**Vignette on the use of AI in NSSE**

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| **Course** | **ACY32B Chemistry Planning and Instruction**<br>**QCY12B Praxis of Chemistry Education** |
| **Modality** | Asynchronous offline<br><br>Student teachers use Generative AI (GenAI) to produce an initial lesson development proposal within an assessed lesson planning assignment, then critically evaluated, verified, and revised that proposal to demonstrate evidence-informed professional judgement in planning chemistry instruction. |
| **Intended Learning Outcomes** | Through the assignment, student teachers were expected to:<br>1. **Design** a coherent chemistry lesson aligned with syllabus learning outcomes, learners' needs, and the classroom context.<br>2. **Use GenAI** to generate an initial lesson-development proposal.<br>3. **Critically evaluate**, verify, and revise AI-generated suggestions using chemistry, pedagogical, curricular, and contextual knowledge.<br>4. **Justify** lesson design decisions with evidence and professional judgement. |
| **Role of Faculty** | <u>Before the assignment:</u><br>1. Design a lesson plan assignment requiring student teachers to use GenAI as part of their planning process.<br>2. Provide the lesson plan template, relevant syllabus requirements, and guidance on responsible GenAI use.<br>3. Explain expectations for prompting, checking AI-generated content, citing references, and retaining prompts and responses.<br><br><u>During marking and feedback:</u><br>1. Evaluate both the final lesson plan and the student teacher's critique and adaptation of the AI-generated plan.<br>2. Provide feedback on chemistry accuracy, pedagogical coherence, curriculum alignment, contextual appropriateness, and the quality of professional judgement shown. |
| **Role of Students**<br><br>Learning as Designing: Process<br><br>*Learning as Participating: Practice* | 1. Develop an initial lesson development proposal using GenAI for a classroom-based chemistry lesson.<br>2. Check AI-generated content against the chemistry syllabus, trusted scientific sources, and relevant pedagogical knowledge.<br>3. Identify inaccuracies, gaps, or unsuitable suggestions in the AI output.<br>4. Revise and adapt the proposal into a lesson plan appropriate for the intended class and teaching context. |

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| **Role of AI** | GenAI served as a provisional lesson planning resource that generated an initial lesson development proposal. Its output was not treated as a final lesson plan, but was subject to student teachers' verification, critique, and professional revision.<br><br>**Learn about AI**: Understanding the limitations of AI-generated outputs, including inaccuracies, generic suggestions, and lack of contextual fit.<br><br>**Learn to use AI:** Developing prompt-writing, verification, critique, and revision practices.<br><br>**Learning to teach science with AI:** Using AI critically and responsibly in chemistry lesson planning. |
| **Artefacts (if any)** | The lesson plan template captured the development process through:<br>• Lesson Development (Using GenAI)<br>• Critique of GenAI / Explanation of Changes Made<br>• Lesson Development (Revised and Adapted) |
| **Assessment** | The assignment assesses both the quality of the final lesson plan and the student teacher's critique of the AI-generated proposal. The holistic rubric for the student teacher's critique assesses the following:<br>• Chemistry conceptual development<br>• Lesson structure, sequencing, and timing<br>• Learner readiness and contextual relevance<br>• Choice of resources and feasibility<br>• The application of educational theory and MOE Singapore Teaching Practice<br>Higher quality work demonstrates specific, coherent, evidence-informed, and actionable critique that leads to meaningful improvement of the lesson plan. |