FITE Case Studies (3)

Redesigning and Implementing GenAI-ready Assessment

Teacher's name: Prof. Chi Hung-lin
Department: Department of Building and Real Estate (BRE)
Faculty: Faculty of Construction Engineering (FCE)
Institution: The Hong Kong Polytechnic University (PolyU)
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Subject title: Introductory Construction Technology and Materials (BRE265)
Year level: Year 1 undergraduate subject
Class size: Approximately 60 students
Mode of delivery: On-campus
List of materials collected:
·   Subject description form (original & redesigned versions)
·   Task description (redesigned version)
·   Rubrics (original and redesigned versions)
·   Sample student work

WHAT WERE SOME RECOMMENDATIONS AND ADVICE?

· Implement milestones and checkpoints throughout the project, with increased teacher supervision, to help students verify AI-generated information.

· Subject syllabus should be amended to clearly position GenAI tools as fundamental tools to facilitate learning. Incorporating skills and appropriate attitudes towards GenAI usage as learning objectives in entry-level subjects would further reinforce this message.

WHAT WAS THE PREVIOUS ASSESSMENT DESIGN?

Prior to the redesign, student assessment of the subject consisted of a group project and a closed-book examination.

For the group project, students selected a specific topic from a provided list, conducted in-depth research or design work on building materials, elements and components, and presented their findings in written reports with oral presentations.

In addition to the project, students were evaluated through a traditional two-hour closed-book written examination covering the course content.

WHAT WERE THE REASONS FOR THE ASSESSMENT REDESIGN?

The assessment redesign was driven by the teacher's commitment to preparing students for the future of the construction industry. Recognising the rapid advancements and increasing use of GenAI tools, the teacher aimed to **equip students with essential future-ready skills**.

While recognising the limitations of current GenAI tools in fully addressing the complex and practical challenges inherent in the construction industry, the teacher believed students could not rely solely on these tools to complete the assessment task without critical thinking. Therefore, the teacher saw an opportunity to leverage these tools to **encourage deeper understanding and critical thinking**, providing valuable learning aids while helping students learn to **effectively utilise AI tools** while understanding their strengths and limitations within the context of real-world problem-solving.

HOW WAS THE ASSESSMENT REDESIGNED?

1.   Students were asked to tackle **a scenario-based challenge**: designing a new PolyU student hostel at Ho Man Tin. Working in groups, students were asked to develop a comprehensive design plan, considering the location and environmental conditions.
2.   The use of GenAI tools was made mandatory for the group project. This allows students to explore GenAI's capabilities while honing their critical thinking skills by evaluating and refining the AI-generated outputs.
3.   To showcase their understanding and design process, each group was asked to **present an oral presentation and submit a commentary report**. The commentary report provided a more in-depth analysis. It outlined the assumptions made about the scenario, detailed the specific prompts used to query the GenAI tools, and clearly distinguished between student-generated content and AI-generated output. The report also encouraged critical reflection by prompting students to identify any deviations, drawbacks, or limitations encountered while using GenAI. This reflection culminated in students articulating the key lessons learned from integrating AI into their design process.
4.   **The assessment rubric** was updated to specifically evaluate students' effective and critical use of GenAI tools, rewarding thoughtful integration and analysis rather than mere reliance on AI-generated output.

WHAT WERE THE STUDENT FEEDBACK AND THE IMPACT OF THE NEW ASSESSMENT DESIGN?

· Students recognised the power of GenAI in analysing large datasets and identifying trends, but emphasised the need for strong prompting skills to ensure the generation of high-quality content. They noted that familiarising themselves with these skills required time and effort.

· While students appreciated GenAI's ability to provide a broad overview, they observed that it often lacked case-specific precision, offering general points rather than concrete evidence. They also found that manual refinement of AI-generated information was necessary.

WHAT WERE THE CHALLENGES FACED DURING IMPLEMENTATION?

· Some students highlighted the difficulty in verifying the accuracy of AI-generated information, emphasising the need for increased teacher supervision, particularly for entry-level students who may lack sufficient professional knowledge.

· Some students expressed confusion about the balance between mastering GenAI tools and developing the required professional knowledge for the assessment. They questioned whether the focus had shifted towards GenAI-tools proficiency.