looked beautiful

Corporate Finance Techniques: a formula-heavy postgraduate course.

- Polished pages and carefully designed formulas
- Every formula was an image
- Content lived in PDFs, image-based tables and embedded lessons

The Formula for Calculating Present Value is:

$$PV = \frac{FV}{(1+r)^n}$$

In this Equation:

FV is the Future Value, which is R100,000.

r is the Interest Rate, here 5% or 0.05.

n is the Number of Years until the lump sum is received, which is 30.

Plugging these into the formula gives us:

$$PV = \frac{R100,000}{(1+0.05)^{30}}$$
$$PV = \frac{R100,000}{4.3219}$$
$$PV = R23,138.00$$

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Three readers, one course

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Ally

- Scored earlier versions at 65 to 79%
- Flagged missing alt text and headings
- Showed us where to start

A screen reader

- Announced “image” where the formula sat
- No headings to navigate by
- No text equivalent for the maths

The AI tool

- Content sat inside embeds, outside the page
- Almost nothing on the page to use
- That is how embeds work, not a tool flaw

Who is trying to learn here?

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Different minds

- Neurodivergent learners need predictable structure, calm motion and control over pace.

Different devices and bandwidth

- A phone on a weak or expensive connection, where a long video may never load.

Different amounts of time

- Working professionals learning in the twenty minutes between meetings.

Different tools

- Screen readers, keyboards, voice control and now AI tools, all reading the same page.

A formula needs to carry meaning

Before: an image

$$\mathbf{FV} = Principal \times (1 + InterestRate)$$

$$\mathbf{FV} = R1,000 \times (1 + 0.04)$$

$$\mathbf{FV} = R1,000 \times 1.04$$

$$\mathbf{FV} = R1,040$$

First try with HTML with MathJax

Future Value Formula

Read the formula below, then check what each term means.

Future value (FV)

FV = **Principal** × (1 + Interest Rate)

FV is future value: what the investment will be worth at the end of the period.

Principal is the amount invested at the start.

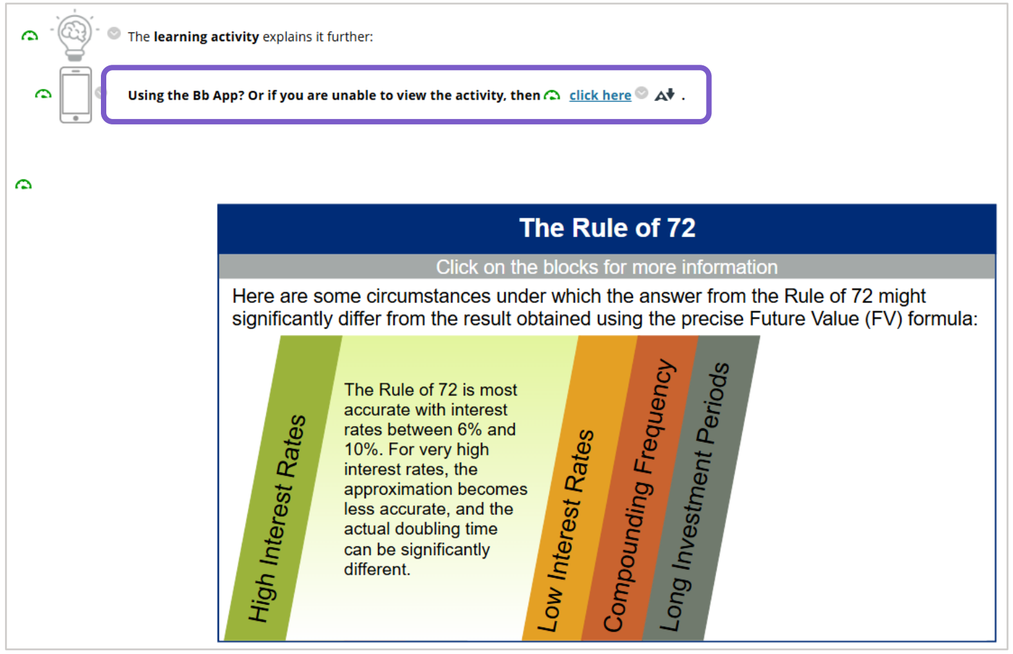
Interest Rate is the rate earned for the period, written as a decimal (for example, 8% is 0.08).

Tested across several screen readers. To date, none has failed to read the maths correctly.

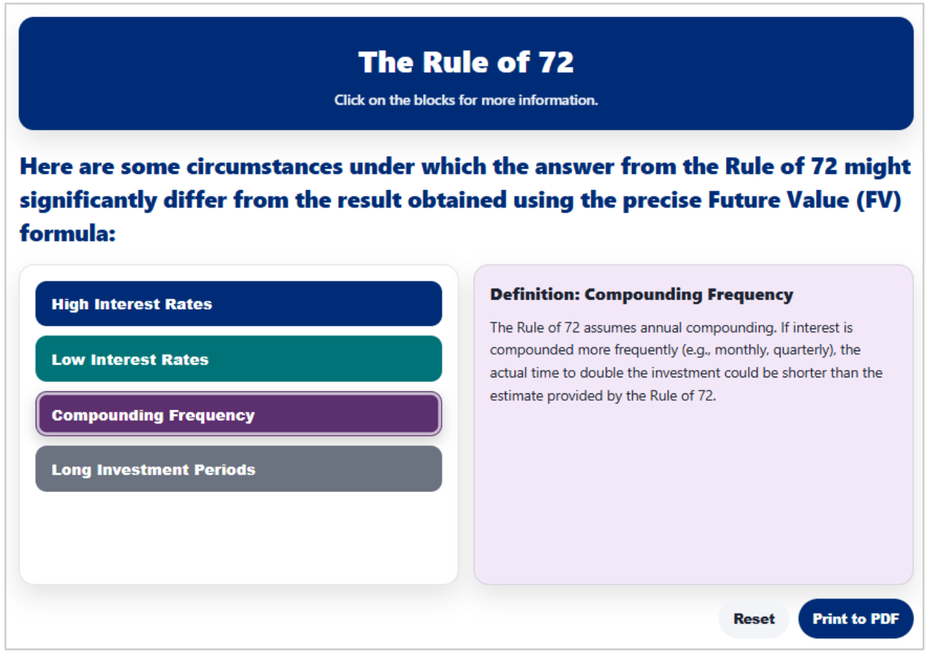
An embedded activity, rebuilt natively

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Before: embedded in Learn



After: native HTML in Ultra



Same content, now on the page: keyboard operable, readable by a screen reader and the AI tool, and printable to PDF.

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The **Universal Design for Learning** became my next question.

TIME VALUE OF MONEY

Future Value: Worked Examples

Three examples that move from fully worked to your turn.

Why this matters: the future value formula tells you what an amount will grow to at a steady rate. It works for savings, but also for anything that grows by a percentage, such as a company's earnings.

How to use it: read Example 1 in full. In Example 2, work out the last steps yourself before you reveal them. In Example 3, try the whole calculation first, then check your working against the solution.

The formula

FV = *Principal* × (1 + *Interest rate*)

FV

Future value: what the amount grows to after one year.

Principal

The amount you start with.

Interest rate

The yearly rate of growth, written as a decimal (4% is 0.04).

This version of the formula covers one year. Later in the topic you will extend it to several years.

Example 1: Saving at the bank

Fully worked

Imagine your friend is considering depositing R1 000 into a bank account that offers a 4% annual interest rate. They are curious about how much they will have after one year.

1

Step 1: Write the formula

FV = *Principal* × (1 + *Interest rate*)

Start from the formula so every value has a place to go.

2

Step 2: Substitute the values

FV = R1 000 × (1 + 0.04)

The principal is R1 000. The rate of 4% is written as the decimal 0.04.

3

Step 3: Work out the brackets

FV = R1 000 × 1.04

Add inside the brackets first: 1 + 0.04 = 1.04.

4

Step 4: Multiply

FV = R1 040

After one year the account holds R1 040: the original R1 000 plus R40 interest.

Example 2: A smaller deposit **Partly worked**

Someone deposits R300 into an account with a 5% annual interest rate. What is the future value after one year?

The first two steps are done for you. Work out steps 3 and 4 yourself before you reveal them.

Hint: add inside the brackets first, then multiply by the principal.

1 **Step 1: Write the formula**

FV = *Principal* × (1 + *Interest rate*)

Same formula as Example 1.

2 **Step 2: Substitute the values**

FV = R300 × (1 + 0.05)

The principal is R300. The rate of 5% is the decimal 0.05.

3 **Step 3: Work out the brackets**

FV = R300 × 1.05

1 + 0.05 = 1.05.

4 **Step 4: Multiply**

FV = R315

The account grows to R315: the original R300 plus R15 interest. Did your answer match?

Hide steps 3 and 4

Example 3: Growth in earnings **Your turn**

A company has earnings per share (EPS) of R2.50. Next year, its earnings per share are expected to increase by 10%. What will its earnings per share be?

Try the whole calculation before you look at the solution.

Notice that nothing is deposited here. The starting EPS plays the role of the principal, and the 10% growth plays the role of the interest rate.

Show the worked solution

Key idea

The same formula works whether the starting amount is a deposit or a company's earnings. What changes is only what "principal" and "rate" stand for.

Show all solutions | Print / Save

$$\mathbf{FV} = Principal \times (1 + InterestRate)$$

$$\mathbf{FV} = R1,000 \times (1 + 0.04)$$

$$\mathbf{FV} = R1,000 \times 1.04$$

$$\mathbf{FV} = R1,040$$

Multiple means of engagement

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Define a symbol

Select a term like PV or FV to see what it means, only when you need it.



Step through

Work through Steps 1 to 4 at your own pace.

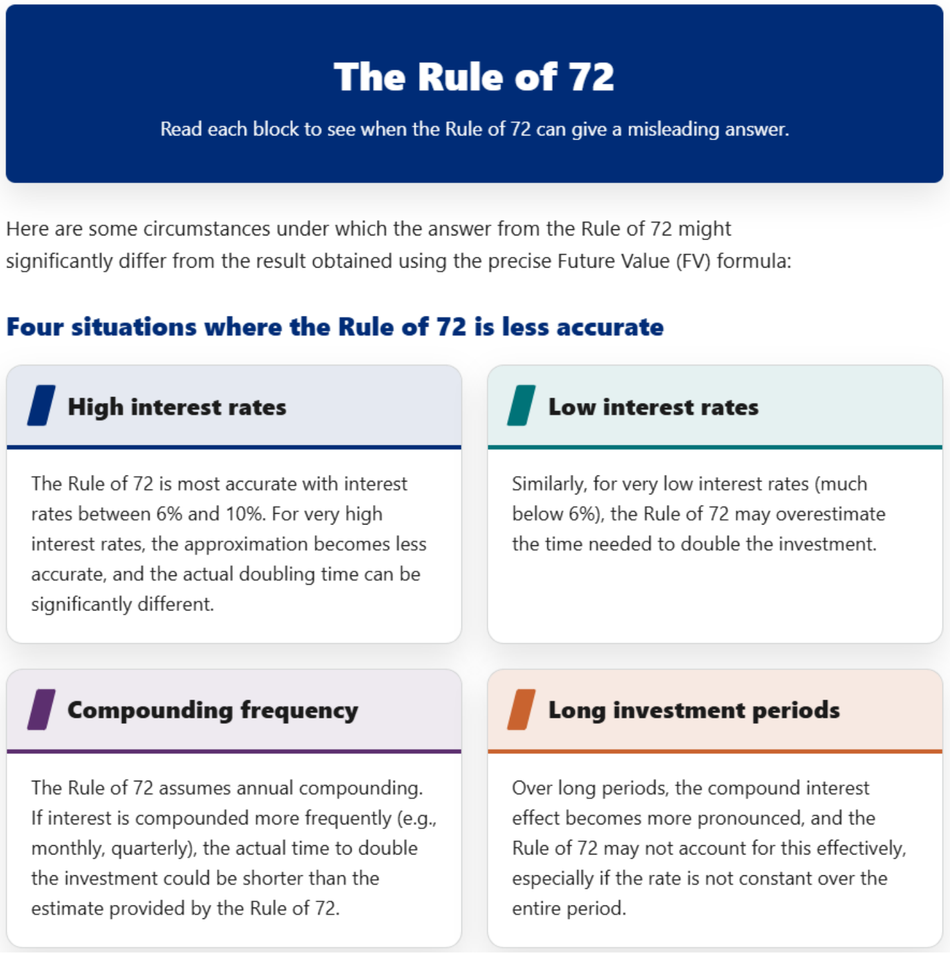


Reveal it all

See the full solution at once to check your work or revise.

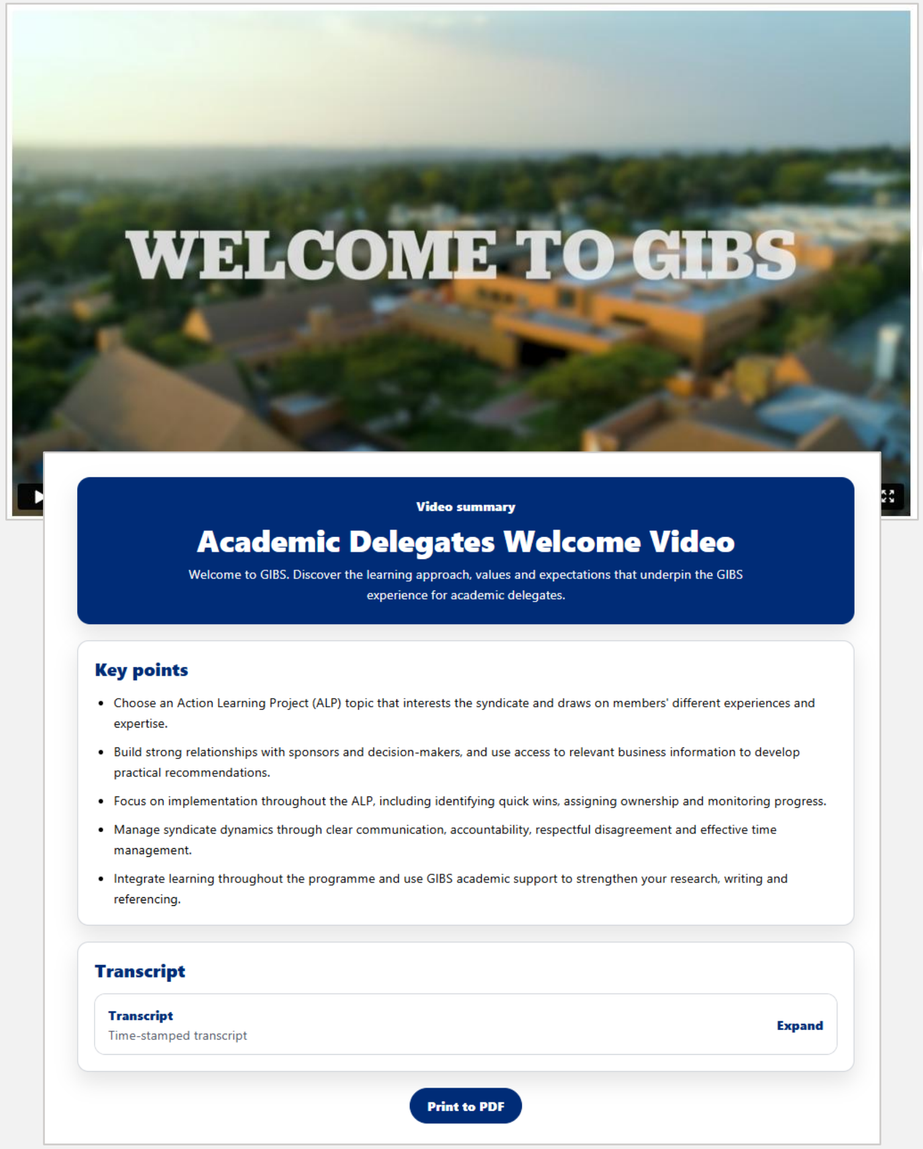
Removing barriers gets learners in. Varied routes make the material usable once they are there. **That is where accessibility meets UDL.**

The old Christmas Question came back



No ‘click reveal’

Just text



One video, three routes

- An expanding transcript on the page: for hearing, low bandwidth and quick review
- A written summary: for limited time and revision
- A downloadable PDF: for offline study
- And because it is all on the page, the AI tool can use it too

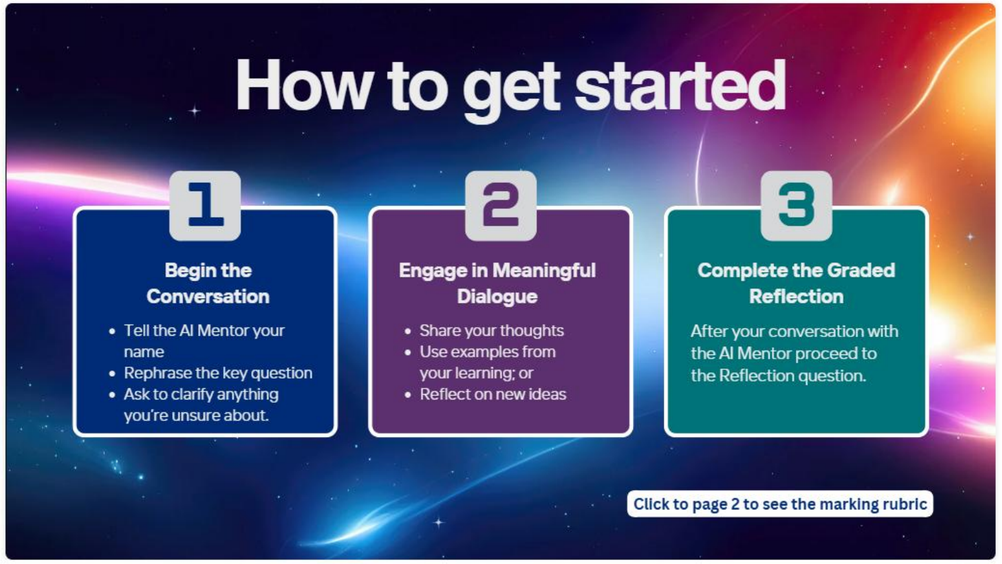
03 Teach

AI Conversation in Ultra

Native content sits on the page, so AI Conversation can work with it:

- Multiple AI persona's for our different courses
- Socratic questions, not answers; Roleplay
- One class of 56: about 7 journal responses before, 150+ posts with AI
- The difference: faculty in the loop





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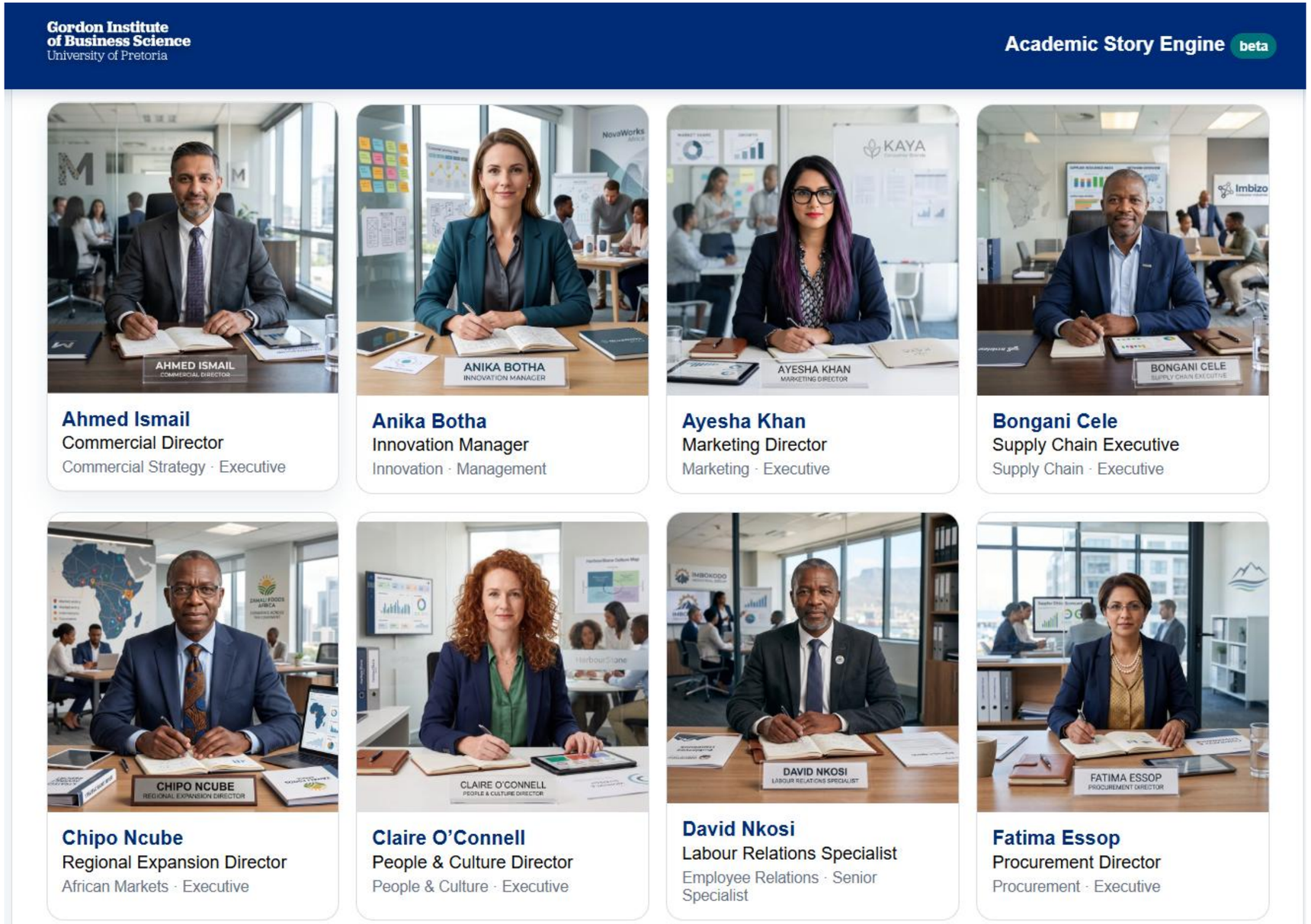
AUTHOR-IN-THE-LOOP · BLACKBOARD AI CONVERSATION BUILDER

Turn learning intent into a world worth entering.

Design a Socratic Conversation or Role-play for Blackboard Ultra. The engine helps with structure, alignment and story architecture; the academic remains the author.

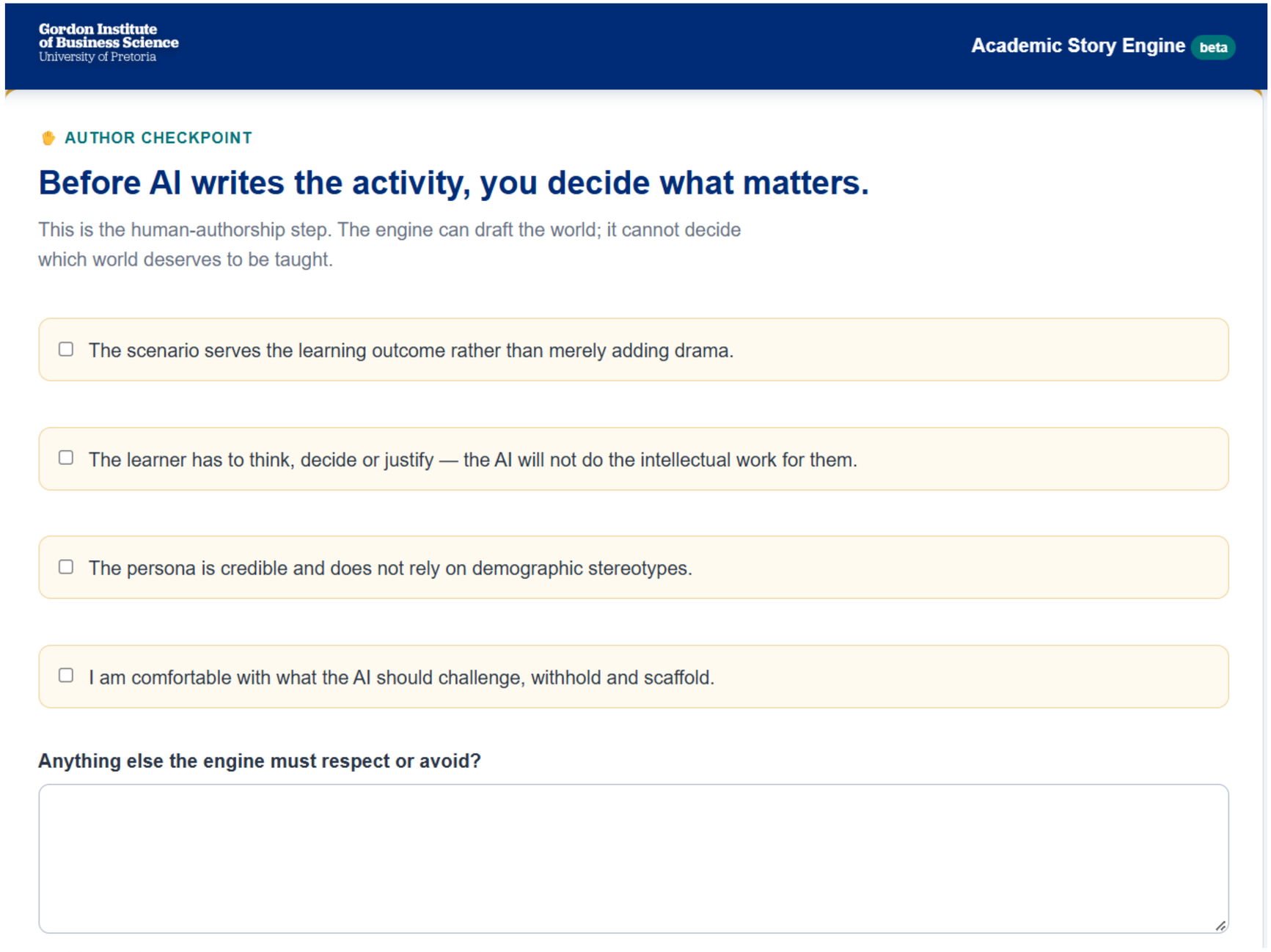
> **Built for postgraduate business education.** All cast members are fictional AI teaching personas.

1 Intent | 2 BB Step 1 | 3 BB Step 2 | 4 BB Step 3 | 5 Author Check | 6 Blueprint



32 fictional personas, each with a background, role and expertise.

Faculty can adapt them or design their own.



Before AI writes anything, faculty decide:

- Does the scenario serve the outcome?
- Does the learner still do the thinking?
- Is the persona free of stereotypes?
- What should the AI challenge, withhold and scaffold?

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Not every hammer fits every screw

What we kept finding	What we do now
A print button on everything, even live session boxes	Print/Save only where learners have something to keep
Almost everything in an accordion	Tabs for alternatives; content read in order stays on the page
Colours picked by eye, contrast nobody checked	One locked palette, 4.5:1 contrast
Clickable boxes that weren't real buttons	Real buttons and a visible focus ring
Typed answers lost without warning	Tell learners when nothing saves

Rules, the checklist can catch. Judgement calls need a person.

When peer reviewers agree

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96%

Ally score

Up from 65 to 79% for earlier versions

183/191

Exemplary Course Program

First place

1st

Catalyst Awards

Innovation in Accessibility







Beyond Blackboard: Silver at the International E-Learning Awards (IELA) 2026 for this course, and Bronze for a second course
Also shortlisted: Best Digital Transformation (AMBA & BGA) and Learning Designer of the Year (Learning Technologies Awards)

Ally measures what Ally can measure. A high score is not the same as independent access, so we test with a screen reader too.

If one person can do it, it’s a liability. When a team can do it, it’s an asset.

Brand & Content Style Guide

A working reference for the Instructional Design team — so every asset we build, from a callout box to an HTML interactive, sounds like GIBS, looks like GIBS, and works for every learner.

GIBS STYLE GUIDE

01 Overview
02 Voice & Tone
03 Writing
04 Colour & Type
05 Components
06 BB Conventions
07 Accessibility
08 AI Assistant
09 Toolkit
10 Templates

PLAIN LANGUAGE MECHANICS

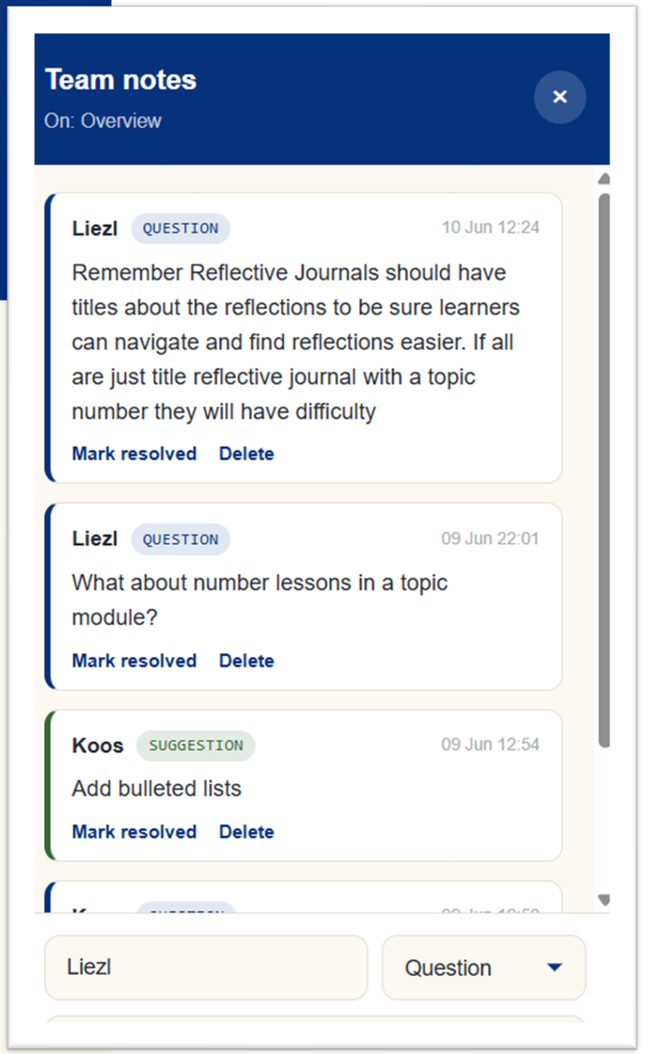
Writing learners can act on.

Plain language is an accessibility feature, not a downgrade. These rules make content faster to read, easier to translate into action, and consistent across every course.

Core writing rules

- ☑ **One idea per paragraph; 2–4 sentences.** Break up anything longer. White space is a feature.
- ☑ **Active voice.** "Review the case study" — not "the case study should be reviewed".
- ☑ **Front-load the point.** Say what matters in the first sentence, then explain.

Notes 5



How the checklist grew

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Early 2026

1

A print button on everything, even a quote. Flickering buttons. A first checklist, drafted with AI.

June

2

Render once, then toggle. No 3D flips. One locked colour palette.

July

3

New sections for phones and for AI readiness. Rules mapped to WCAG.

August

4

Print/Save tiers and the “nothing saves” notice. Testing with JAWS.

Now: v5

5

15 sections, built into every team project.

Written backwards from failures, not forwards from a standard.

The standard travels with the project

Every team project starts with:

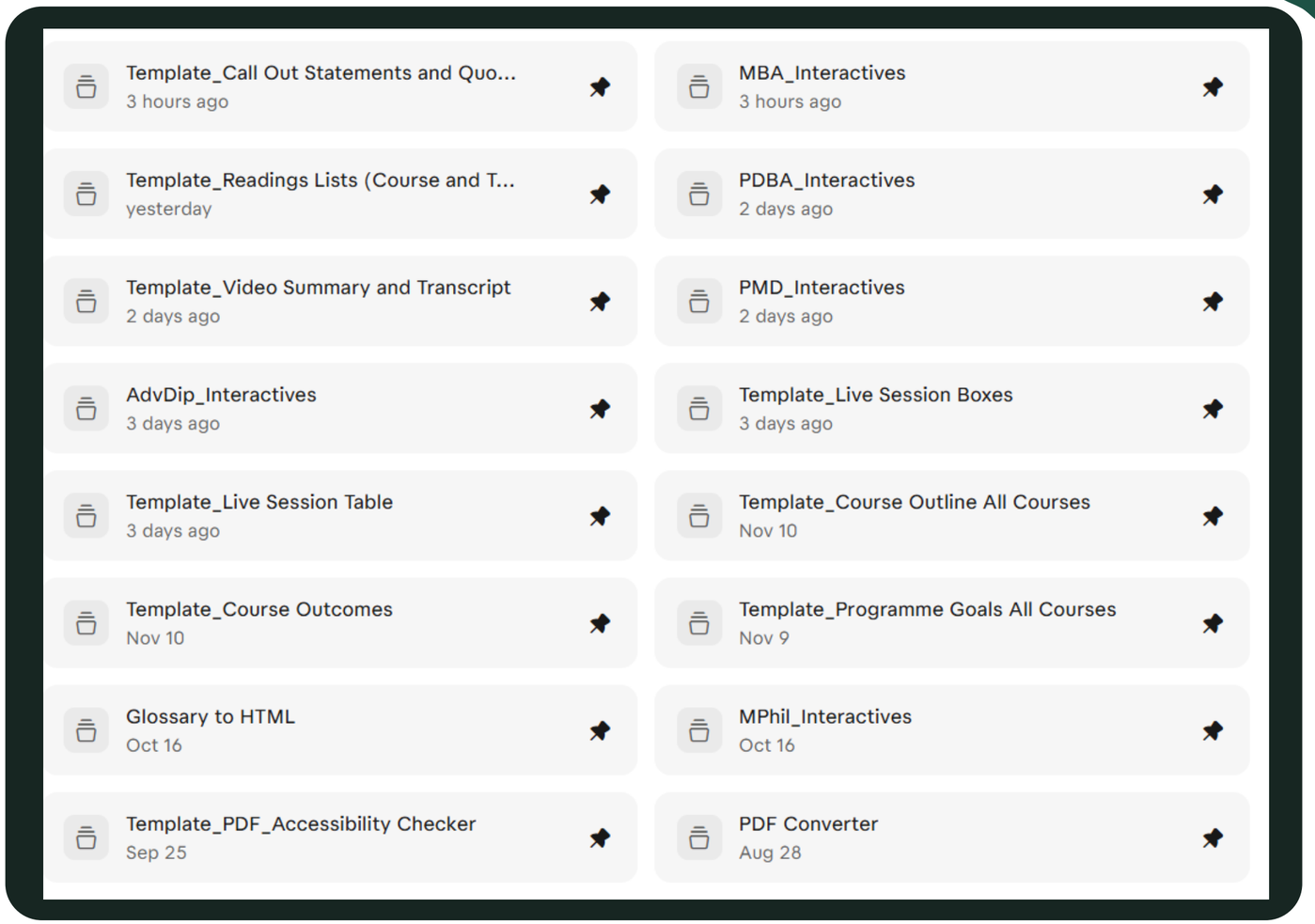
The build checklist, v5

Our interactive starting guide

The UDL guidelines

The GIBS brand guide

Our logos, in colour and white



Wear the ‘tekkies’

AI and a checklist can only catch the rules.
It can't make the judgement calls

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Thank You

#DTS26

Scan to explore the lab

designerwholearned.netlify.app

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