

AI-Generated Adaptive Treatment Planning System

Discipline: Dentistry

Focus: Professional, Clinical reasoning, Case library

Overview

Traditional cases are fixed and do not let students practice the full sequence of clinical reasoning. This project builds an AI-powered case library that changes difficulty and options based on what the student does.

How it works

1. **Recognition:** students identify findings in a case.
2. **Reasoning:** guided questions prompt them to explain their thinking.
3. **Comprehensive planning:** the scenario adjusts to their choices as they build a treatment plan.
4. **Reflection:** students review feedback on their decisions.

Tools

ChatGPT, Microsoft Copilot, NotebookLM

Challenges noted

Access to AI tools, time for training, and support systems for both instructors and students.

Adapting it

Any field that teaches through cases (nursing, social work, business, law, engineering design) can use branching AI scenarios that respond to student decisions.

From the 2025–26 Teaching Innovation Institute (TII) cohort, University of Kentucky. Sources: 2025 TII Showcase posters (December 3, 2025) and the 2025–26 TII Project Takeaways survey.