Title: Reimagining Textbook Learning: An Interactive AI Tutor Approach Using Retrieval Augmented Generation

Original Submission Link: https://openreview.net/pdf?id=RB3MaSgod2
Submission Type: Long Paper
Review Cycle: ACL ARR 2025 Resubmission

Summary of Revisions

We sincerely thank the reviewers and meta-reviewer for their thoughtful and constructive feedback. Based on the suggestions received, we have revised the paper to improve its research framing, clarity, evaluation depth, and alignment with ACL submission standards. The major updates include the following:

We rewrote the research questions to ensure clarity and direct alignment with the system goals and evaluation outcomes. A concise paragraph summarizing the core contributions was added at the end of the introduction. The related work section was revised to better position our system alongside comparable tutoring platforms such as Khanmigo and LearnLM.

In the methodology section, we clarified the architecture and model stack, specifying our use of DeepSeek Coder, Falcon RW 1B, and Mistral 7B, as well as the RAG pipeline using LangChain and FAISS. We also detailed the modular walkthrough structure and learning mode design.

We improved the evaluation section by expanding demographic details in Table 2 and providing structured Likert-based survey instruments. Open-ended feedback was thematically coded, and a clearer description of the coding approach has been included in the appendix. We also updated visuals to comply with column layout constraints and maintained consistency in terminology across sections. Finally, we added an ethics statement outlining IRB approval and participant consent procedures.

We provide a point-by-point response to each reviewer below.

Response to Reviewer 1

Concern: The paper lacks clearly stated research questions and motivation.

Response: We revised the introduction to include clearly labeled research questions and added a paragraph highlighting our core contributions. The revised questions now connect directly to the system goals and evaluation design.

Concern: The evaluation does not sufficiently demonstrate learning effectiveness.

Response: We expanded the evaluation section by including structured survey questions, Likert-scale responses, and qualitative coding of open feedback. Demographic data and usage patterns were summarized in Table 2.

Concern: Figures are oversized and not formatted for publication.

Response: Figure 1 has been redesigned to fit within a single column. Figure 2 and related captions have also been revised for clarity and layout compliance.

Response to Reviewer 2

Concern: The research questions are vague and not grounded in learning theory.

Response: We rewrote the research questions to be specific and focused on personalization, learning mode engagement, and user feedback. Although our approach is system-driven, it incorporates pedagogical elements such as spaced repetition and adaptive storytelling.

Concern: The paper lacks comparison to similar tutoring systems.

Response: We added a paragraph to the related work section that compares our system to Khanmigo, LearnLM, and other interactive tutors, highlighting our contributions in retrieval augmented generation and modular deployment.

Concern: The user study is limited in scale.

Response: While our study includes thirty participants, we provided a more detailed demographic breakdown in Table 2, clarified their access methods, and discussed study limitations transparently in the discussion section.

Response to Reviewer 3

Concern: The model setup and architecture are unclear.

Response: We updated the methodology section to describe our use of DeepSeek Coder for parsing, Falcon RW 1B for generation, and Mistral 7B for simulations. The semantic retrieval setup with LangChain and FAISS has also been clearly explained.

Concern: The survey design and qualitative analysis need more structure.

Response: We added detailed descriptions of the survey instrument and Likert categories in the appendix, and explained our qualitative coding strategy for open-ended responses.

Concern: Ethical considerations are not clearly addressed.

Response: We added a dedicated ethics section confirming IRB approval, voluntary and anonymous participation, and the absence of compensation. This was also mentioned in the discussion.

Response to Meta Reviewer

Concern: The paper presents a promising direction but lacks clear framing and reproducibility details.

Response: We revised the introduction to improve research framing and clarified the technical components in the methodology section. Our code link and walkthrough documentation were anonymized, and survey instruments and data sources were described in detail to support reproducibility.

Closing Statement

Overall, we have addressed all major revision points raised during the previous review cycle. We are grateful to the reviewers and the meta-reviewer for their detailed and thoughtful feedback, which helped us identify areas we had not fully considered. Their suggestions played a key role in making the paper more resilient, better structured, and clearer in both technical and evaluative aspects. We sincerely appreciate the time and effort they dedicated to reviewing our work.