World Journal of Educational Research
ISSN 2375-9771 (Print) ISSN 2333-5998 (Online)
Vol. 7, No. 4, 2020
www.scholink.org/ojs/index.php/wjer

Original Paper

The Challenges and Dynamics of Flipped Learning Totally Online: The Case of Training Research Postgraduates to Be University Instructors

Tiffany Ko[1], Lisa Y. N. Law[1], Theresa Kwong[1], & Eva Y. W. Wong[1*]

[1] Centre for Holistic Teaching and Learning, Hong Kong Baptist University, Hong Kong

[*] Eva Y. W. Wong, Centre for Holistic Teaching and Learning, Hong Kong Baptist University, Hong Kong

Received: October 8, 2020 Accepted: October 24, 2020 Online Published: October 27, 2020

doi:10.22158/wjer.v7n4p36 URL: http://dx.doi.org/10.22158/wjer.v7n4p36

Abstract

"Flipped classroom" is one of the popular blended learning approaches in Higher Education (HE) with significant use of technology. A "flipped" course typically engages students to do pre-class online learning at their own pace; the teachers then design active learning activities to reinforce students' online learning in a physical classroom setting. Although literatures suggest that active learning after self-directed online learning can take place not only in traditional lectures hall but also online learning spaces, there is a lack of studies that investigate how the "relocation" of the face-to-face component online would affect students' learning. As the COVID-19 pandemic has suspended face-to-face teaching on HE campuses worldwide, this article seizes the opportunity to examine the difficulties and possibilities of conducting flipped learning totally online. By evaluating the delivery of a flipped course for 46 research postgraduate students in Hong Kong during the pandemic-stricken period, the teaching team of the captioned course summarizes how the paradigm shift of flipped learning from partially online to totally online simultaneously distort and create new dynamics of in-class interaction and collaboration. Recommendations on how to better implement and research "flipped learning totally online" as a pedagogy across multiple disciplines will also be highlighted.

Keywords

flipped classroom, blended learning, online learning

1. Introduction

Blended learning, a mode of instruction that combines face-to-face classroom experience with technology-mediated teaching, has been widely discussed and applied in Higher Education (HE) in the last 20 years (Whitelock & Jelfs, 2003; Graham, 2006; Sharma, 2010; Guggisberg, 2015; Kazanidis, Pellas, Fotaris, & Tsinakos 2019). The "Flipped classroom", which encourages students to acquire basic subject knowledge asynchronously online then participate in active learning during the face-to-face lessons is a blended learning approach that has garnered success in diverse HE disciplines (Wagner et al., 2013; Davies, Dean, & Ball, 2013; Albert & Beatty, 2014; Young et al., 2014; DeLozier & Rhodes, 2016; Chuang, Weng, &, Chen, 2018). Though flipped classroom is never a "one size fits all" model, there is a common agreement that it facilitates in-class interaction and collaboration (Garrison & Kanuka, 2004; So & Bush, 2008).

Although theoretically, active learning after the self-directed online learning can take place in diverse environment, from traditional lecture halls, studios, outdoor settings, to online learning space (Long, Cummins, & Waugh, 2017), literatures are yet to investigate how the change among these venues for synchronous learning would affect students' in-class interaction and collaboration. The COVID-19 pandemic, which results in the suspension of face-to-face instructions on campuses worldwide has created the perfect context for investigating a possible paradigm shift in blended learning and flipped classroom: the shift from partially online to totally online.

With reference to a flipped-classroom course for Research Postgraduates (RPg) students delivered in Spring 2020, this case study documents the measures taken by the teaching team to replicate the flipped learning experience in a full online setting. By evaluating the adjustments made during the virus-stricken period, this article summarises the challenges as well as the new dynamics of facilitating students' interaction and collaboration in a fully online flipped environment that may inform future practices across disciplines.

2. About the Course

The following discussion orbits around a 7-week mandatory course designed by a leading research liberal arts university (UA) in Hong Kong that trains its Research Postgraduate (RPg) students of diverse disciplines to undertake teaching duties at HE level. The teaching team has adopted the blended learning and flipped classroom approaches since 2017. The course participants, which usually attain the size of 40-60, were instructed to have pre-class learning via a 3-week Small Private Online Course (SPOC) developed by the teaching team on a platform called FutureLearn. To promote internationalisation at home, the teaching team also lined up three overseas institutions and invited their RPg students to join the captioned SPOC. The UA and non-UA students were encouraged to read the same materials and exchange ideas on FutureLearn over the same three-to-five-week time. When the UA students met weekly in the two-hour face-to-face classes, the teachers reinforced students' pre-class learning of pedagogical theories and concepts through interactive activities. Students were also

formally and informally assessed through in-class participation and group tasks.

In the suspension of on-campus teaching during Semester 2 of AY2019/20 due to COVID-19, the captioned face-to-face component for 46 UA RPg students had been "relocated" to a virtual classroom supported by the video conferencing tool, Zoom. With such background information, we will unpack in the following paragraphs how the teaching team modified different flipped learning activities to sustain and (re)create the interactive and collaborative learning dynamics in the online classroom.

3. Challenges and Dynamics of Interaction in the Flipped Online Classroom

In the course's traditional "flipped classroom", the "Think-Pair-Share" activity played a main role in fostering constructive interactions in the face-to-face meetings. The students were first presented with a question or statement related to the pre-class learning content (e.g., With reference to your understanding about Outcomes-based Teaching and Learning, explain an assessment task you found most effective to achieve learning outcomes in your undergraduate study). They were then asked to share with a neighbour by giving a one-minute speech each. Following that, the teachers invited some students to share their discussion outcomes with the whole class to kick start a dialogue.

In the Zoom classroom, the teaching team facilitated the "Think-Pair-Share" activity with the "breakout room" function. Students were randomly assigned into groups of four to five for a private chat of the same questions online. A major challenge encountered was that the quality of intra-group sharing was sometimes distorted by inactive students who were technically online but physically away from their learning devices. As a result, the less comprehensive discussion outcomes reduced the ripple effects for the follow-up conversations which served to deepen students' understanding of the subject matter.

To circumvent the disruption, the three members of the teaching team made the arrangement to each visit three to five breakout rooms during the activity. It was observed that the timely invention could help the "breakout groups" keep their discussion on track effectively.

In addition to small-group discussion, synchronous e-Learning tools, Kahoot! and Mentimeter, were deployed to stimulate in-class interaction in relation to the pre-class materials. They allowed the teachers to have an instant grasp of the students' learning progress in the virtual classroom where students were less outspoken; where their non-verbal expressions were more difficult to be noticed.

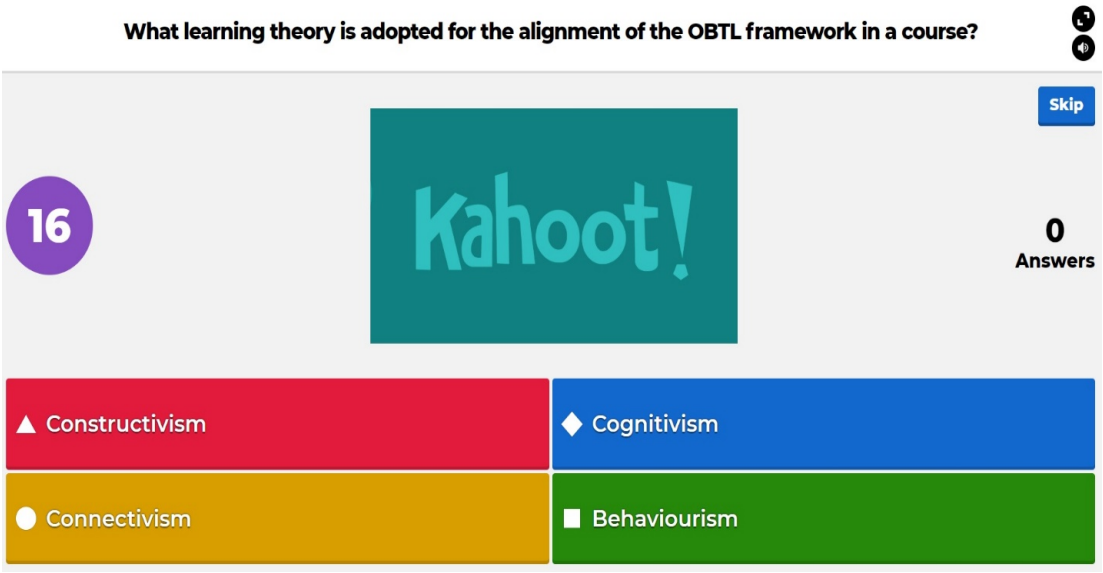


Figure 1. Screenshot of a Short Quiz Conducted with Kahoot!

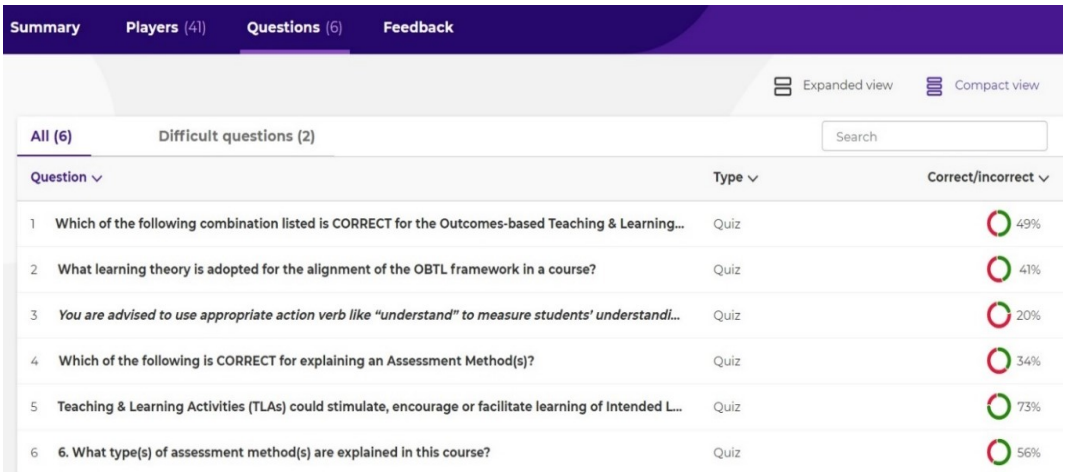


Figure 2. MC Quiz Analytics from Kahoot! That Summarise the Strengths and Weaknesses of Students after the Pre-Class Learning

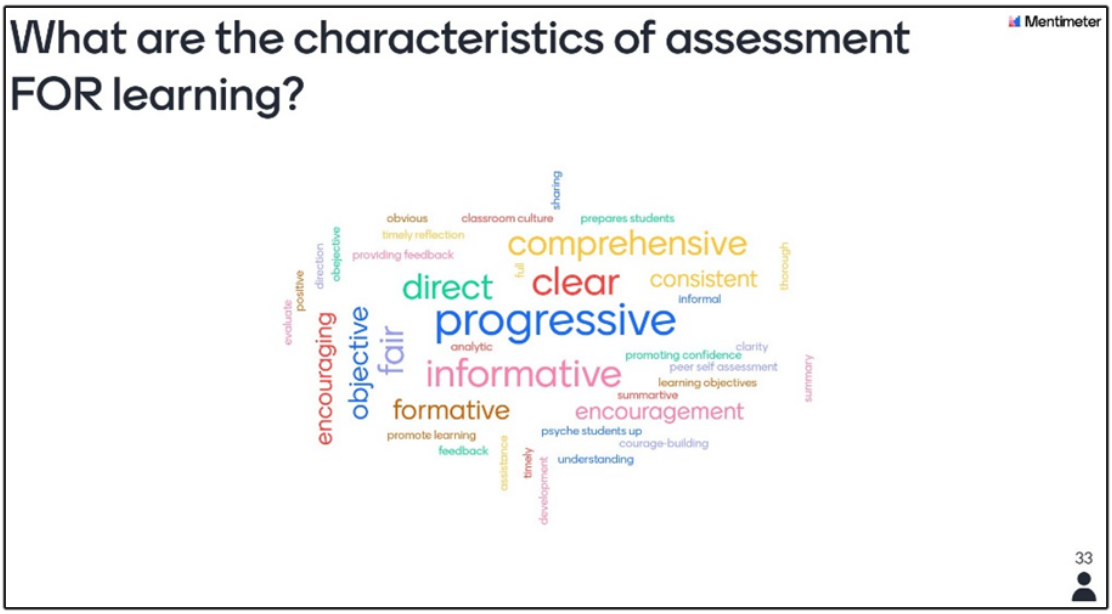


Figure 3. A Word Cloud Generated from Mentimeter Showing Students' Understanding of the Pre-Class Content

Bringing observations from the group discussion and interactive activities facilitated by the above e-tools together, it was noticed that students were usually more engaged with the latter during the Zoom lesson. The finding implies that the shift of the flipped-learning venue from a physical classroom to an online classroom might bring along a shift in the mode of in-class interaction i.e. the increase in student-to-teacher, one-to-many digital responses at the expense of dialogic student-teacher or student-student exchanges. These digital responses, however, are likely to be close-end (as shown in Figure 1), chunky, and out-of-context (as shown in Figures 2&3). To replicate the success of a physical flipped classroom in helping students to achieve a "higher status in subject literacy via in-depth conversations" (Long, Cummins, & Waugh, 2017)—such as moving from remembering or understanding concepts to evaluating concepts—teachers in the virtual flipped classroom have to pay extra efforts in scaffolding meaningful conversations from the fragmented digital responses.

Other than the structured interactive learning activities, the teaching team also paid attention to the informal interactions. The students had made an abundant use of the "chat" function in Zoom to post instant technical and content-related questions during the lesson. It was observed that, as facilitated by the captioned conferencing tool, students were quite inclined to raising questions by sending private messages to individual teachers during the lesson. The teaching team, thus, spent time in getting themselves versatile in handling the fast-paced interactions that comes through diverse forms and channels, i.e., students voicing out their questions to the whole class via the conferencing tool; students sending questions privately to the teacher that deserves attention of the whole class; students sending a questions privately to the teacher that were better answered privately.

4. Challenges and Dynamics of Collaboration in the Flipped Online Classroom

The teaching team had facilitated flipped learning in the course with two collaborative components since 2017. The first one was a group assignment which required students to demonstrate team teaching on a given topic during the face-to-face classes.

Following the switch to synchronous online teaching during the COVID-19 pandemic, the group assignment was changed to an individual assignment that required each student to deliver a 10-minute teaching demonstration via Zoom. There were practical concerns behind such re-arrangement of the assignment. First, the teaching team decided to keep teaching demonstration as the main assessment method in order to equip the students, who would likely be university instructors in the future with the skills to conduct online teaching. Meanwhile, the teaching team were also determined to remove the team element in the assignment as a way to minimise risks. The most clear and present risk back then was how internet stability might create uncertainties in the teams' performance and the overall time management of the assessment session.

Instead of viewing the switch from group assignment to individual assignment a total disruption to collaborative learning, it was observed that the arrangement had inspired new possibilities of student collaboration in the online classroom. To elaborate, the RPg students were asked to deliver their 10-minute assessed teaching and learning activities to not only the teaching team, but also 4-5 of their peers who were randomly assigned to act as the audience (i.e., students) for their Zoom lessons. As the RPg students were trying to make their teachings as engaging as possible, they made use of various Zoom functions, such as "chat", "annotation", "non-verbal feedback icons" to foster instant, in-class collaboration in knowledge building (see Figure 4 and 5).

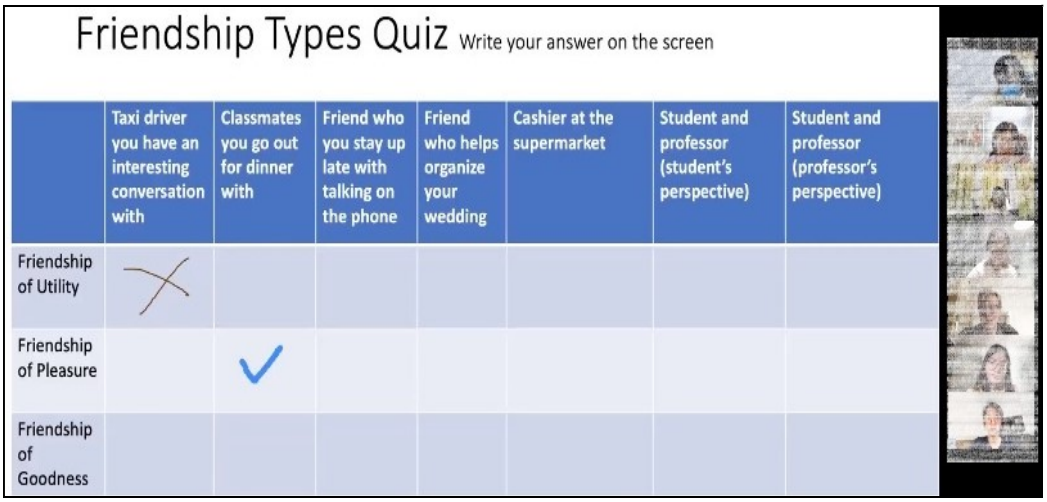


Figure 4. Screenshot of a Teaching and Learning Activity Delivered by a RPg Student Using the "Annotation" Function in Zoom

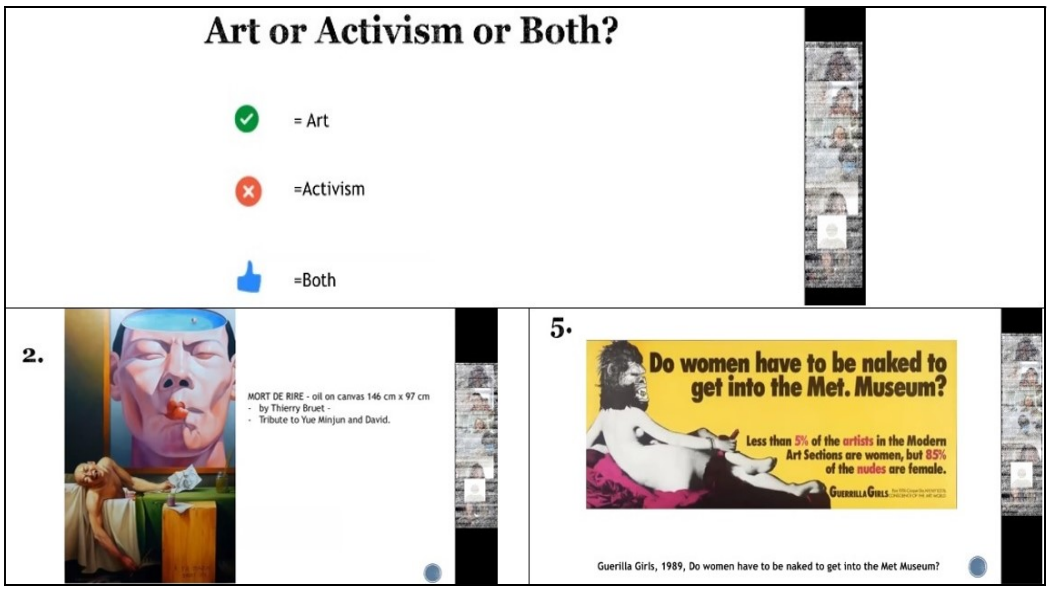


Figure 5. Screenshot Cluster of a Teaching and Learning Activity Delivered by a RPg Students Using the "non-verbal feedback icons" in Zoom

What did it inspire us about collaborative learning in a flipped course conducted totally online? It is that while students may not be able to meet up physically for team-based learning, teachers can make strategic and creative use of the built-in functions in conferencing software to mobilise students' collaborative efforts in knowledge construction during the synchronous online lessons.

The second collaborative learning component concerns the SPOC for pre-class learning. The RPg students were enrolled together with their counterparts from Hong Kong or overseas institutions into the same SPOC delivered via the online learning platform, FutureLearn. The students of diverse backgrounds were encouraged to read through the learning content and contribute to the online discussions roughly over the same period of time.

Interestingly, students taking the course in Semester 2, AY2019/20 in the form of "flipped learning totally online" were found to be more engaged with the SPOC comparing to those taking the course in Semester 2, AY2018/19 which adopted "flipped learning partially online". The increase in engagement level can be seen in the rise in the average number of comments left on FutureLearn by the RPg students (See Figure 6).

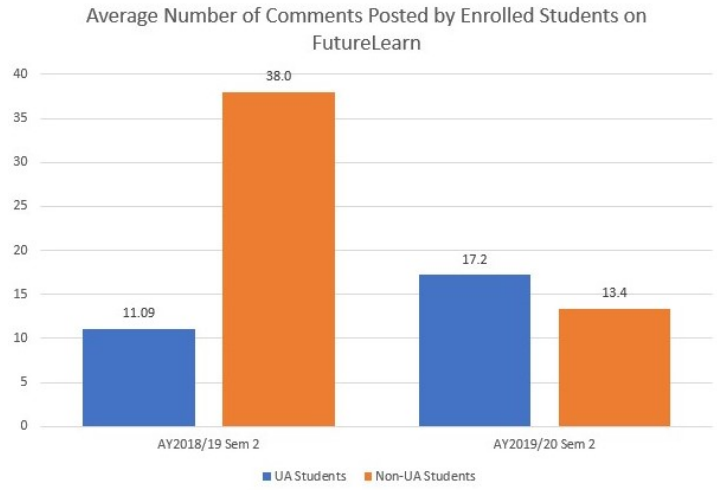


Figure 6. Data Showing Students' Engagement on the Pre-Class Online Learning Platform

While there could be a myriad of reasons that underline the increase in students' engagement with the pre-class study during the pandemic, the teaching team were interested in finding out how the delivery of "flipped learning totally online" could be improved according to the specific finding. As discussed in the previous paragraphs, given that in-class interaction and collaboration in the synchronous online lesson are unavoidably more superficial, spontaneous, and contagious comparing to those done in a physical classroom, it seems worthy to explore the possibility of making the pre-class online learning space the hub of student interaction and collaboration.

Put precisely, it is suggested that teachers may encourage students to leave more elaborated and thoughtful written responses on the asynchronous learning space by giving them grading incentives. The teaching team of the study, for instance, had increased the assessment weighting of "Preparation, Participation and Discussion", which covers students' online presence in FuturLearn, from 30% to 35% in the course enactment during Semester 2, AY 2019/20. To avoid a rash conclusion about the feasibility of turning the asynchronous e-learning platform into a vital space for in-depth student interaction and collaboration, the teaching team would adopt "flipped learning totally online" coupled with the aforementioned incentive in the upcoming enactment(s) for a more comprehensive evaluation.

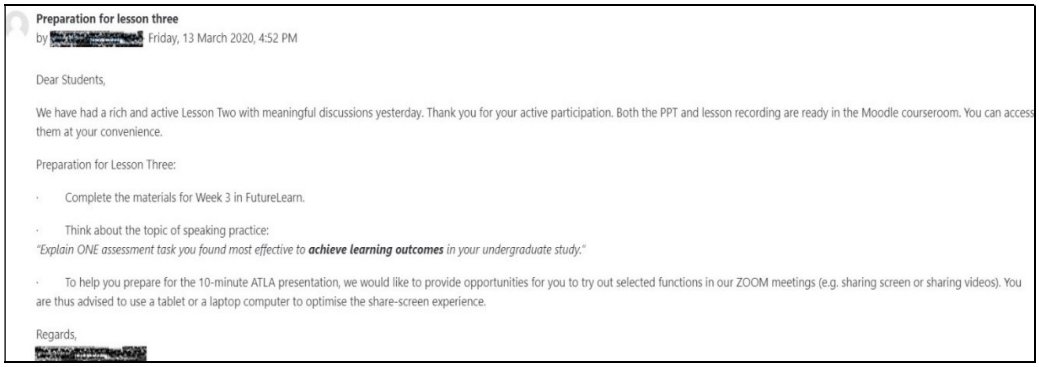
5. Lessons Learned

To summarise our takeaways from the unusual experience, we first acknowledge the inherent limitation of this study. Insufficient perception data and learning analytics were collected to generalise whether flipped learning conducted totally online can be *as effective as* the traditional model of flipped learning that supports asynchronous pre-class learning online and synchronous in-class learning in a physical classroom. It is because instead of investigating the captioned hypothesis with a customised research methodology, the teaching team mostly improvised "flipped learning totally online" in the course during the pandemic with a priority in student safety and maintaining its best standard of teaching and

learning.

The prompt decision to change the major assessment from a face-to-face group teaching assignment to an individual teaching demonstration done via Zoom has also rendered a meaningful comparison of students' performance in the "old" and "new" flipped classroom setting impossible. In addition, given that "flipped learning totally online" is a novel experience to UA RPg students sparkled by the COVID-19 pandemic, this study is aware of the need to collect more perception data from students of different cohorts, backgrounds, and disciplines to avoid hasty judgements.

That said, this current study serves as a warning against the casual "relocation" of teaching strategies from a "traditional" flipped class to a flipped class conducted entirely online. By underlining how the dynamics of the in-class interaction and collaboration of the said teaching course had changed from a physical classroom to the Zoom classroom and how the teaching team had coped with these changes, this study distills three strategies that could guide future practices in "flipped learning totally online" in general:



Preparation for lesson three

by [redacted] Friday, 13 March 2020, 4:52 PM

Dear Students,

We have had a rich and active Lesson Two with meaningful discussions yesterday. Thank you for your active participation. Both the PPT and lesson recording are ready in the Moodle courseroom. You can access them at your convenience.

Preparation for Lesson Three:

- Complete the materials for Week 3 in FutureLearn.
- Think about the topic of speaking practice:

*"Explain ONE assessment task you found most effective to **achieve learning outcomes** in your undergraduate study."*

- To help you prepare for the 10-minute ATLA presentation, we would like to provide opportunities for you to try out selected functions in our ZOOM meetings (e.g. sharing screen or sharing videos). You are thus advised to use a tablet or a laptop computer to optimise the share-screen experience.

Regards,

[redacted]

Figure 7. An Example of Weekly Moodle Announcement Made by the Teaching Team to Remind Students about the Pre-Class Learning and Preparation for the Zoom Class

First, as the key of flipped learning lays, to a large extent, in how to integrate the pre-class online learning and face-to-face portions of the course into a coherent whole (Bluic, Goodyear, & Ellis, 2007; Glogowska, Young, Lockyer, & Moule, 2011), the principle still applies when the face-to-face component is being relocated to an online classroom. Teachers may enhance the integration of pre-class and in-class learning by providing more pastoral care to students. The teaching team of this study, for instance, had posted weekly announcement on the course's learning management system, Moodle, to ensure that students equipped themselves intellectually and technically for the interactive and collaborative in-class activities on Zoom (see Figure 7).

Furthermore, Strayer (2012) noted that it is important to provide students in flipped classroom with more reflection opportunities. Given the limited breadth and depth of in-class interaction and collaboration in a synchronous online classroom, teachers may consider making reflective writing a major assessment when conducting "flipped learning totally online". Specifically, the teaching team of

this study had increased the overall weighting of the reflective journal assignment from 20% to 25% in the pandemic-stricken semester. The RPg students were also explicitly encouraged to reflect on their asynchronous and synchronous e-learning experience in the course's grading rubrics.

Finally, studies have articulated the importance of having peer assistance among instructors in the exploration and adoption of flipped-classroom-related innovations (Shea, Pickett, & Li, 2005; Long, Cummins, & Waugh, 2017). The investigation of a paradigm shift in flipped learning from partially online to totally online should not be an exception. To this end, the teaching team of the current study had lined up UA instructors of various Schools and Faculties who engaged in "flipped learning totally online" during the pandemic-affected Semester 2, AY 2019/20 to collect data regarding the students' experience. The administration of a standard survey in UA about students' feedback on blending learning and flipped learning shall lay the foundation for our future investigation in the captioned paradigm shift. Precisely, we envisaged that by collecting more perception data and learning analytics from diverse academic levels and disciplines, the HE sector can better understand and implement "flipped learning totally online" not only as a contingency in times of crises but also a paradigm shift that supports 21st Century teaching and learning.

References

Albert, M., & Beatty, B. J. (2014). Flipping the Classroom Applications to Curriculum Redesign for an Introduction to Management Course: Impact on Grades. *Journal of Education for Business*, *89*(8), 419-424. https://doi.org/10.1080/08832323.2014.929559

Bluic, A., Goodyear, P., & Ellis, R. A. (2007). Research focus and methodological choices in studies into students' experiences of blended learning in higher education. *Internet and Higher Education*, *10*(4), 231-244. https://doi.org/10.1016/j.iheduc.2007.08.001

Chuang, H., Weng, C., & Chen, C. (2018). Which students benefit most from a flipped classroom approach to language learning? *British Journal of Educational Technology*, *49*(1), 56-68. https://doi.org/10.1111/bjet.12530

Davies, R. S., Dean, D. L., & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Educational Technology Research and Development*, *61*(4), 563-580. https://doi.org/10.1007/s11423-013-9305-6

Delozier, S. J., & Rhodes, M. G. (2016). Flipped Classrooms: A Review of Key Ideas and Recommendations for Practice. *Educational Psychology Review*, *29*(1), 141-151. https://doi.org/10.1007/s10648-015-9356-9

Garrison, D., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *Internet and Higher Education*, *7*(2), 95-105. https://doi.org/10.1016/j.iheduc.2004.02.001

Glogowska, M., Young, P., Lockyer, L., & Moule, P. (2011). How 'blended' is blended learning?: Students' perceptions of issues around the integration of online and face-to-face learning in a

Continuing Professional Development (CPD) health care context. *Nurse Education Today*, *31*(8), 887-891. https://doi.org/10.1016/j.nedt.2011.02.003

Graham, C. R. (2006). Blended learning systems: definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Authors), *The Handbook of Blended Learning: Global Perspectives, local designs* (pp. 3-21). San Francisco, CA: Pfeiffer Publishing.

Guggisberg, L. S. (2015). Student perceptions of digital resources and digital technology in a flipped classroom. (Publication No. 3724840) [Doctoral dissertation, University of Northern Dakota]. ProQuest Dissertations Publishing.

Kazanidis, I., Pellas, N., Fotaris, P., & Tsinakos, A. (2019). Can the flipped classroom model improve students' academic performance and training satisfaction in Higher Education instructional media design courses? *British Journal of Educational Technology*, *50*(4), 2014-2027. https://doi.org/10.1111/bjet.12694

Long, T., Cummins, J., & Waugh, M. (2016). Use of the flipped classroom instructional model in higher education: Instructors' perspectives. *Journal of Computing in Higher Education*, *29*(2), 179-200. https://doi.org/10.1007/s12528-016-9119-8

Sharma, P. (2010). Key concepts in ELT: Blended learning. *ELT Journal*, *64*(4), 456-458. https://doi.org/10.1093/elt/ccq043

Shea, P., Pickett, A., & Li, C. S. (2005). Increasing Access to Higher Education: A study of the diffusion of online teaching among 913 college faculty. *The International Review of Research in Open and Distributed Learning*, *6*(2). https://doi.org/10.19173/irrodl.v6i2.238

So, H., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, *51*(1), 318-336. https://doi.org/10.1016/j.compedu.2007.05.009

Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*, *15*(2), 171-193. https://doi.org/10.1007/s10984-012-9108-4

Wagner, D., Laforge, P., & Cripps, D. (2013). Lecture Material Retention: A First Trial Report on Flipped Classroom Strategies in Electronic Systems Engineering at the University of Regina. In *Paper presented at the Canadian Engineering Education Association (CEEA)*. Motreal, Canada. https://doi.org/10.24908/pceea.v0i0.4804

Whitelock, D., & Jelfs, A. (2003). Editorial (Special Issue on Blended Learning). *Journal of Educational Media*, *22*(2-3), 99-100. https://doi.org/10.1080/1358165032000177407

Young, T., Bailey, C., Guptill, M., Thorp, A., & Thomas, T. (2014). The Flipped Classroom: A Modality for Mixed Asynchronous and Synchronous Learning in a Residency Program. *Western Journal of Emergency Medicine*, *15*(7), 938-944. https://doi.org/10.5811/westjem.2014.10.23515