

(a) Traditional "One-size-fits-all" Approach

Traditional LMS / Instructor



Standardized Curriculum
(Fixed Path)

Boredom /
Disengaged



Advanced
learner

Passive
Mapping



Average
learner

Frustration /
Cognitive Overload



Struggling
learner

(b) Proposed AI-driven Adaptive Approach

Behavior logs
State/vector (S_t)

AI RL Agent
(Our Framework)

Qlearning

Challenging Path
(Future Actions)

Challenging Path
(Future Actions)

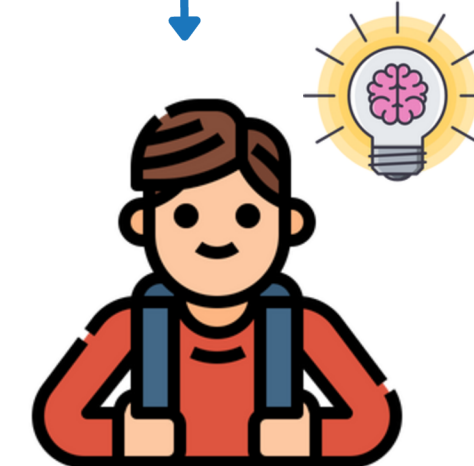
Standard Path
(Current Actions)

Remedial Path
(Past Actions)

Engaged /
Mastery
Achieved



Advanced
learner



Average
learner



Struggling
learner