

Personalized Learning for Anonymous MOOC Users

Maizatul Akmar Ismail,
Dept. IS FCSIT, UM

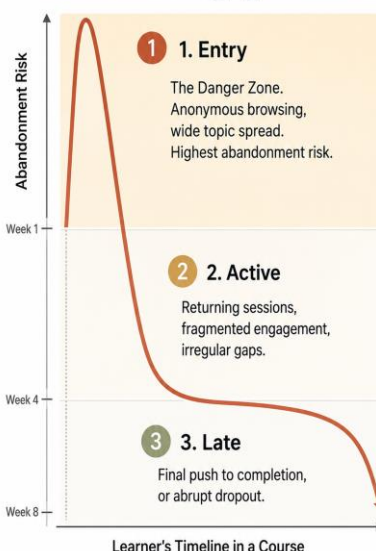
Massive Open Online Courses have opened new pathways for Malaysians to access university-level learning, professional development, and digital skills training. Platforms such as MalaysiaMOOC reflect the country's strong commitment to lifelong learning and national reskilling. Yet one important group remains largely unseen: anonymous learners who visit MOOC platforms without logging in, registering, or leaving behind a learning history.

These “invisible learners” may be first-time visitors, adult reskillers exploring a career change, rural learners with limited digital access, or curious individuals who are unsure where to begin. They often arrive with only a few clicks to offer: opening a platform, browsing a course, watching a short video, or hovering over a related topic. If the platform cannot understand their interests quickly, they may leave before learning even begins.



Traditional recommender systems depend on user profiles, ratings, past behaviour, demographic information, or long-term interaction histories. For anonymous MOOC users, these signals do not exist. This creates a complete cold-start problem: the system must recommend from no prior information.

The Anatomy of MOOC Engagement



Insight: Standard recommenders require data from the 'Active' phase, but we lose the anonymous learner in the 'Entry' phase before they ever get there.

MOOC engagement journey highlights early learner abandonment risk.

A Smarter Way: Learning from the First Few Clicks

One solution is by using a meta-learning, session-based recommendation model designed specifically for this challenge. Meta-learning, often described as “learning to learn,” allows an AI model to adapt quickly to new situations using only limited information. Instead of requiring a long user history, the model learns from many previous anonymous sessions and applies that knowledge to each new visitor. Session-based learning focuses only on what happens during the current visit. Clicks, dwell time, action types, and the order of interactions become the basis for real-time personalisation. The model does not need to identify or profile the learner. It simply reads the live session and recommends the next suitable learning opportunity.

This approach supports equity by bringing personalisation to learners who cannot, will not, or do not yet register. It supports retention by helping platforms offer relevant recommendations during the critical first visit. It also supports Malaysia's broader digital education and reskilling agenda by making learning pathways more accessible to underserved communities, adult reskillers, and first-time online learners. In essence, education no longer begins only with enrolment. It begins with curiosity. Intelligent learning systems can now meet learners at that first moment of curiosity and guide them forward without demanding identity, history, or registration first.