

Participant Workbook

Designing Learning as a Cross-Functional Activity System

Name: _____

Role: _____

Date: _____

How to use this workbook

This workbook is yours. Write in it. The prompts are structured to build on each other, so work through them in order and bring the workbook to the 30-day follow-up session.

You will be asked to write before discussion in almost every phase. That sequencing is deliberate: individual thinking before group conversation produces better ideas and reduces the pull toward the most confident voice in the room.

Key terms

Review these terms before the workshop. We will use them consistently throughout the session.

Schema	Organised knowledge structures in long-term memory
Retrieval	Actively recalling information from memory — not re-reading it
Cognitive load	The mental effort required during learning
Extraneous load	Effort that does not contribute to schema formation
Germane load	Effort that builds understanding
Object of design	The shared cognitive outcome all roles are working toward
Activity system	A social structure where multiple roles coordinate tools, rules and artefacts toward a shared outcome
Durable capability	The ability to perform competently in real conditions, 6 to 12 months after a learning experience

PHASE 1

Framing the Shared Object

Writing prompt 1A

Define learning in one sentence. Write without looking at the glossary.

Writing prompt 1B

How do you know when learning has happened?

The operational definition

After the facilitator introduces it, write the definition here in your own words:

Writing prompt 1C

Apply the definition to your current work.

What must learners be able to do 6 to 12 months after your module or programme, in real conditions?

What cognitive change must occur for that to be possible?

What must change in their mental models, schemas or judgment?

PHASE 2

Learning Science Core

Recall task

Without looking at your notes or the glossary, write the three learning science commitments from the pre-work.

1.

2.

3.

Role-based application

Work through these prompts with your role group.

Where is retrieval structured in your typical design work?

Name a specific artefact or moment.

Where might cognitive load be excessive?

Name a specific place in a module, assessment or platform.

Where is thinking hidden?

Where do learners perform activity without their reasoning being visible?

Worked example notes

Use this space to note the misalignment the facilitator demonstrates.

Module outcome:

Assessment:

Misalignment:

Why it impairs learning:

PHASE 3

Role Mapping

Part A — Role clarification

Work through the prompts for your role only.

If your role is: Curriculum Design

Where does this module align with programme-level capability?

What is the specific link?

Where is knowledge reinforced over time in the programme?

List two or three points.

How is sequencing designed to support transfer?

What comes before and after this module, and why?

If your role is: Learning or Experience Design

What cognitive operations must learners practise?

List them specifically — not just 'understand' or 'apply'.

Where is retrieval embedded in the design?

Name the specific mechanism and timing.

How is reasoning externalised?

Where must learners produce visible thinking, not just correct answers?

If your role is: Multimedia Design

What cognitive function does each major media element serve?

List the elements and their functions.

Where does media reduce extraneous load?

Where might it add it?

How does representation support schema formation?

Which concepts require visual or spatial representation?

If your role is: Learning Technology

What platform affordances enable retrieval, feedback and collaboration?

Where does platform structure constrain pedagogy?

What can the platform not do that the design requires?

What analytics or data would inform iteration on this design?

Part B — Cross-role perspective taking

Pair with someone from a different role. One person describes a recent design decision. The other identifies which learning science commitment it serves — or violates.

Your partner's role:

Their design decision:

Which learning science commitment does it serve — or violate?

Their observation about your decision:

PHASE 4

Cross-Role Diagnosis

Your team's artefact

Module or assessment name:

Role that created it:

Programme context (if known):

Stage 1 — Identify

Work through these questions as a team. Write your team's answers here.

1. What must learners remember?

2. Where is retrieval structured?

3. Where is thinking visible?

4. Where is cognitive load unnecessary?

Stage 2 — Diagnose misalignment

5. Where do role decisions contradict each other? List at least two.

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6. Which contradiction most impairs learning, and why?

This is your redesign focus for Phase 5.

PHASE 5

Collaborative Redesign

Learning Experience Redesign Map

Complete each section as a team. If you cannot complete the Learning Science Justification section, the redesign is not yet grounded in science — return to it before the gallery walk.

1. Capability Object

What must learners be able to do 6 to 12 months after this experience, in real conditions?

What cognitive change is required?

What must change in their schemas, judgment or mental models?

2. Retrieval Points

Where and when is this knowledge retrieved after initial learning?

3. Visible Reasoning

What prompts or tasks require learners to externalise their thinking?

Not just produce a correct answer — show their reasoning.

4. Load Reduction

What extraneous elements were removed or simplified?

What decisions were made to protect working memory capacity?

5. Media Justification

For each significant media element, state its cognitive function.

Is there a medium you removed? Why?

6. Platform Alignment

How does the technology enable the design?

Name specific affordances.

What does the platform need to do that it currently cannot?

Flag this as a change to advocate for.

7. Connection to Programme

How does this module contribute to programme-level capability?

What must come before this module for it to work? What comes after?

Learning Science Justification

Complete this section before the gallery walk. If you cannot answer these questions, the redesign is not yet grounded in learning science.

What memory structures are strengthened by this redesign?

Where is retrieval embedded, and at what intervals?

What cognitive load decisions were made?

Name what was added, what was removed, and why.

PHASE 6

Cross-Team Critique

Review at least two redesigns. Leave three sticky notes on each: green (strength), yellow (tension), blue (question).

Team 1

Strength (green — aligns with learning science):

Tension (yellow — may impair learning):

Clarification question (blue — needs more explanation):

Team 2

Strength (green — aligns with learning science):

Tension (yellow — may impair learning):

Clarification question (blue — needs more explanation):

Feedback I received

After the gallery walk, read the sticky notes on your team's map and record the most useful responses.

Most useful strength:

Most useful tension:

Most important question to resolve:

PHASE 7

Collaboration Charter

Individual commitments

Write each commitment before sharing with the group.

One decision I will no longer make alone:

One role I need earlier in the design process:

Why earlier involvement by that role would improve the learning outcome:

One learning science principle I will use in future design discussions:

One process change we will implement in the next design cycle:

30-day follow-up plan

Follow-up session date:

Who will attend:

What I will bring:

- One decision I made differently since the workshop
- One place where collaboration improved
- One remaining misalignment that needs addressing

Notes on what I want to track between now and then:

Closing retrieval task

Without notes, write three things.

How I now define learning:

One way my role mediates cognitive change:

One collaboration commitment I am taking forward:

REFERENCE

The Three Learning Science Commitments

Use these commitments as your arbitration language when making design decisions.

1. Memory precedes complex thinking

Higher-order cognitive operations require accessible knowledge structures in long-term memory. You cannot analyse, evaluate or create with knowledge you cannot recall.

Design implication: Sequence instruction so foundational knowledge is encoded and retrievable before learners are asked to apply it in complex ways.

2. Retrieval strengthens memory

Actively recalling information from memory strengthens the neural pathways that make future recall easier. Re-reading or re-watching does not produce the same effect.

Design implication: Build retrieval opportunities into the design with specific timing, mechanisms and spacing. Retrieval is not a test event — it is an instructional strategy.

3. Cognitive load must be managed

Working memory is limited. Extraneous cognitive load (effort not contributing to schema formation) reduces the capacity available for learning. Complexity and novelty must be introduced deliberately, not simultaneously.

Design implication: Remove presentation elements that do not serve the learning objective. Manage the number of new concepts introduced at once. Use worked examples before asking learners to solve problems independently.

Role Contributions to the Activity System

Each role mediates learning differently. This table summarises how each contributes to durable learner capability.

Curriculum Design	Programme-level sequencing and outcome coherence	Ensuring foundational knowledge precedes complex application across the programme
Learning or Experience Design	Instructional strategy and cognitive engagement	Structuring retrieval, visible reasoning and appropriate challenge
Multimedia Design	Cognitive representation through media	Reducing extraneous load and supporting schema formation through appropriate representation
Learning Technology	Platform affordances for retrieval, feedback and collaboration	Ensuring the platform enables rather than constrains pedagogical intent

Bring this workbook to the 30-day follow-up session.