



September 9-12, 2025

**The 18th International
Symposium on Advances
in Technology Education
(ISATE)**

**Bridging Borders:
Engineering Education
for Global Citizenship**
<https://isate2025.toyota-ct.ac.jp/>

Roundtable Submission Template

Name of Roundtable	Data Data on the Wall, [How can we] Flip our Classrooms to Engage All: An exploration of using GEN AI as an Instructional Designer	
Name of Facilitator(s)	Affiliation	Country
1. Zhengping Liow	Singapore Polytechnic (SP)	Singapore
Lead Facilitator Email:	Liow_zhengping@sp.edu.sg	

Sub-Theme (please select the closest match) (You may want to check the Call for Papers for examples)	Select One Only
ST1: Engineering Contributed to Welfare, from Health and Safety to Well-being	<input type="checkbox"/>
ST2: Pedagogical Innovation in Teaching & Learning	<input type="checkbox"/>
ST3: Artificial Intelligence in Teaching & Learning	<input checked="" type="checkbox"/>
ST4: Engineering Education for Global Citizenship	<input type="checkbox"/>

Overview of the Roundtable

A roundtable is an informal discussions of a topic related to teaching and learning proposed by a roundtable facilitator.

Flipped classrooms have become a popular pedagogical strategy in higher education, but their success depends on the effective use of classroom time. As the 'success' of FCR is contingent on student's engagement with the materials before their in-class activities, both the creation and curation of high-quality pre-class and in-class materials/activities are paramount. As our classrooms are increasingly diverse, the one-size-fits-all in-class activities may not work for all students (Cheng et al., 2019) if there is mismatch with learners' learning preferences, or different levels of understanding after engaging with pre-class materials. Pre-class quizzes and student reflections can be used as actionable data to tailor differentiated instruction (DI), to meet the learning needs of students. Hence the term 'Data-enabled Flipped Learning with Differentiated Instruction' (DEFL + DI). In this roundtable, we seek to explore with the assistance of participants high leverage areas where Gen AI can assist in the implementation of DEFL + DI and to close student learning gaps and enhance their learning experience.

Keywords (4 or 5, separated by commas)



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Data-enabled Flipped Learning, Differentiated Instruction, Learning Data, Student Autonomy.

Activities

Include a brief summary of the proposed activities participants will undertake in the discussion, including some questions for discussion.

1. Introduction and Context Setting by Lead Facilitator
 - Participants will share their experiences with Flipped Classrooms. Facilitator will use white board to consolidate and group common challenges towards Problem Framing.
2. Facilitators will share SP's DEFL + DI Flipped Classroom framework and share current state of research and engage participants in identifying pain-points in implementing DI activities in the classroom.
3. A sample qualitative data set will be shared with the participants. Set A) students' reflection of what they have learnt in the asynchronous online classes and Set B) students' reflection of what they would want the tutors to have a discussion about. The underlying intention is for Set A to extend students' learning and Set B, to bridge learner's unmet learning gaps. Both sat can be downloaded online. Data would be sanitised with no trace to the identities of students.
4. Participants will then engage in smaller group discussions to identify how and what Gen AI can do to make DEFL + DI to be more accessible for lecturers and students. Participants will be guided to create a user experience journey from the perspectives of both lecturers and students.
5. A follow up discussion of challenges and learning points will be conducted.
6. A brief discussion of the 'follow-ups' as discussed in the section below.

Target Audience

Explain who should attend this roundtable and outline any background knowledge required from participants.

Faculties who are deeply intrigued by the usage of Gen AI as an assistant (instructional designer) to potentially enhance their efficacies and pedagogical practices. Participants are required to bring own laptop for the proposed activities with them having internet access as vital.



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Follow-Ups, if any

Are there any activities that is already envisioned for a follow-up from the roundtable, e.g. what participants are expected to do after ISATE 2025?

1. Participants interested in future collaborations can discuss possible areas where the team can work together after ISATE 2025, with possibility of continuing into ISATE 2026.
2. Future collaborative research output could be a comparison study of different DI activities but measured with a common instrument.
3. A possible output could also be a playbook on how to leverage Gen AI as an instructional designer with contributions from various institutions in ISATE.

Resources Needed

The organizer will try as much as possible to provide the resources requested. Please be as detailed as possible. The organizer will contact the Lead Facilitator via the email address provided if clarification is needed.

Whiteboard with coloured markers
Wifi connection.
Flip-Chart Papers & Flip Chart Stands
Projector