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Pedagogy to Practice: A Hybrid Faculty Development Model Using Shared Learning Objectives to Integrate Flipped Classroom Pedagogy Across Disciplines

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Abstract

Introduction: Flipped classroom (FC) incorporates online activities aligned with the learning concepts in a limited class duration and demands a highly structured framework that challenges the instructor's time and proficiencies. The paper demonstrates the effectiveness of a 1-day training workshop on FC among educators. The workshop aimed to train faculty using the FC strategy in classrooms to improve student-engagement at a higher cognitive level.

Methods: The Teaching and Learning Centre of Universiti Brunei Darussalam conducted a 1-day hands-on FC style workshop. The workshop's goal was to train academic staff on the effective use of FC in classrooms to enhance learning concepts by empowering the students. Participants assumed the role of students. Fifteen faculty members of the Universiti Brunei Darussalam received pre-reading material 5 days before the workshop invitation. During the workshop, participants from different basic and clinical science disciplines spent time effectively in co-creation of objectives, discussion and knowledge application activities. They focused on the alternative solutions to challenges and strengths of each activity. While concluding the workshop, thematic evaluation assessed the respondents' views on the workshop's effectiveness, and factors determining the successful application of FC were collected on a form provided, and a manual thematic evaluation was done.

Results: Respondents (n=8; 57.14%) reported that content was relevant for teaching and learning methodology. One of two respondents stated learning outcomes were informed (mean score 4.6), and 50% respondents agreed the content of the FC workshop was highly relevant. The majority of participants (64.28%) were of the view that the workshop's learning objectives were achieved. The majority of respondents reported that the take-home messages were useful (71.42%) and also valuable for professional development (64.28%).

Conclusion: The educators perceived that FC is a relevant teaching and learning pedagogy. FC effectiveness depends on incorporating strategies into teaching as innovation across disciplines during hybrid learning.

Keywords: Flipped classroom, higher education, online learning, pedagogy

1. Introduction

Hybrid learning has been implemented in many undergraduate and postgraduate settings across the world[1]. Flipped classroom (FC) is one of the typical methods of distance learning widely used in higher education institutions (HEIs)[2]. Flipped classroom has emerged as a

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successful hybrid educational strategy that easily reverses the classwork and homework distribution of tasks for the students[3]. In FC teaching style, the instructor provides the reading material as a non-face-to-face mode of teaching, in the form of videos, articles, internet lectures, and book references, before attending the face-to-face (F2F) session[4].

The educators must consider the immense time commitment in engaging students in a flipped-style teaching format[5]. Designing FC requires a tremendous amount of time to prepare out-of-class materials to replace didactic teaching and generate activities that can test the application of knowledge during the F2F session[6]. Incorporating online activities aligned with the learning concept during the limited class duration demands a highly structured framework that challenges the instructor's time and proficiency[7]. The educators face a considerable challenge swapping traditional style classrooms to FC, where they need to have a higher level of expertise in the content and appropriate digital literacy[8]. The academic staff require formal training and extended deadlines for flipping their didactic lectures to FC[9]. This study aimed to evaluate the effectiveness of an F2F 1-day training workshop on FC teaching methods among educators in higher education. The workshop's goal was to train faculty to use the FC strategy in their classrooms to increase student engagement during F2F sessions by empowering them online and making them co-creators of learning objectives.

2. Methods

The Teaching and Learning Centre (TLC) of Universiti Brunei Darussalam conducted a 1-day hands-on workshop by two facilitators for faculty to introduce FC. This observational study was conducted in 2021 at TLC with convenient sampling.

Twenty faculty members from different departments of the Universiti Brunei Darussalam registered for the workshop. However, 15 faculties among them from the Departments of Medicine, Biomedicine, Dentistry and Integrated Technology, participated as per their availability for the whole day.

The participants consisted of two senior assistant professors, eight assistant professors and five lecturers. The majority of participants were teaching the same students under an integrated curriculum during each semester, where the number of students ranged from 25 to 120. The unregistered students were excluded.

The study did not require ethical approval because the aim was to report the process and faculty perspectives. However, exemption was acquired from the Institute of Health Sciences Research Ethics Committee (IHSREC). Verbal consent was acquired by the facilitator before the proceedings of the workshop. The workshop's goal was to train faculty across disciplines to use FC effectively in their classrooms to enhance the students' engagement in learning complex concepts. The workshop was designed in the FC style, where the participants assumed the role of students. The workshop was intended to prepare faculty members to comprehend and appreciate the teaching and learning strategies.

As the first step, dates for the workshop were circulated for the faculty to match their availability from 9 am to 2 pm for a 1-day hands-on training workshop. The TLC team provided the feedback form, to be filled out by the participants at the end of the workshop. The feedback form had a combination of graded and open-ended questions, while some of the questions had subsections. The facilitators created a tentative schedule covering the critical elements of practising FC strategies.

The participants received pre-reading material on the workshop activities, prepared by the facilitator, five days before the workshop, which was the non-F2F component. During the workshop (F2F component), the participants spent time effectively in co-creation of learning objectives, discussion, and knowledge application activities (Table 1). The facilitators informed the participants to upload their background integrated knowledge on Padlet after going through the reading material before the F2F session, regardless of their discipline. They were asked by the facilitators to bring three objectives from their conventional lectures to work upon during the hands-on workshop session.

Table 1: Schedule of activities in the workshop

Time	Topic
12.00 - 12.15	Introduction to facilitators and participants Expectation of the participants
12.16 - 12.30	Assessment for learning: Let's Kahoot it!
12.31 - 12.55	One against a thousand - flipping classroom
12.56 - 13.15	Group activity (hands-on)
13.20 - 13.40	Presentations (5 mins each group)
13.41 - 13.50	Discussion
13.51 - 14.00	Conclusion and feedback

The facilitators offered pre-training feedback to gather participants' knowledge on FC and their teaching challenges after the ice-breaking session at the start of the workshop. Unfortunately, the pre-test (Kahoot) could not run due to connectivity issues. The issue is explained as a challenge to be faced during FC-style teaching.

Later, the participants were introduced to various other teaching and learning pedagogies during their introduction to FC, by using clickers to answer the questions. Color-coded cards were employed to assess how many of the participants had gone through the pre-reading material partially or entirely. They were familiarized with various teaching tools, including clickers, team-based learning (TBL) approaches, case studies and related anticipated challenges they might face in their sessions. Alternate solutions to such challenges were also discussed, along with the strengths of each activity.

Participants were then divided into small groups (3 participants in each) for discussions about differences between traditional teaching and flipped style teaching to ensure active participation of all the students (participants). There was an open discussion among the participants after the disclosure of a few open-ended questions by the facilitators.

Subsequently, the participants were further engaged in a TBL activity by indulging in an interactive exercise to facilitate learning and in-depth understanding of concepts and enhance knowledge retention. They were asked to refer to the three objectives and brainstorm in small groups regarding which content could be used for flipped-style teaching. A single objective of the selected concept, which they could set as a non-F2F component, was identified, besides the strategies they would employ. Furthermore, they had to design a FC F2F session, identifying a few pedagogies they would employ to engage the students during the class.

The participants shared their designed sessions through a PowerPoint presentation, followed by a question-and-answer session. The participants critiqued each other's work, provided constructive feedback on refining assignments and assessments, and examined alternate activities, depending on the concept to be taught. They also discussed the possible challenges they could face in delivering that concept by using the FC style. The facilitators provided feedback to each group. The workshop ended with tips for the successful implementation of flipped-style teaching.

An evaluation was conducted on a printed feedback form at the end of the workshop to assess the respondents' views on the workshop's effectiveness and the factors that determine the successful application of the teaching method. The themes of the evaluation questions included the relevance of content, learning outcomes, learning objectives, useful take-home messages and professional development.

3. Results

Fourteen respondents completed the evaluation form for the workshop. The majority of the respondents reported that the content was relevant for teaching and learning methodology (n=8; 57.14%), with a minimum score of 4 and a mean score of 4.6. Also, 1 out of 2 respondents (50%) stated the learning outcomes were informed, and the mean score was 4.6. About 50% of the respondents agreed that the content of the FC workshop was highly relevant. A total of 3 out of 5 respondents (64.28%) suggested the workshop's learning objectives were achieved with a mean score of 4.3. A majority of respondents reported that the take-home messages were useful (71.42%) and also valuable for professional development (64.28%) (Table 2).

Table 2: Respondents' views on effectiveness of workshop (n=14)

Items	Number (%)	Mean	Minimum	Maximum
Content relevant	8 (57.14)	4.6	4	5
Learning outcomes informed	7 (50)	4.6	2	5
Learning objective achieved	9 (64.28)	4.3	3	5
Useful take-home messages	10 (71.42)	4.3	3	5
Valuable for professional development	9 (64.28)	4.6	3	5

4. Discussion

The current study indicated that the content of the FC workshop undertaken was highly relevant. The literature has supported the utility of FC and have proved it to be a successful method of teaching and learning[10]. It is a safe model of educational dissemination for teachers and students[11].

Questioning FC efficiency as a teaching model, considering various aspects of the educational landscape, has paved the way to empower students[12]. It has facilitated the students to independently understand concepts of varying difficulty and develop their capacities when F2F sessions are not possible[13]. Students' perception and level of satisfaction have been variable in published literature. Two surveys revealed that students were generally displeased and sometimes frustrated with the motivation and effect of online courses, which mainly focused on the mode of communication and verbal question-and-answer sessions[14,15]. A positive effect on students' motivation was observed in a FC evaluation study focused on attention, relevance, confidence, and satisfaction[16].

One of the key findings of the present study was clarity of learning outcomes and shared learning objectives during the workshop as contributory factors for its effectiveness. Importance of focusing on the effective design of the FC to achieve clear learning outcomes through appropriately laid learning objectives has been emphasized. However, shared learning outcomes remain a unique feature of the present study[17]. Existing evidence also shows that the students' perception may deviate from the required outcome if the learning objectives are not well constructed[18].

A critical finding revealed that FC pedagogy was highly relevant among the respondents for their professional development, which is supported by the literature[19]. Teachers might not be frequently receptive to the adoption of this new teaching mode due to its high reliance on technology[20]. This paradigm shift from the traditional classroom to a flipped style may not satisfy their well-established role as teachers[21]. A study shows that teachers may not feel as confident as they were in traditional style teaching[22].

Studies indicate that a well-planned flipped session may positively impact students' academic performance, active participation, and interaction[17]. Flipped style teaching has been shown to provide valuable opportunities to engage students effectively in class and assess their level of understanding through various in-class activities[23]. Academic staff have been viewed as better equipped with technology, along with its associated challenges, through FC experience. Furthermore, the reproducibility, adaptability and cost-effective delivery of the material take it to another level of acceptance, especially with the incorporation of artificial intelligence (AI).

5. Conclusion

Flipped classroom is a highly preferred teaching method and is perceived as relevant among educators in higher education, mainly in a hybrid setting. Clear learning outcomes and co-creation of shared objectives during a teaching session, including a workshop, are key to success in innovative approaches. Training and continuous support ensure the teaching method's effectiveness and learner-centered learning.

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Conflict of Interest

SM is on the Advisory Board of the SAAP Journal of Integrative Physiology.

Authors' Contributions

FA facilitated the workshop and created the first draft of manuscript, SM critically evaluated the draft and modified it, RR improved the final draft and submitted the manuscript as corresponding author with consensus of all authors.

References

1. Mulenga R, Shilongo H. Hybrid and blended learning models: innovations, challenges, and future directions in education. Acta Pedagogia Asiana. 2025;4(1):1-13. DOI: 10.53623/apga.v4i1.495.
2. Effendi M, Arifin T, Ardianto, Nurdin, Jamil. Shifting paradigms: flipped classroom approaches in open and distance learning. Iqra' Sci J. 2025;19(1):63-79. DOI: 10.30984/jii.v19i1.3674.
3. Nagaraj H. Chapter 3: The Australian academic experience: an international student's autoethnography in favour of the flipped classroom approach. In: Fernandes V, Chan PWK, Shi J, Mukherjee A, editors. International student experiences in Australian higher education: a lifelong-lifewide learning ecology approach. Leeds: Emerland Publishing Limited; 2026. p. 45-63. DOI: 10.1108/978-1-83662-226-020261003.
4. Sjafei I, Suhardjono DW. The development of classroom action research teaching materials through the integration of interactive e-books with flipped learning. J Educ Technol. 2025;27(3):842-51. DOI: 10.21009/jtp.v27i3.60533.
5. Kennedy B, Engel K, Davidson J, Tapuke S, Hikuroa D, Martin T, et al. Incorporating science communication and bicultural

knowledge in teaching a blended volcanology course. Geosci Commun. 2025;8(2):107-24. DOI: 10.5194/gc-8-107-2025.

6. Lotter L, Ramnarain U. An exploratory study on the use of a flipped classroom model for supporting inquiry-based learning in natural sciences classrooms. Afr J Res Math Sci Technol Educ. 2025;29(1):99-112. DOI: 10.1080/18117295.2024.2428554.

7. Arsyad S, Waluyo B, Noviyenty L, Amrullah A, Gusmuliana P, Riansih R. Flipping and gamifying university's online English preparation courses: understanding learner flow state and autonomy. Stud Engl Lang Educ. 2026;13(1):29-44. DOI: 10.24815/siele.v13i1.86.

8. Afonso A, Morgado L, Noguera I, Sepúlveda-Parrini P, Hernández-Leo D, Alkhasawneh SN, et al. Flexible learning by design: enhancing faculty digital competence and engagement through the FLeD project. Educ Sci. 2025;15(7):934. DOI: 10.3390/educsci15070934.

9. Thang PD. From theory to classroom: innovation in teaching methods and faculty development in higher education. Tenn Community Serv Int Empower. 2025;2(1):33-43. DOI: 10.53730/tcsie.v2n1.13.

10. Spaic D, Bukumiric Z, Rajovic N, Markovic K, Savic M, Milin-Lazovic J, et al. The flipped classroom in medical education: systematic review and meta-analysis. J Med Internet Res. 2025;27:e60757. DOI: 10.2196/60757.

11. Steen-Utheim AT, Foldnes N. A qualitative investigation of student engagement in a flipped classroom. Teach High Educ. 2018;23(3):307-24. DOI: 10.1080/13562517.2017.1379481.

12. Rehman R, Fatima SS. An innovation in flipped class room: a teaching model to facilitate synchronous and asynchronous learning during a pandemic. Pak J Med Sci. 2021;37(1):131-6. DOI: 10.12669/pjms.37.1.3096.

13. Runiasih M, Rugaiyah R, Ika L. Systematic literature review (SLR): implementation of flip classroom using learning management system (LMS) to improve students' learning independence. Int Educ Trend Issues. 2025;3(1):1-8. DOI: 10.56442/ieti.v3i1.963.

14. Nsabayezu E, Habimana O, Nzabalirwa W, Niyonzima FN. Influence of multimedia-supported flipped classroom approach on students' attitudes toward learning organic chemistry. Int J Pedagogy Curric. 2024;32(1):107-39. DOI: 10.18848/2327-7963/CGP/v32i01/107-139.

15. Patiño-Masó J, Renart-Vicens G, Serra L, Soler M, Xabadia À. Influence of learning styles on undergraduate nursing students' satisfaction with the flipped classroom methodology. Nurse Educ Today. 2025;153:106807. DOI: 10.1016/j.nedt.2025.106807.

16. Zhou Q, Zhang H. Flipped classroom teaching and ARCS motivation model: impact on college students' deep learning. Educ Sci. 2025;15(4):517. DOI: 10.3390/educsci15040517.

17. Chen FZ, Chen LA, Tseng CC, Pai CH, Tsai KE, Liang EC, et al. Enhancing student engagement and learning outcomes in life sciences: implementing interactive learning environments and flipped classroom models. Discov Educ. 2025;4(1):102. DOI: 10.1007/s44217-025-00501-x.

18. Nsabayezu E, Habimana O, Nzabalirwa W, Niyonzima FN. Contribution of activities-enhanced rubrics in the multimedia-supported flipped classroom approach on students' conceptual understanding in organic chemistry: a scoping review. Int J Technol Learn. 2024;32(1):77-112. DOI: 10.18848/2327-0144/CGP/v32i01/77-112.

19. Muhuro P, Kang'ethe SM. Prospects of implementing the flipped classroom blended learning model among lecturers in African universities. Res Soc Sci Technol. 2025;10(1):144-58. DOI: 10.46303/ressat.2025.8.

20. Omoniyi AA, Jita LC, Jita T. Teachers' experiences with flipped classrooms in senior secondary mathematics instruction. Computers. 2025;14(5):180. DOI: 10.3390/computers14050180.

21. Aminin Z, Koiri M. Flipped classroom: shifting from conventional approach to innovative model. Acuity: J Engl Lang Pedagog Lit Cult. 2026;11(1):109-20. DOI: 10.35974/acuity.v11i1.3861.

22. Chikeme PC, Ihudiebube-Splendor CN, Ogbonnaya NP, Mbadugha CJ, Elodi LO. Flipped classroom model versus conventional teaching method: effects on nursing students' self-directed learning readiness in a research methodology course. Pan Afr Med J. 2024;47:70. DOI: 10.11604/pamj.2024.47.70.38359.

23. Mazlan R, Mahamod Z, Jamaluddin KA. Comprehensive structured review of implementing flipped classroom approaches in education. J Educ Learn. 2025;19(3):1651-61. DOI: 10.11591/edulearn.v19i3.22655.