

Case Study - Improve a product using AI

Improving Learner Engagement and Retention for Coursera using AI Learning Momentum Engine

Problem statement

Learners who are 1 month+ in the module - struggle to remain motivated and dedicate time consistently. Due to this they also try to take in all information at once and are not able to retain it. Eventually they find course is not helpful and dropoff leading to high course drop off rate

Learners Don't Churn. They Fade.

1

The Fade Effect

Learners drop off after missed days, hard lessons, or life interruptions.

2

Emotional Barrier

Logging back in feels cognitively heavy and emotionally avoidant.

3

Generic Reminders

Current systems optimize for opens—not actual learning progress.

Key Insight

This is not a reminder problem. It's a momentum recovery problem.

Who We're Designing For



Anna - Currently working as Business Analyst in Fintech. Aspiring to become a Product Manager

Busy Upskilling Learner

Career-motivated, time-constrained professional seeking skill development

Job To Be Done

"When I lose momentum, help me restart learning without guilt or friction."



Short Learning Windows

Limited time availability for study sessions



High Cognitive Load

Competing priorities and mental fatigue



Avoidance After Falling Behind

Emotional resistance to reengagement

Current Engagement Tactics Are Too Rigid

1

Fixed Reminders

Ignore learner context and real-world schedules, treating all users the same regardless of their situation.

2

Pressure vs. Motivation

Streaks and urgency create anxiety and guilt, not genuine motivation or sustainable engagement.

3

Static Systems

Same message for all users, regardless of their current motivation state or learning progress.

Core Gap

Notification are static and don't adapt based
on user motivation context and behavior

Shift From Notifications to Motivation Decisions

Solution: AI Learning Momentum Engine — an AI system that decides:

1

Whether to nudge

Determine if intervention is needed based on learner state

2

When to nudge

Identify optimal timing aligned with learner availability

3

How to frame the message

Select tone, length, and framing for maximum resonance

4

What action to recommend

Suggest the next learning step with highest confidence

Design Principle

Always suggest the smallest, highest-confidence step forward.

How It Works for the Learner

1

Opens Course Home

Learner navigates to their course dashboard

2

Sees AI Nudge Card

Personalized "Your Learning Nudge Today" appears

3

One-Click Resume

Direct entry from best re-entry point

The Nudge Characteristics

Context-Aware

Tailored to learner's progress and learning history

Low-Pressure

No guilt or urgency—supportive tone

Time-Boxed

Suggests achievable session length

Outcome

Lower activation energy at the moment of intent

Decision Engine, Not Just Message Generation

Inputs

- 1 Progress & Inactivity Patterns**
Historical engagement data and learning streaks
- 2 Last Learning Context**
Previous course, lesson, and topic information
- 3 Past Response to Nudges**
Behavioral patterns to previous engagement attempts
- 4 Learning Goal & Session Length**
User preferences and available time constraints

AI Decisions

- A Motivation State**
Engaged, stuck, avoiding, or burnt out
- B Nudge Type**
Micro-commitment, recovery, curiosity, or silence
- C Tone & Framing**
Personalized length, language, and messaging approach
- D Action Recommendation**
Specific next step with optimal re-entry point

Key Insight

Sometimes the best nudge is no nudge.

How I'd Measure & Evolve This



Success Metrics

- **Nudge → Resume Conversion**

Track % of nudges that lead to learning resumption

- **Time-to-Next-Learning Action**

Measure speed of re engagement after nudge

- **Re-engagement After Inactivity**

Monitor long-term retention and completion



Ethical Guardrails

- **No Guilt or Fear-Based Framing**

Ensure all messaging is supportive and positive

- **User Control & Opt-Out**

Full transparency and ability to disable nudges

- **Silence as Valid Outcome**

Recognize when not nudging is the right choice



Next Steps

- **Learn Optimal Nudge Frequency**

A/B test messaging cadence and timing

- **Expand to Cohort & Peer Signals**

Incorporate social proof and community engagement

- **Productize as Platform Capability**

Scale to all courses and learner segments