HARNESSING AI CHATBOTS IN HIGHER EDUCATION FOR INNOVATIVE AND ETHICAL ADVANCEMENTS IN THE BUILT ENVIRONMENT

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Presentation outline

- Introduction
- Multifaceted roles of AI-chatbots in higher education
- Robustness of AI chatbot integration
- Identifying contents generated by AI-chatbots
- Innovative assessment methods
Introduction

• Over the last decade, AI-driven technologies have gained prominence across industries (Arogundade, 2023), and the education sector has proved to be a dynamic testing ground for the transformative potential of AI.

• The integration of artificial intelligence (AI) into higher education is one of the most pivotal shifts and disruptive innovations in contemporary academia. As the digital age reshapes the way we live and work, it also redefines the very essence of teaching and learning (Ilieva et al., 2023).

Objectives:

1) Evaluate the technical and pedagogical robustness of AI chatbot systems for educational use.
2) Identify the advantages and potential drawbacks of using AI chatbots in higher education.
3) Address concerns over academic integrity and propose strategies to recognize AI-generated content.
4) Explore innovative assessment methods to deter unethical use of AI chatbots by students.
Roles of AI Chatbots

Roles of AI-Chatbots in Higher Education

- Personalized Learning Support
- 24/7 Accessibility
- Virtual Teaching Assistants
- Feedback and Assessment
- Increased Integration in Learning Management Systems
Potential Benefits of AI Chatbots

- **Personalization**: AI chatbots can adapt content and resources to individual student needs, addressing gaps in knowledge and catering to different learning styles.

- **Efficiency**: They reduce the administrative burden on educators, allowing them to focus more on teaching and mentoring.

- **Accessibility**: AI chatbots democratize education by providing access to learning resources for students who may not have otherwise engaged with them due to time constraints or distance.

- **Inclusivity**: They can be designed to assist students with disabilities, ensuring that all students have equitable access to education.
Considerations of AI Chatbot Integration
Challenges and Potential Roadblocks

● Potential for academic dishonesty and cheating:
  Students could exploit chatbots to complete assignments/exams
  Identifying AI-generated content is increasingly challenging

● Ethical considerations, privacy concerns, and data security:
  Access to student data raises privacy issues
  Robust data protection measures required

● Other key challenges:
  Resistance to change from educators and students
  Ongoing maintenance and updates required
  Ensuring equity and equal access across student populations
Identifying AI-Generated Content

Recognizing AI-Generated Content

- Pattern Recognition
  - Analysis of Language and Style
  - Inconsistencies in Knowledge
  - Plagiarism Detection Software

Hallucinated responses
Identifying AI-Generated Content

- Analyze syntax, vocabulary, structure for inconsistencies indicating AI generation
- Look for repeated patterns, unnatural transitions that may signal AI-generated text
- Compare content with established knowledge to identify inaccuracies or discrepancies
- Utilize plagiarism detection tools like Turnitin, Grammarly, OpenAI Classifier to flag AI-written text
- Be aware of strange or disconnected responses, a sign of AI hallucination
Reimagining assessment in the AI era

Transforming assessments in the AI era

- Traditional exams and essays susceptible to AI assisted chatbot cheating
- Innovative assessment approaches
- Oral assessments
- Peer assessment
- Continuous evaluation
Strategies for deterring AI chatbot cheating

- Randomise question order & values
- Handwritten exam components
- Customize questions for each student
- Context-specific, real world problems
- Time constraints

Techniques to stop AI chatbot-assisted cheating
Future prospects and conclusion

- SAI chatbots poised to play an increasingly significant role in education
- Potential for revolutionary impact, especially in the built environment disciplines
- Need for balanced integration
- Augment teaching and learning, not replace human educators
- Prioritize critical thinking, creativity, human interaction
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