In-Video Tutors and Q&A Agents

Statement of the Problem
While students find that learning with videos is valuable and enjoyable, a lack of interactivity while watching videos has become a barrier to their learning. They wish for opportunities to interact with instructors and peers, such as asking questions and getting feedback in real-time (Ou & Goetzel, 2019).

Making Videos Interactive: Strategies
- **In-Video Questions**: Embed quiz questions within videos to enable students to interact with content (e.g., Kaltura).
- **In-Video Discussions**: Allow students to ask questions at specific moments of a video and respond to each other’s questions (e.g., Annoto, Perusall).

Making Videos Interactive: Challenges
- Quiz question types are very limited and feedback is pre-defined and often time-consuming for instructors to develop.
- Instructors may find it challenging to monitor and facilitate in-video discussions, especially in large classes.

What We Have Done: KBAI In-Video Tutors

What We Have Done: Q&A Agents
- Jill Watson is a Q&A agent that answers questions related to course syllabus and schedule.
- AskJill, evolved from Jill Watson, is an artificial intelligence explanation agent that can answer questions about the domain, operation, and functionality of other AI systems (Goel, Nandan, Gregori, An, & Rugaber, 2022).

Intelligent Textbooks

Statement of the Problem
Open online textbooks have made education more affordable. While students like free textbooks, they do not like reading a static and text-heavy online textbook. They wish for online textbooks that have better content presentation, more visuals, more practices with feedback, and more interactivity.

What We Have Done: ECON-2105 Online Textbook Transformation
- Transform content presentation with six multimedia learning principles (see Figure 2).
- Integrate active learning by providing frequent self-assessment exercises with feedback on both correct and incorrect answer choices of the exercises.

What We Envision
- **In-video tutors**: will provide personalized feedback on a variety of quiz questions embedded within videos.
- **Q&A agents**: will generate question prompts for discussions on the video and respond to students’ questions.
- **Interactive textbooks** will become intelligent textbooks where intelligent tutors and Q&A agents will engage students and enrich their learning experiences by integrating multimedia learning, adaptive learning, personalized learning, and collaborative learning.

References