# Using Flipped Classroom Approach to Explore Deep Learning in Large Classrooms

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**Abstract**

This project used two Flipped Classroom approaches to stimulate deep learning in large classrooms during the teaching of a film module as part of a Diploma in Performing Arts course at Sunway University, Malaysia. The flipped classes utilized either a blended learning approach where students first watched online lectures as homework, and then completed their assignments and practical work in class; or utilized a guided inquiry approach at the beginning of class using this same process. During the class the lecturers were present to help the students, and in addition, the students were advantaged by being able to help one another. The in-class learning activities also included inquiry-based learning, active learning, and peer-learning.

This project used an action research approach to improve the in-class instructional design progressively to achieve its impact of deep learning among the students. The in-class learning activities that was included in the later flipped classes merged aspects of blended learning with an inquiry-based learning cycle which focused on the exploration of concepts. Data was gathered from questionnaires filled out by the students and from short interviews with the students, as well as from the teacher's reflective journals. The findings verified that the flipped classrooms were able to remodel large lecture classes into active-learning classes. The results also support the possibility of individualised learning for the students as being high as a result of the teacher's ability to provide one-on-one tutoring through technology-infused lessons. It is imperative that the in-class learning activities are purposefully designed as the inclusion of the exploratory learning through guided inquiry-based activities in the flipped classes was a successful way to engage students on a deeper level and increased the students' curiosity and engaged them to develop higher-order thinking skills. This project also concluded that flipped classrooms had promising impact for student learning and achievement in a Performing Arts course in Malaysia.

Keywords: Flipped classroom; curriculum design; blended learning.

## Introduction

In recent decades, the student-centered learning approach has shown significant learning gains and has reformed teaching styles in many higher educational institutions globally. Over the past 30 years, more flexible, student-centered classroom teaching methods have been advocated based on the concepts of "discovery" learning and "active" learning (Greitzer, 2002). However, on the other end of the spectrum, in many developing countries, including Malaysia, the teacher-centered learning approach is still widely used and preferred. The teacher-centered learning approach uses lecture-based instruction which is economical and viable for teaching a large number of students at a time. Lecture-based instruction is where the teacher takes the active role of dispensing knowledge in a classroom. The propagation of information is in a one-way direction. In such an environment, the students are passive learners, where they rely on learning by listening, memorizing, and on the repetition of the taught knowledge. The major shortcoming in passive learning is that students only have a basic recollection of knowledge - which means they have merely achieved a low level of thinking skill. To attain a higher and conceptual level of thinking, the students need to take responsibility for their own learning and become active knowledge seekers. The student-centered learning approach emphasizes engaging learners to structure their learning to include applying their current class work or experience when they collaborate to solve problems, and make sense of their learning. With this approach, students become active learners and the teacher's role now moves to that of being a facilitator by initiating classroom discussions to ensure that all the students achieve understanding for meaningful and effective learning (Goh, 2012). The student-centered approach should be at the heart of our educational system and this calls for a paradigm shift in higher educational institutions in Malaysia - to move from the teacher-centered approach to the student-centered approach.

Technology in education can be used as an approach that focuses on student-centered education and is a step in the right direction as we move forward in the 21st century. According to the latest Speak Up survey from Project Tomorrow in the United States which polled 400,000 teachers, administrators, students and parents, videos for homework are on the rise; mobile computing is "beyond the tipping point"; and most students do not use traditional computers to connect to the Internet at home (Riedel, 2014). When teachers effectively integrate communication technologies in their teaching, they create engaging learning environments, especially as students have already adopted technology in their lives and use it increasingly for learning. Higher educational institutions cannot ignore technology in fulfilling their strategic mission and in responding to the expectations of a diverse student body (Donnelly, 2009), as technology-rich classrooms have shown an effect on the students' achievement.

In moving away from the lecture model to an instructional design involving interactive pedagogy and technology, many educators are paying attention to the Flipped Classroom ideology. YouTube Teacher's Studio educator, Ramsey Musallam, (2011) suggests using teacher produced videos to shift the form of instruction from the classroom to the homework setting in the Flipped Classroom approach. Students watch recorded lectures for homework and complete their assignments, lab work and tests in class (Hertz, 2012). This allows the lecturers to work with the students during class on what was formerly given as homework. In this way, the lecturers are present to help the students and the students can also help each other (Pink, 2010). Early pioneers of the Flipped Classroom model - Bergmann and Sams, when flipping their classrooms, used the online material mostly to review and reinforce classroom lessons and the classroom becomes the place to work through problems, advanced concepts, and engage in collaborative learning (Tucker, 2012). Holmes, et al. (2001) considered that collaborative learning was "an approach to learning in which students not only construct their own knowledge as a result of interaction with

their environment but are also actively engaged in the process of constructing knowledge for their learning community".

Peer learning was the other in-class learning activity practiced in the project. Peer learning is one method to encourage meaningful learning and involves students teaching each other and learning from each other (Keppel, 2006). It involves a sharing of ideas, knowledge and experiences and emphasizes interdependent as opposed to independent learning (Boud, 2001).

Flipped classrooms also draw on concepts such as active learning, student engagement, hybrid course designs, and course podcasting (Educause, 2012). It overlaps other instructional tools, such as reverse instruction, inquiry learning, blended learning, and online instruction, through the use of podcasting or screencasting, Web 2.0 resources, and inquiry activities (Bennett, et al., 2011). The vocabulary of active learning needs to be highlighted here as it is an essential in-class instructional method in the flipped classrooms. Active learning is defined by the engineering education community as the "involvement of students in their own learning" and encompasses a variety of instructional techniques in which students participate in activities during class time that involve more than passive listening (Zappe et al., 2009). The core elements of active learning are student activity and engagement in the learning process (Prince, 2004). The flipped model puts the responsibility for learning more on the shoulders of the students while giving them greater impetus to experiment. Activities in class can be student-led, and communication among students can become the determining dynamic of a session devoted to learning through hands-on work (Educause, 2012).

This study used the Flipped Classroom approach during the teaching of a film module as part of a Diploma in Performing Arts course at Sunway University, Malaysia. The course offers a unique curriculum that covers both filmmaking and theatre. As the course is practical-based, the student intake has been at a comfortable enrolment of an average of 20 students per year. In the past two years, there was a sudden increase in class size to 38 students (the highest so far). This presented new challenges to the faculty to engage all students and having sufficient class time for individualized attention during the class. To stimulate students' deep learning in this largely practical-based diploma course, the flipped classroom approach was used.

**Student Learning and the Flipped Classroom**

The flipped classroom promotes an environment which increases the interaction between the students and teachers and engages the students in learning through application and practice. In this aspect, flipped classrooms use a student-centered approach as it focuses on student learning and it places the responsibility for learning more on the shoulders of students than teachers while giving them a greater impetus to experiment (Sams, 2011). This can be seen from - the Bergmann and Sams' instructional design - where students explore and make sense of their learning through active learning activities like inquiry learning, problem-based learning and peer collaboration (Sams, 2011). This creates the face-to-face time to have a "much deeper interaction" between the teacher and student as they engage and interact on case studies, and discuss particular problems (Leckhart & Cheshire, 2012; Gerstein, 2011). The learners are able to demonstrate what they have learned and to apply the material in a way that makes sense to them. As learners make sense of their learning, they create something that is individualized, and with application to the learners' everyday lives, it extends beyond the lesson. This is the highest level of learning under Bloom's Revised Taxonomy of Learning (Gerstein, 2011). Zappe, Leicht, Messner Litzinger, and Lee (2009) flipped a large undergraduate architectural engineering course and the students' evaluation of the course indicated that the flipped classroom had a positive impact on student learning as the students perceived the method of teaching as being more effective than lecturing and reported

that they enjoyed the class and benefited from watching the lecture videos outside of class (Herreid, 2013).

The Flipped Classroom promotes personalized learning as students can pause, re-wind and re-watch the online video at their own pace - one of the major, evidence-based advantages of the use of video is that learners have control over the media with the ability to review parts that are misunderstood, which need further reinforcement, and/or those parts that are of particular interest (Gerstein, 2011). This has a positive effect on student learning and achievement. For example, in 2009, after they flipped their classrooms, Clintondale High School in Michigan, U.S, had a dramatic decrease in the failure rate in critical subjects, such as English Language Arts – which was from 52% to 19% (Álvarez, 2011).

**Flipped Classroom in a Large Class Size**

Large classrooms are the norm in higher educational institutions in Malaysia. In a study on large group teaching in a Malaysian private university, researcher Susan Thomas assumes that an average class in Malaysia has more than 80 students (Thomas, 2011). The maximum class size for writing classes should be 20 or less, as recommended by The Conference on College Composition and Communication, a professional organization within the National Council of Teachers of English that focuses specifically on college writing (Horning, 2007). In large classrooms, engaging the students together is a challenge even more so when using traditional approaches to teaching - which research has demonstrated to be less effective than more interactive methodologies (Schell, 2012). Implementing a flipped classroom for a large class size may boost the students' academic attainment as it generally enables more focused teaching and learning to take place in the classroom despite the class size (Kachka, 2012). The flipped classroom's online material enables teachers to coach large classes: one-on-one tutoring, scaled by the web (Leckhart & Cheshire, 2012). As for its in-class teaching approach, small group discussions, peer-learning and inquiry-learning have been used to engage students in their learning, even for a large class size. In a large classroom of 209 students, Rick Sellens, a professor at Queens University in Canada, uses the Flipped Classroom with Peer Instruction. Despite the large enrolment, Sellens says: "I was able to get students engaged and talking to each other about the subject matter using Peer Instruction" (Schell, 2012).

**Limitations of the Flipped Classroom Approach**

An effective flipped classroom requires careful preparation and there is concern regarding the amount of time and effort the instructor has to put in. Recording lectures requires skill and time on the part of the faculty. Moreover, out-of-class and in-class elements must be carefully integrated for students to understand the model and be motivated to prepare for the class. A teacher, Roshan, admits that the process is time-consuming – about one hour and 15 minutes to record and edit a 30-minute lecture. But then, instead of lecturing in class, Roshan spends the class time "just walking around seeing what [students] need help with... they're able to work at their own pace" (Houston & Lin, 2012). As such, introducing a flip can mean additional work and may require new skills for the instructor, although this learning curve can be mitigated by approaching the model slowly (Educause, 2012). It takes effort, but planning, implementing and revising are all doable tasks and each effort builds a block upon which the next can be built. The important component of this process is to develop high-level, engaging questions that serve to deepen students' thinking and to address misconceptions in the lesson (November & Mull, 2012).

Hertz (2012) raises the issue of students' access to the Internet. A common concern in the flipped classroom process is regarding students who have poor or no Internet access outside of class

since the activities outside of class rely on technology. To mitigate this, lecture videos should be converted into a format that can be accessed by students through various means - laptops, tablet computers, smartphones and DVD players. The school faculty can also ensure that the computers in the library and labs are available for students to preview the videos before class. Twomey (2013) documents how a rural high school in Illinois, the United States completely flipped the lessons. In this largely high-poverty area, problems with access to the internet were solved by downloading the lessons onto DVDs and thumbdrives.

Another concern, which pertains to education in general, is when the student does not do the homework, in this case, to watch the online material before class. A flipped class requires students to be willing to take responsibility for their learning. While the focus of the Flipped Classroom is no longer the faculty as the "sage on the stage" but rather the "guide on the side", it provides a setting where students receive personal attention still held accountable for actions and academic performance (Hawks, 2014). Students who do not watch the online material before class will not be able to participate in the in-class activities fully and proceed to the application tasks. To ensure greater compliance, instructors can track the knowledge gained from the homework or they can adjust the class activities for unprepared students, if they are in fact unprepared (Kachka, 2012). This might be achieved by insisting that the unprepared students watch the video during class time (the preparatory work that is required so as to be able to proceed to the application tasks) while the rest of the class deepens their knowledge through other activities, i.e. the unprepared student misses out part of the class interaction at the beginning of the class and joins the class once the video is viewed.

**Implementing the Flipped Classroom**

The process of just flipping a classroom will not transform students' learning. According to a study by Houston and Lin (2012), a successful implementation of a flipped classroom would need the videos to be relatively short (no longer than 20 minutes) and teachers should briefly review the course content before in-class activities to answer any questions and to make sure that the majority of the students have sufficient understanding of the material. Kachka (2012) recommends that during the in-class activities, the teacher must be deliberate to guide and increase the interaction with the students. In addition, the instructional design using technology needs to be carefully planned to ensure the students' learning experience is enhanced, where students identify learning as their goal. Ramsey Musallam, who began flipping his classroom in 2006, stressed this, saying, "(a) flipped classroom is a thing you do in the context of an overarching pedagogy [and is] not the pedagogy itself " (Ash, 2012). The Flipped Classroom has a comprehensive instructional model that includes direct instruction, inquiry, practice, formative and summative assessment and many more elements (Bennett, et al. 2011). These instructional techniques give a focus to the process of learning. It is aimed to enable students to be more actively engaged with the course material and, ultimately, empower them to construct knowledge through their understanding.

Student's characteristics of their approach to achieve deep learning were identified from The Higher Education Academy in the UK, compiled from Biggs (1999), Entwistle (1988), and Ramsden (1992), and were used in the scope of the themes explored in this study. Students who want to achieve deep learning have the intention of understanding, engaging with, operating in, and valuing the subject. As such, the thematic analysis shows that deep learning occurs when students:

1. Look for meaning in their learning

2. Interact actively and

3. Relate new and previous knowledge (Higher Education Academy, 2011).

It is anticipated that the research undertaken here will explore the depth of learning for tertiary students in a module for the Diploma in Performing Arts qualification at Sunway University, a practical-based course. The students were from two cohorts that had a large class size.

## Research Purpose

The major research questions in this study were:

1. How does a Flipped Classroom approach engage the students in deep learning including looking for meaning in their learning, interacting actively and relating new and previous knowledge despite being in a large class?

2. Within the Flipped Classroom Approach, does including guided exploration by the student improve aspects of deep learning such as looking for meaning, interacting active or relating new and previous knowledge?

## Research Method

This study uses an action research approach, in line with the research query - which is to investigate what in-class instructional design for a large class sizes can be used to increase the interaction between the teacher and the student and between the student and another student, with the intention of stimulating deep learning. The instructional design using a flipped classroom strategy can be improved progressively in later flipped classes to achieve its impact of deep learning among the students.

To investigate if students were engaged in deep learning in a flipped classroom, a qualitative research method was used, with questionnaires, short interviews and observations. The first source of data - questionnaires focusing on the online lecture - were given to the students immediately after each flipped class. The second source of data - short interviews with a small sample of the two cohort groups of the program - were semi-structured, with key questions asked on their experience or behavior in the flipped class, their knowledge of the topic taught, and their learning in the flipped classrooms. The study sampling had 19 students (nine from the first year cohort and 10 from the second year cohort). The final source of data was from the researcher's personal reflection, abstracted from observational logs written during the flipped classes and from reflection notes written soon after each class.

### First Cycle

In this study, the student-centered learning approach with an instructional design using technology was drawn up to encourage active learning and higher-order thinking skills within a large class size. The study was done in two cycles, involving two cohorts of the Diploma in Performing Arts students from the Department of Performance and Media, Sunway University. The first cycle was conducted in the Scriptwriting course in the August 2012 semester. With 32 students from the second year cohort of the program, two flipped classes were held. The second cycle was conducted in the Video Tools course in the April 2013 semester. With 33 students from the first year cohort of the program, two flipped classes were held.

In the first cycle of the flipped classroom, the students' learning cycle consisted of two stages, as outlined in Figure 1. The first stage involved the students viewing an online lecture as homework before class. The second stage involved the students engaging in active learning in class where they worked out real-world projects to grasp the context of the taught topic. In-class learning activities included peer instruction, problem-based learning and collaborative work.

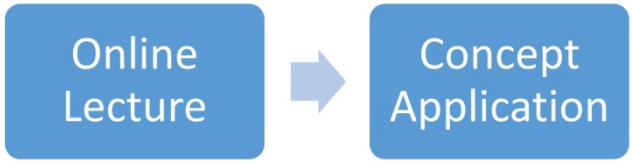


Figure 1. Students' learning cycle in Flipped Classroom Cycle 1

The model of instruction for the second cycle of the flipped classroom was improved after the researcher's continued reading of literature on achieving deep learning among students and reflection on the observation notes and questionnaires from the first cycle of the flipped classes. According to Flipped Classroom instructor Ramsay Musallam, when flipping his classrooms to achieve meaningful student learning, he would include the "Explore" phase, where students would work through guided inquiry exercises. This is based on the Explore-Explain-Apply inquiry learning cycle developed by Robert Karplus (Musallam, 2013). The in-class instruction merged aspects of blended learning with an inquiry-based learning cycle.

**Second Cycle**

The flipped classrooms for the second cycle consisted of three stages, as outlined in Figure 2. The first stage involved in-class learning activities focusing on exploration of concepts where students would perform hands-on activities designed to investigate the concept, and included discussion on various probabilities with the intention to lead to an understanding of the concept. The second and third stages were similar to the students' learning cycle in the Flipped Classroom Cycle 1, which was to preview an online lecture, followed by concept application in class. In the case of students who did not watch the online lecture before class, they were asked to watch it at the beginning of the lesson and, after watching it, resume class to take part in the active learning phase of the course.


Figure 2. Students' learning cycle in Flipped Classroom Cycle 2

## Results and Discussion

In analyzing the qualitative data, a thematic analysis was carried out within the scope of the themes determined by the research question framework of the study - which is, how the Flipped Classroom approach can engage students in deep learning despite being in a large class. Among the themes explored were students looking for meaning in their learning, interacting actively and relating new and previous knowledge despite being in a large class. Within the Flipped Classroom Approach between cycle 1 and 2, data from the students were reviewed to investigate if the guided exploration by the students improved deep learning.

**Cycle 1 and 2 results**

In looking at students' level of understanding of the topic taught in the flipped classes, results, as outlined in Table 1, show that the average ranking difference for Year 2 (Cycle 1) and Year 1 (Cycle 2) in their level of understanding the topic taught has a slight increase from level 3.9 in Cycle 1 to 4.1 in Cycle 2. Looking specifically at the online lecture 2 carried out in Cycle 1 and 2, as illustrated in Figure 3 and 4, the percentage of the students' understanding at level 5 increased from 30% in Cycle 1 to 44% in Cycle 2. A factor which may have led to the students' increased level of understanding of the topic taught was when inquiry-learning was incorporated in the flipped classes of Cycle 2.

Table 1. Students' level of understanding of the topics taught and the average ranking in the flipped classes

| **Year 2 Students** | **Iv 1** | **Iv 2** | **Iv 3** | **Iv 4** | **Iv 5** | **Iv 6** | **Iv 7** | **Iv 8** | **Iv 9** | **Iv 10** |
|---|---|---|---|---|---|---|---|---|---|---|
| Online Lecture 1 | 4.5 | 5 | 4 | 4 | 4 | 4 | 2.5 | 4 | 5 | 3 |
| Online Lecture 2 | 5 | 4 | 4 | 4 | 4 | 3 | 3.5 | 5 | 3 | 4 |
| Average ranking of Year 2 students' level of understanding of the topic taught in the flipped classes (Cycle 1). | | | | | | | | | **3.9** | |
| **Year 1 Students** | **Iv 1** | **Iv 2** | **Iv 3** | **Iv 4** | **Iv 5** | **Iv 6** | **Iv 7** | **Iv 8** | **Iv 9** | |
| Online Lecture 3 | 5 | 4 | 4 | 4 | 4 | - | 3 | 4 | 5 | |
| Online Lecture 4 | 4 | 5 | 3 | 5 | 4 | 3 | 5 | 4 | 5 | |
| Average ranking of Year 1 students' level of understanding of the topic taught in the flipped classes (Cycle 2). | | | | | | | | | **4.1** | |
| Average ranking of Year 2 and 1 students' level of understanding of the topic taught in the flipped classes (Cycle 1 & 2). | | | | | | | | | **4** | |

| | |
|---|---|
| **Iv** | Interviews were labelled numerically. |
| 0-5 | Level of students' understanding of the topic taught with 5 ranked as the highest. |

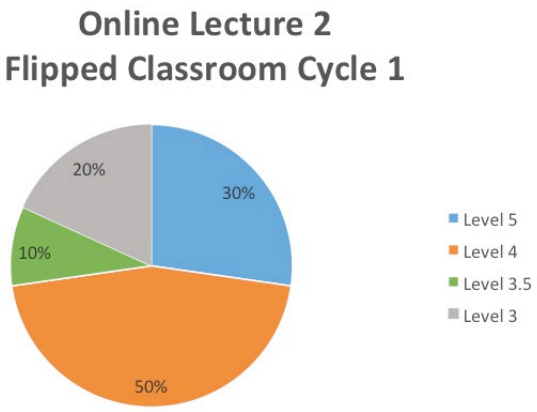

Figure 3. Students' level of understanding of the topic taught in Online Lecture 2 in the Flipped Classroom Cycle 1

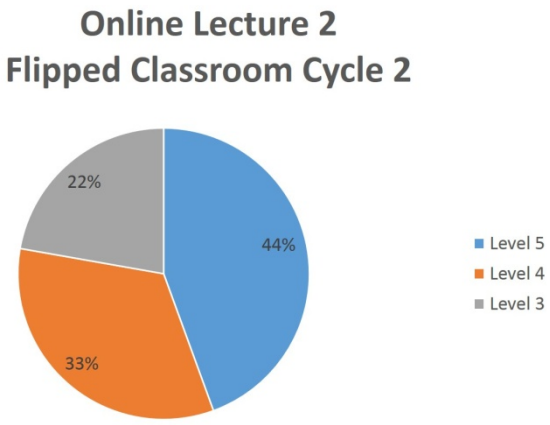


Figure 4. Students' level of understanding of the topic taught in Online Lecture 2 in the Flipped Classroom Cycle

**The results also indicated several common issues and themes**

**Students Look for Meaning in their Learning**

In analysing the theme of students looking for meaning in their learning, we first looked for any behaviour trends when the students accessed the lesson online, and also the level of understanding of the topics taught in the flipped classroom. After watching the online lecture, 50% of the Year 1 students reported in the questionnaire that they replayed and paused the online lecture to take notes and to understand the lesson. Relating to their understanding of the topics taught, respondents from both cohorts interviewed had a high understanding, with an average ranking of 4 out of 5 (highest) as outlined in Table 1. In the second flipped class for Year 1 students, 44% of the respondents felt they understood the topic well and ranked it at 5 (as outlined in Figure 3). These results show that most learners are engaged in their learning when using the technology to watch the online lecture. From the nine interview respondents with the Year 1 cohort, one student, after watching the online lecture, even looked for more information online and two students understood the topic well enough to apply it to the personal projects they took on.

When using the flipped classroom model, learning instructions, like inquiry-learning, were implemented in the Flipped Classroom Cycle 2 with the intention for students to make sense of their learning. The results from this study showed that more than half of the respondents (67%) from flipped class Cycle 2 (which taught camera shots size and angles and how to develop stories by using storyboards) found learning engaging and were excited by the ideas taught to try them out themselves. For example, Interview 5 (Year 1) had practiced framing different shots and angles with a camera before class to test the knowledge received. Interview 7 (Year 1) said: "I am a dancer and I wanted to start planning to shoot dance movements using the camera". Three respondents from Cycle 2 began to think about the process for story development. Interview 7 (Year 1) said: "I looked at how stories are from script to visual. I was also thinking of how to shoot stories". Based on the researcher's observation notes, respondents from Cycle 2 were prepared for the lesson and were capable of going straight into the activity. This is in accordance with the increased percentage (from 30% of the Cycle 1 respondents to 67% of Cycle 2 respondents) who reported they were engaged in their learning and were excited to try these ideas

out on their own. A factor which may have led the students to be engaged and energised in their learning was when inquiry-learning (which is the explore phase) was incorporated in the flipped classes Cycle 2. The instructional design with the "Explore" stage in Cycle 2 could have sparked the students' curiosity and zest for learning as inquiry-learning helps foster critical thinking.

The above results point to how this flipped classroom study helped students to be active learners despite the class size. This setting helped turn what was traditionally passive learning (sitting, listening, taking notes) into a more active, hands-on, student-centred process, by means of technology. The content of the lesson, now delivered to the students online, gives the students the opportunity to reflect and be prepared to be engaged further in class. With class time focused on meaningful learning activities, students also collaborated in small groups to solve problems and use deeper learning processes such as critical thinking. Students from this study showed that they actively sought to transform their own learning from understanding to a higher level of thinking when they engaged in applying and connecting the lesson to their own projects and interests. The flipped classroom model creatively helped these students to manage their own learning.

**Students' Active Participation during In-Class Activities**

In assessing students' participation in class activities, the interview results showed a high participation in all the flipped classes with a majority (more than 70%) saying they gave at least 80% of their attention to the activities. Nearly half of the respondents attributed their high level of participation to gaining new knowledge from the online lecture and in-class activities and finding it interesting.

In engaging diverse types of learners in the in-class activities, it is important to pay attention to students who are introverted or are more of reflective learners. In this study, these learners found it hard to participate as they would rather think through the work than voice their opinions during the in-class activities. 11% of the respondents felt they could have spoken up more during the group activities. Interview 9 (Year 1) said: "I could have done better at participation as I have feedback in my head". The researcher had observed this and recognised these learners and decided, in future lesson plans, to provide discussion questions ahead of time and to include short reflective breaks during class for these learners to think through the lesson.

In a flipped classroom setup, there is increased interaction between the teacher and the student, and with the student and another student, despite the large class size. One evidence of this interaction is the increased time for feedback. This is seen from the Year 2 interview respondents where 50% of them had a consistent comment on feedback - they either felt they had provided feedback or received useful feedback from their peers and the teacher on the work they did in the in-class activities. Interview 6 (Year 2) said: "Through the activity, my group members gave good feedback on how to improve the conflict in my script". In the researcher's observation notes, it was noted that as the students performed the learning activities, the teacher could assess the students' level of understanding and provide prompt guidance directly. These increased opportunities for feedback could improve student learning. According to Bloom (1984), "an average student who receives one-on-one attention is enabled by constant feedback and a corrective process, and can jump into the 98$^{th}$ percentile of the student population in the academic achievement realm" (Houston and Lin, 2012).

The in-class activities were all conducted in small groups varying from two to five members, depending on the type of activity. The researcher's notes showed that working in small groups helped students to feel less intimidated to ask questions and express their opinions. In addition to this, an interview respondent from the Year 1 cohort commented that questions were asked

throughout the activities in the class, compared to a traditional classroom, where questions are only asked at the end of the class. This helped draw the students into the learning process.

Students in this study recognised the benefits of active participation in class. They participated as they found the activities interesting, were interested to gain new knowledge in the classroom, and to share knowledge with one another. The class itself was transformed into a bustling learning hub.

**Students Connect New and Previous Knowledge**

Deep learning involves being able to connect the taught topics to previous knowledge and to the real world. In the thematic analysis of relating the topics taught in their flipped classrooms to new and previous knowledge, 90% of the interview respondents from the Year 2 cohort agreed that it did occur and they were applying the topics taught to their work (The flipped class was about story structure and conflicts in a short film). Interview 2 (Year 2) said: "I can apply this knowledge of storytelling in books whereby I can understand its story structure". In another flipped classroom, all Year 2 respondents could relate the topic taught to film, life, and their projects. Interview 7 (Year 2) said: "Yes, I can relate the topic taught to my life. I can relate characters to myself, especially in the choices the character made when in conflict". Interview 2 (Year 2) said: "I apply the knowledge taught when I view films, where I analyse the film structure. Also, when I work on the edit for my project, I pay attention to story flow and I apply the build-up sequence to the end of the story". As for Year 1 interview respondents, 78% of them could relate or/and apply the knowledge taught to films, books, music videos, and topics taught in other classes.

The above encouraging results showed that most students in the flipped class were able to relate new ideas to previous knowledge to build an understanding of the material taught.

**Other Findings**

A significant in-class instruction method practiced in the flipped classes was peer learning to enhance students' learning experiences, engagement and to foster cooperative learning. Cooperation among students typically resulted in (a) higher achievement and greater productivity, (b) more caring, supportive, and committed relationships, and (c) greater psychological health, social competence, and self-esteem (Smith & Kampf, 2004). Among the respondents there was a common thread regarding the benefits of peer learning . 50% of the Year 2 interview respondents placed value on peer learning. Interview 10 (Year 2) said: "I feel more comfortable in small groups and this enables me to give opinions and ask questions. I find this way of learning effective". Interview 5 (Year 2) said: "Discussions with my peers are stimulating and I can retain the information better". Peer learning helped most of the students in this study to understand the topic better and engage in the learning process.

Another benefit from the in-class activities, based on the researcher's observation notes, was that the students developed soft skills, such as communication when they were in the small groups. They were seen facilitating the discussion, articulating ideas, encouraging one another to contribute to the discussion, helping one another to accomplish the task and practicing leadership skills. Interview 8 (Year 1) reinforced this observation, saying: "We learnt to communicate better, where we expressed our ideas and feelings and tried to be a good listener".

All the study respondents found the flipped classroom to be productive and useful for their learning: 37% of the interview respondents felt that it was because the online videos were accessible and could be viewed again when necessary; 26% of the respondents said that the knowledge they acquired was condensed into a short video and this saved time in their learning;

and 37% of the respondents said the flipped classrooms were productive for their learning as they were provoked to think about the topic before class and were able to go beyond what was taught.

## Summary and Conclusion

The classroom flip in this study has shown encouraging results especially in the area of student participation in the lesson. The students have shown that they were involved in their own learning, with some students even applying what they learned in their own projects, and in their everyday lives. Students in this study also showed how they were able to connect new ideas to previous knowledge and apply it to the real world.

The flipped classroom is able to redesign a large lecture class into an active-learning class made of small groups. Despite a larger class size, active learning in small groups lead students to be engaged in learning, where they can participate, receive feedback and develop higher-order thinking skills. The class is no longer a place where students are passively seated and only take notes, but now is bustling with students who are interacting and discovering the lesson together.

In this study, exploratory learning through guided inquiry-based activities in the flipped classes was a successful way to engage students on a deeper level. This learning strategy increased the interaction between the teacher and the student and between the student and another student, despite the large class size. Interactive learning strategies in the classroom have to be planned out and revised accordingly as the dynamics is different from class to class, more so in a large class, so as to develop higher-order thinking skills and, ultimately, for students to become life-long learners.

The Flipped Classroom strategy promoted individualised learning for students as some of the students used the opportunity to replay and pause the online lecture to absorb it better. Students could do this at their own pace. However, students will need to take the initiative and take responsibility for their own learning.

Suggestions for further research include further development of the instructional design for flipped classrooms which includes blended learning with other active learning activities such as experiential learning and project-based learning to engage students in a meaningful and deeper level. One of the challenges for this research would be to cultivate student motivation and peer learning opportunities in order to achieve a common goal.

In carrying out this study, both learners and faculty members had a rewarding experience in using the flipped classroom model as it has empowered students to take charge of their learning and to be engaged in peer learning. It enabled the teachers to have one-on-one tutoring through a technology-infused lesson despite the large class size. This study provides an insight into a flipped classroom experience in a Malaysia context specifically in a Performing Arts course and supports the view that the flipped classroom has much to offer to the process of learning in higher educational institutions.

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