

Re-introducing the Flipped Approach at an Institutional Level

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Abstract

Flipped learning is a pedagogical model that has gained prominence in recent years; it redefines traditional classroom dynamics by shifting direct instruction outside the classroom. This transformation facilitates collaborative and higher-order activities during class time, empowering students to take ownership of their learning journeys and fostering a more interactive educational environment. However, challenges persist in conventional implementations, including student engagement with pre-class materials, high workloads for educators, and inadequate personalised support. This paper presents the approaches an institutional-level initiative has taken to tackle these challenges, highlighting how integrating advanced tools, such as Generative AI (GenAI), contributes to innovative solutions.

Keywords: Flipped Learning, Higher Education, Student Engagement, Educational Innovation, Generative AI

1. Introduction

Flipped learning, a pedagogical model popularised since 2007, redefines the traditional classroom dynamic by shifting direct instruction outside the classroom, thereby facilitating collaborative and higher-order activities during class time. This approach not only empowers students to take ownership of their learning journey but also promotes active engagement and critical thinking—key components of lifelong learning. By enabling students to explore concepts at their own pace before class, flipped learning cultivates a deeper understanding and encourages them to seek knowledge proactively, making them more adept at navigating future challenges.

Although the benefits of flipped learning are well-documented, widespread adoption often depends on the initiative of individual teachers (Baig & Yade-garidehkordi, 2023). Scaling this approach across an institution introduces new

complexities, requiring coordinated strategies and sustained support, especially for Chinese contexts (Raby, 2023). Integrating AI-powered tools into higher education can enhance flipped learning by providing personalised, adaptable, and continuous learning experiences (Ekanayake & Silva, 2025). For example, generative AI (GenAI) can offer tailored feedback and learning pathways that adapt to individual needs, fostering deeper understanding and critical thinking (Wong et al., 2025).

However, insufficient technological support can overwhelm both students and educators. At The Hong Kong Polytechnic University, the Flipped Learning and Teaching Initiative (FLTI) has been launched to address challenges identified in the literature and promote the adoption of the flipped classroom approach. The initiative enhances teaching and learning through innovative methods, such as integrating GenAI-generated videos, and fosters collaboration among stakeholders to overcome challenges and share successes.

To ensure the effective implementation of advanced flipped learning, the initiative is designed around three key objectives:

- 1. Establish a Baseline:** Assess the current experiences and perceptions of both students and teachers regarding flipped learning practices.
- 2. Respond to Needs:** Develop resources based on gathered data to equip educators with practical strategies for effectively implementing flipped learning in their courses.
- 3. Gather Feedback:** Collect feedback from teachers on the effectiveness of these initiatives to evaluate our approach and identify areas for further improvement.

This paper presents our findings from the initiative, outlines our plans for future development, and discusses the limitations encountered during the project.

2. Methodology

This study was conducted at The Hong Kong Polytechnic University and involved a comprehensive, multi-phase data collection and professional development process to evaluate and enhance flipped learning practices across the institution (Figure 1).

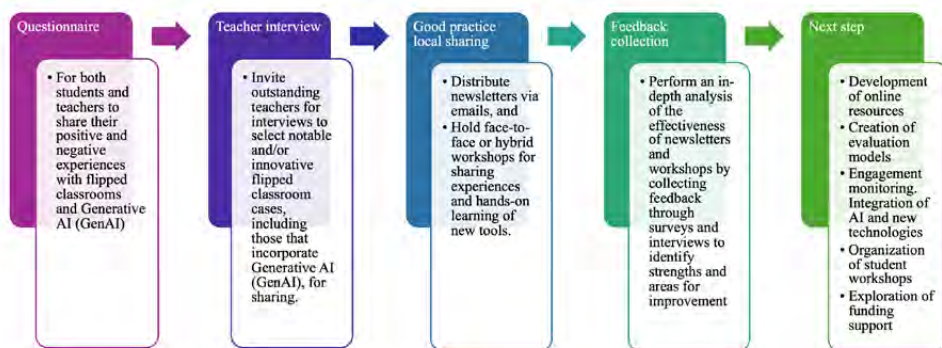


Figure 1. Overview of the five phases of the flipped classroom study.

- **Surveys:** Online surveys for a baseline study were distributed to all students and teachers at the university in November 2023. These surveys collected quantitative data on experiences, perceived barriers, and nominations of effective instructors. A total of 645 students (92 postgraduate and 553 undergraduate) and 89 teachers participated.
- **Teacher Interviews:** Semi-structured interviews were conducted with 24 teachers nominated by students for their exemplary flipped classroom approaches. These interviews explored their design, preparation, delivery strategies, and challenges related to flipped classrooms, providing valuable insights into best practices and areas for improvement.
- **Data Analysis:** Survey responses were analysed using descriptive statistics, while open-ended responses and interview transcripts underwent thematic analysis to identify key themes such as time constraints and technical support needs. Attendance records and survey feedback from workshops were also reviewed to evaluate learning outcomes and inform future programme design.

Table 1. Characteristics of participants at baseline.

Baseline characteristic	UG		PG	
	<i>n</i>	%	<i>n</i>	%
Year 1	288	52%	75	82%
Year 2	96	17%	9	10%
Year 3	89	16%	4	4%
Year 4	75	14%	4	4%
Year 5	5	1%	0	0%
Total	553	100%	92	100%

(Note: *N* = 645. Participants were from different departments or schools.)

3. Results and Discussion

Perceptions and Barriers for Students to Flipped Learning

Our baseline study revealed that 59.6% of students had prior experience with the traditional flipped classroom approach, with a majority understanding its principles. Specifically, 77% of undergraduates (Figure 2) and 74% of postgraduate students (Figure 3) believed that flipped classrooms could enhance their learning outcomes. Many highlighted increased engagement and critical thinking, with 78% of students supporting the idea that flipped classrooms promote active learning.

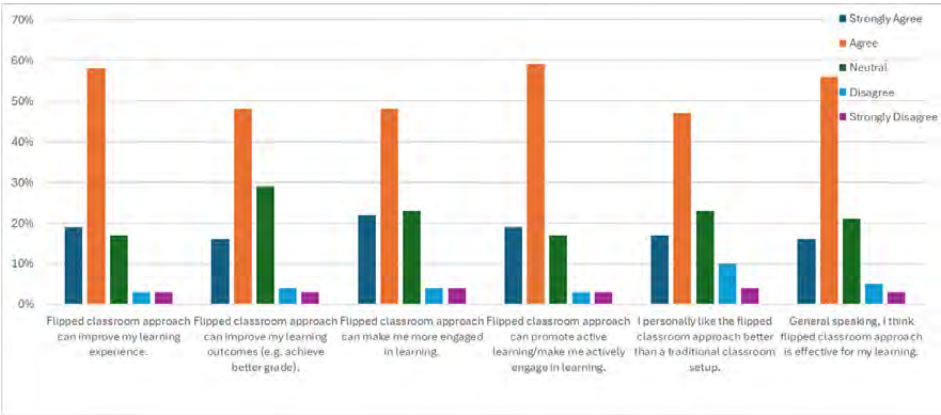


Figure 2. Undergraduate student responses on flipped classroom approach by degree level.

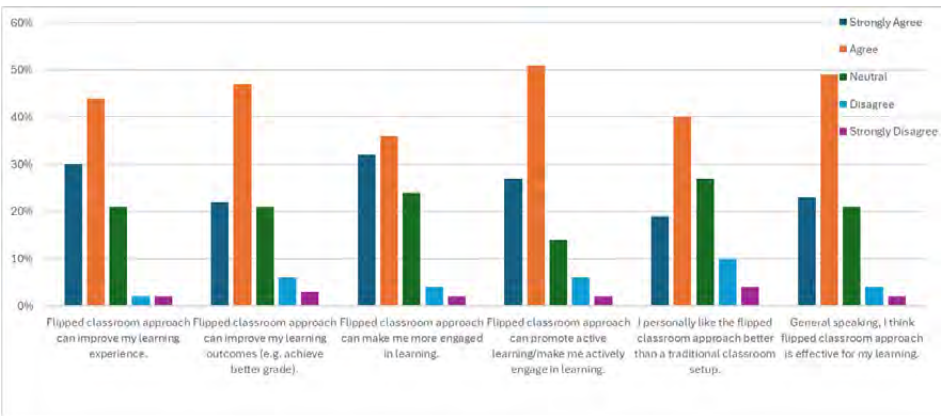


Figure 3. Postgraduate student responses on flipped classroom approach by degree level. (Note: This bar chart illustrates the responses of students regarding their perceptions of the flipped classroom approach.)

However, barriers remain that could hinder students from fully embracing this model. Many reported difficulties in completing pre-class assignments due to low motivation, poor time management, or competing academic responsibilities. Notably, 24% of undergraduates and 20% of postgraduates expressed anxiety about independently learning new content (Figures 2 & 3). This lack of immediate support can lead to feelings of unpreparedness during in-class activities. Thus, educators must implement effective strategies to address these challenges, such as providing structured guidance, time management training, and motivational support to enhance student engagement and success.

Challenges Faced by Teachers in Adopting Flipped Teaching and Solutions

The challenges associated with the flipped classroom model extend beyond students; they also significantly affect educators. While this approach has proven to be an effective teaching strategy, its implementation presents several hurdles, including ensuring accessibility, maintaining student engagement, and preparing teachers to integrate new technologies. A key issue frequently cited by educators is that, despite providing teaching materials online well in advance, many students fail to review them before class. Compounding this problem, over 90% of interviewed educators admitted that they rarely verify whether students engage with the materials, further complicating efforts to ensure the model's effectiveness.

To address these barriers, we conducted interviews with student-nominated teachers to gain a deeper understanding of their strategies for overcoming the challenges associated with flipped classrooms. These interviews provided valuable insights into best practices and common obstacles, which were critical for shaping actionable solutions. The findings were shared with all colleagues through a newsletter and made available on our webpage for future reference (Flipped Learning and Teaching Initiative, 2025).

Comprehensive Support for Educators

A crucial first step in scaling flipped learning is providing robust support for educators. We offer various training opportunities, including an introductory teaching course for new staff and hands-on workshops for current faculty. Additionally, flexible online courses allow faculty to learn at their own pace. Recognising that some teachers may doubt the effectiveness of flipped learning in their disciplines, we regularly interview experienced educators and share their best practices in monthly newsletters. This builds confidence and encourages broader adoption.

We also address concerns about the suitability of flipped learning for all

students, particularly those who may struggle academically. We introduce GenAI tools to assist educators in preparing lecture notes and commenting on assignments. We ensure that educators have access to necessary technological resources and financial support for effective implementation. Our goal is to create an empowering environment where teachers feel equipped to embrace flipped learning and leverage innovative tools in their classrooms.

Fostering Collaboration and Community

Teachers learn best from one another through the exchange of ideas and effective practices. To facilitate this, we have established platforms and organised regular sharing sessions to promote collaboration. In our local and international sharing series, educators from various disciplines present their teaching cases, focusing on both pedagogical strategies and practical solutions to common challenges. For instance, some teachers have demonstrated how GenAI tools can efficiently create pre-class videos, reducing preparation workload, while others have shared innovative methods, such as using the metaverse to enhance student engagement. These discussions address real-world issues, ensuring that every educator feels supported.

Creating a Supportive Institutional Culture

Institutional change requires a shared vision and strong support from all university levels. We have collaborated closely with university leadership to secure resources, establish clear guidelines, and foster a culture of innovation and collaboration. The establishment of a Steering Group on Flipped Learning Implementation has been pivotal in driving this initiative. This group includes key stakeholders—such as the Director of Education Development, Associate Heads, and frontline teachers—serving as a vital link between senior management and the teaching community.

The initiative has generated considerable interest, with numerous submissions from educators, leading to increased awareness of the benefits of flipped learning. Through these coordinated efforts, we are laying a strong foundation for sustainable, institution-wide adoption of flipped learning.

Empowering Educators with Advanced Tools

To further support our educators, we organised professional development workshops aimed at addressing technical challenges and boosting confidence in utilising advanced tools. Local and international experts were invited to share their expertise, introducing innovative technologies such as AI-driven video production platforms and immersive VR tools. For instance, in a VR workshop, educators learned how to create interactive anatomy lessons using VR simu-

lations. Participants received laptops, step-by-step instructions, and trial subscriptions to these tools, enabling them to integrate these technologies into their teaching practices effectively. These hands-on experiences not only enhanced technical proficiency but also empowered educators to produce high-quality flipped classroom materials efficiently. Feedback from participant questionnaires is summarised in the following figure.



Figure 4. Participant feedback on workshops organised.

The feedback indicated an overwhelmingly positive reception of our workshops (Figure 4). Many participants credited the success to the speakers, experienced educators who understood the challenges faced by teachers in similar environments. Their practical insights and real-world strategies resonated with attendees, providing an authentic learning experience. This peer-to-peer coaching approach was particularly valued, promoting collaboration and practical applicability, making the workshops impactful and inspiring.

Implications

Flipped learning represents a transformative pedagogical model that, when coupled with Generative AI (GenAI), can serve as a powerful catalyst for educational innovation (López-Villanueva et al., 2024). This report outlines how our initiative focuses on supporting educators in effectively integrating GenAI into their teaching practices (Chen et al., 2025). The encouraging results suggest that this approach not only motivates educators to explore new methodologies but also enhances their overall effectiveness. In the next phase, we will prioritise collecting student feedback on their experiences with the newly implemented flipped learning strategies (Figure 1). This input will provide valuable insights into the study’s impact and inform future developments in our approach.

Acknowledgments

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Ethical Declaration Statement

The project has been approved by the Institutional Review Board of The Hong Kong Polytechnic University (HSEARS20230812001).

Generative AI Policy

The author(s) used ChatGPT during the preparation of this work to assist with content organisation and language refinement. After utilising the tool, the author(s) thoroughly reviewed and edited the content as necessary and assumed full responsibility for the publication's content.

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