

Experiences and Challenges of using Flipped Classroom by Postgraduate Students: A Preliminary Comparative Study between India and Malaysia

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ABSTRACT--- *Flipped classroom is simply a concept where school work is done at home and home work is done at school. This concept which is also termed as the “inverted classroom” has spread to many classrooms in the west. The acceptance and practice of flipped classroom in the west is probably attributed to the differences in many aspects of learning between the west and the east. This study is a maiden attempt to analyze the experiences and challenges faced by the post graduate students of two Asian countries India and Malaysia in using flipped classroom. Findings of the Experience and Challenges of using Flipped Classroom between India and Malaysia revealed that much similarity with very slight differences between the countries were found. Both countries scored higher on Experience than on Challenges. Both countries seem to accept the use of flipped classrooms. Another interesting finding in this study is that for all the items for Experience and Challenges, the Standard Deviation is within 1 standard deviation. This shows that the variations or spread of the data is very much close.*

Keywords--- Flipped classroom, inverted classroom, pedagogy, experiences, challenges

1. INTRODUCTION

Flipped classroom strategy is not really a new phenomenon. It has been used in various forms informally in classrooms worldwide. However, in recent years the term Flipped Classroom has been formally highlighted and popularized as an innovative and radical pedagogy. Flipped Classroom application has also recently received attention as a model by Jonathan Bergmann and Aaron Sams (Joanne & Lateef, 2014). Jonathan Bergmann and Aaron Sams originally wrote a book entitled “Flip Your Classroom: Reach Every Student in Every Class Every Day.” The flipped classroom model intended to reform the traditional teaching methods that often failed to engage students in classrooms.

Western and eastern philosophy and characteristics of learning differs in many ways. The differences to name a few is in terms of the culture of learning, values, roles of teachers and students etc. These are some of the existing stereotypes of how learning occurs between the east and the west.

Students in the east including in Asia are often said to be passive whereas students in the west are considered to be active. Students in the east often rely on the teacher as the main source of information and knowledge. The Asian and western students also view the roles of their teachers differently. The Asian students often view their teachers as the “sage on the stage” rather than a “guide by the side”. The Asian students often depends too much from their teachers without doing much independent thinking. One of the characteristics of flipped classroom is that it requires students to learn actively and independently at home using a variety of online and offline resources and later participate actively in class discussions. This characteristic seems to be practical and suitable for the westerners whereas learners from the east may experience some form of disorientation. Thus, it will be appropriate at this juncture to carry out a preliminary study to find out about the experiences and challenges of postgraduate students from two Asian countries, namely India and Malaysia. Besides, this study also intends to look at the similarities and differences in the experiences and challenges of using the flipped classroom pedagogy by postgraduate students from India and Malaysia.

2. BENEFITS OF FLIPPED CLASSROOM

There has been a growing literature on the importance and benefits of using the flipped classroom pedagogy. This section will highlight some of the benefits and importance of using the flipped classroom. Flipped classrooms have attempted to give more class time for active participation of students in student-centered learning environments where they are actively engaged in higher-order-tasks by taking charge of their own learning. According to Strayer (2012), flipped classrooms integrate the regular and systematic use of interactive technologies in the learning process. The use of flipped classroom is not limited to certain groups of learners, a specific curriculum, or a particular content area (Bergmann & Sams, 2012). Several studies related to the use of flipped classroom has been conducted before. McLaughlin et. al. found that students in the flipped classroom are better prepared for the subsequent classroom activities. Butt (2014) showed that students in the flipped classrooms are excited, engaged and satisfied. Strayer (2012) found that the students are more to the cooperative way of learning. Studies also showed that students in a flipped classrooms had better examination scores (Tune et al., 2013), were highly personalized in the learning activities (Davies et al., 2013), and better problem solvers (Mason, et al., 2013). Most of the studies in the literature showed positive effects of using the flipped classrooms although some showed otherwise (Findlay-Thompson & Mombourquette, 2014; McLaughlin et. al 2013; Strayer, 2012). Most of the studies mentioned here are from the western countries.

There are also studies carried out in the Asian countries that provided positive results of using the flipped classroom strategy. Chua Shu Min Joanne & Fatimah Lateef (2014) examined several case studies from nine Asian countries across a broad range of university disciplines including engineering, computing and medicine. Some of the findings of the case studies as reported by Joanne & Lateef (2014) are as follows; (i) 90% of qualitative comments about flipped classroom are positive (Linga & Wang (2014); (ii) 50.5% of participants preferred video lectures to traditional lectures (Corrias, 2014); (iii) 90% of participants in their trial preferred the flipped classroom to traditional methods (Ong, 2014); (iv) a majority of participants answered positively to the statement: 'When I'm in this (flipped) class, I feel good' Jamaludin (2014); (v) 62.5% of participants benefitted from the extra time with their instructors in the flipped trial and would not have had such an opportunity otherwise (Sureka et. al (2013); (vi) 75% of participants answered 'yes' to 'Would you like future class sessions to be delivered in this way?' (Sharma, 2014); (vii) student satisfaction on feedback in inverted classroom is higher than that in traditional lecture group (Choi, 2013); (viii) more than 90% of students would like to recommend this course to others (Wan, 2014); (ix) 94% of their participants felt the flipped classroom model provided many advantages for learning (Chen, Wang & Chen, 2014); (x) participants agreed that the flipped classroom enhances ways of knowledge transmission, processing, acquisition and reconstruction (Atabekova, 2013); and (xi) participants believed strongly, that they would likely perform better in exams (Ishikawa et. al., 2014).

It is evident from the literature that both countries from the west and east have shown preferences for flipped classrooms. However, there are no evidence of studies comparing the experiences and challenges of using flipped classrooms between countries in the east. Thus, this study attempts to study the experiences and challenges of using flipped classrooms by two countries in Asia namely India and Malaysia. Further, this study also compares the experiences and challenges faced by these two countries.

3. RESEARCH OBJECTIVES

- i) To study the experiences and challenges of using flipped classrooms by postgraduate students in India and Malaysia.
- ii) To compare the similarities and differences of using flipped classrooms by postgraduate students in India and Malaysia.

4. RESEARCH QUESTIONS

- i) What are the experiences and challenges of using flipped classroom by postgraduate students in India and Malaysia?
- ii) In what ways the experiences and challenges of using flipped classroom by postgraduate students in India and Malaysia are similar and different?

5. METHODOLOGY

This descriptive study is based on a simply survey. The survey instrument was developed by the researchers in relation to challenges and experiences of using flipped classroom based on existing literature. The first 10 items are related to students' experiences whereas the second 10 items are related to the challenges of using the flipped classroom. Responses to the items are based on a four point Likert scale as follows; 1- strongly disagree; 2- Disagree; 3- Agree; 4- Strongly Agree. The suitability of the items were verified for content validity by another lecturer cum researcher. The reliability of the instrument was established by the responses provided by 20 postgraduate students who were not involved in the real study. The resulting Cronbach alpha reliability index obtained was 0.93 which goes to show that the instrument is very reliable. A total of 53 postgraduate students from India and Malaysia filled and returned the instrument. Of this total, 30

are postgraduate students from a university in Tamil Nadu, India, and another 23 postgraduate students from a public university in Peninsular Malaysia. A limited number of samples are used as this is a preliminary study. A simple descriptive analysis was carried out to obtain the means and the standard deviations for the scores. The data analysis was used to answer the research questions set for this study. This preliminary comparative study is only limited to two countries in the Asian region, namely India and Malaysia.

6. DATA ANALYSIS AND FINDINGS

A simple descriptive analysis was performed on the scores obtained from the returned instruments to answer the two research questions. Table 1 shows the mean scores and standard deviations for each of the items on Experience and Challenges; the Cumulative Mean scores for Experience and Challenges, and the overall Grand Mean of using flipped classrooms by postgraduate students in India. Likewise, Table 2 shows the mean scores and standard deviations for each of the items on Experience and Challenges; the Cumulative Mean scores for Experience and Challenges, and the overall Grand Mean of using flipped classrooms by postgraduate students in Malaysia. Table 3 on the other hand, shows the mean scores and standard deviations for each of the items on Experience and Challenges; the Cumulative Mean scores for Experience and Challenges, and the Overall Grand Mean of using flipped classrooms by postgraduate students in India and Malaysia.

Table1: Experience and Challenges of Using Flipped Classroom by Postgraduate Students in INDIA

ITEMS	MEAN	S.D.
EXPERIENCES		
I like to learn in a flipped classroom	3.23	.430
I learn better in a flipped classroom	3.07	.828
I think differently in a flipped classroom	3.00	.788
I use more resources in a flipped classroom	3.07	.785
There is more communication in a flipped classroom	2.77	.858
There is more discussion in a flipped classroom	2.60	.621
I have an enriching learning experience in a flipped classroom	3.00	.947
Flipped classroom helps me to develop problem solving skills	2.70	.794
Flipped classroom provides an enjoying learning experience	2.93	.785
Flipped classroom helps me to generate more new ideas	3.20	.714
CUMULATIVE MEAN FOR EXPERIENCE	2.96	
CHALLENGES		
I am adequately prepared to learn in a flipped classroom environment	2.93	.907
I do not have any problems of learning in a flipped classroom	2.20	.664
I can accept the flipped classroom concept of learning	2.90	.759
I do not have enough time to learn in a flipped classroom	2.10	.803
Learning in a flipped classroom is better than learning in the traditional lecture classroom	2.70	1.022
I have difficulties accessing materials / resources in the flipped classroom.	2.07	.868
I do not have enough time to look for materials for flipped classroom	2.27	.868
The in-class discussion is very productive for learning	2.93	.944
Flipped classroom required me to do more work than traditional lecture classroom	3.00	.830
I experience less problems in a flipped classroom	2.57	.858
CUMULATIVE MEAN FOR CHALLENGES	2.57	
OVERALL GRAND MEAN SCORE	2.76	

Table 2: Experience and Challenges of Using Flipped Classroom by Postgraduate Students in Malaysia

ITEMS	MEAN	S.D.
EXPERIENCE		
I like to learn in a flipped classroom	2.61	.722
I learn better in a flipped classroom	2.57	.788
I think differently in a flipped classroom	3.00	.674
I use more resources in a flipped classroom	3.30	.635
There is more communication in a flipped classroom	2.91	.793
There is more discussion in a flipped classroom	2.91	.733
I have an enriching learning experience in a flipped classroom	2.87	.626
Flipped classroom helps me to develop problem solving skills	2.91	.668
Flipped classroom provides an enjoying learning experience	2.91	.668
Flipped classroom helps me to generate more new ideas	3.04	.825
CUMULATIVE MEAN FOR EXPERIENCE	2.90	
CHALLENGES		
I am adequately prepared to learn in a flipped classroom environment	2.61	.783
I do not have any problems of learning in a flipped classroom	2.48	.511
I can accept the flipped classroom concept of learning	2.74	.541
I do not have enough time to learn in a flipped classroom	2.87	.815
Learning in a flipped classroom is better than learning in the traditional lecture classroom	3.13	4.170
I have difficulties accessing materials / resources in the flipped classroom.	2.30	.765
I do not have enough time to look for materials for flipped classroom	2.78	.671
The in-class discussion is very productive for learning	2.83	.491
Flipped classroom required me to do more work than traditional lecture classroom	3.17	.717
I experience less problems in a flipped classroom	2.48	.730
CUMULATIVE MEAN FOR EXPERIENCE	2.74	
OVERALL MEAN SCORE FOR EXPERIENCE AND CHALLENGES	2.82	

Table 3: A Comparison of Experience and Challenges of Using Flipped Classroom by Postgraduate Students in India and Malaysia

ITEMS	INDIA		MALAYSIA	
	MEAN	S.D.	MEAN	S.D.
EXPERIENCES				
I like to learn in a flipped classroom	3.23	.430	2.61	.722
I learn better in a flipped classroom	3.07	.828	2.57	.788
I think differently in a flipped classroom	3.00	.788	3.00	.674
I use more resources in a flipped classroom	3.07	.785	3.30	.635
There is more communication in a flipped classroom	2.77	.858	2.91	.793
There is more discussion in a flipped classroom	2.60	.621	2.91	.733
I have an enriching learning experience in a flipped classroom	3.00	.947	2.87	.626
Flipped classroom helps me to develop problem solving skills	2.70	.794	2.91	.668
Flipped classroom provides an enjoying learning experience	2.93	.785	2.91	.668
Flipped classroom helps me to generate more new ideas	3.20	.714	3.04	.825
CUMULATIVE MEAN FOR EXPERIENCE	2.96		2.90	
CHALLENGES				
I am adequately prepared to learn in a flipped classroom environment	2.93	.907	2.61	.783
I do not have any problems of learning in a flipped classroom	2.20	.664	2.48	.511
I can accept the flipped classroom concept of learning	2.90	.759	2.74	.541
I do not have enough time to learn in a flipped classroom	2.10	.803	2.87	.815
Learning in a flipped classroom is better than learning in the traditional lecture classroom	2.70	1.022	3.13	4.170
I have difficulties accessing materials / resources in the flipped classroom.	2.07	.868	2.30	.765
I do not have enough time to look for materials for flipped classroom	2.27	.868	2.78	.671
The in-class discussion is very productive for learning	2.93	.944	2.83	.491
Flipped classroom required me to do more work than traditional lecture classroom	3.00	.830	3.17	.717
I experience less problems in a flipped classroom	2.57	.858	2.48	.730
CUMULATIVE MEAN FOR CHALLENGES	2.57		2.74	
OVERALL GRAND MEAN SCORE FOR EXPERIENCE AND CHALLENGES	2.76		2.82	

7. DISCUSSION, RECOMMENDATION AND CONCLUSION

Generally speaking, the idea of flipped classroom is accepted by postgraduate students in both India and Malaysia. In India, the findings show that all the items (both for experience and challenges) are agreed to be acceptable as all the mean scores for each item is more than 2.5. Six of the items on Experience exceeded mean score of 3.00. On the other hand, only one item on challenges exceeded 3.0. In addition, the cumulative mean scores for Experience and Challenges in India are 2.96 and 2.57 respectively. This shows that the mean score for Experience is slightly higher than the Challenges.

The findings for Malaysia is also almost similar to the findings for India. The findings show that all the items (both for experience and challenges) are agreed to be acceptable as all the mean scores for each item of more than 2.5. Three of the items on Experience and two items on Challenges exceeded the score of 3.0. The cumulative mean scores for Experience and Challenges in Malaysia are 2.90 and 2.74 respectively. The mean score for Experience is higher than the mean score for Challenges.

When comparing the results of the Experience and Challenges of using Flipped Classroom between India and Malaysia, it was found that the findings are pretty much similar with very slight differences between the countries. Both countries scored higher on Experience than on Challenges. Both countries seem to accept the use of flipped classrooms. Another interesting finding in this study is that for all the items for Experience and Challenges, the Standard Deviation is within 1 standard deviation. This shows that the variations or spread of the data is very much close. However, this is not true for the 5th item on the Challenges of Using the Flipped classroom which states, “Learning in a flipped classroom is better than learning in the traditional lecture classroom.” The spread of the data for both the countries are more than one standard deviation with Malaysia having a spread of 4.170 compared to India which is 1.022.

The findings of this preliminary study shows that countries like India and Malaysia which are from the Asian continent are also receptive and accepting the idea of flipped classroom. Contrary to findings that the learning culture between the east and the west differs greatly (Nisbett, 2003; Wang, 2006), this study shows that the acceptance of the flipped classroom is very much as how they are accepted in the west. This is probably because the present generation in Asia is the millennial generation who are born as the digital natives. This is also due to the closing of the digital gaps that existed between the countries. The current generation of postgraduate students’ worldwide maybe be separated geographically but they are connected digitally. What happens in the west soon spreads to the east in tandem with the growth of technology.

This preliminary study is just the beginning. More studies are suggested to be carried out between various countries in the Asian region in future. Additionally, studies related to flipped classroom can continue to be carried out in the future using more robust research methodologies and statistics that enrich the literature of flipped classroom use in the east.

8. REFERENCES

- Atabekova A.(2013). Public service interpreter and translator training in the flipped classroom: First steps to design learning materials. IATED Digital Library. pp. 4149-4152.
- Bergmann J, Sams A. (2012). Flip Your Classroom: Reach Every Student in Every Class Every Day. ISTE/ASCD.
- Butt, A. (2014). Student views on the use of a flipped classroom approach: evidence from Australia. *Business Education & Accreditation*, 6 (1), 33-43.
- Chen Y, Wang Y, Kinshuk, Chen NS.(2014). Is FLIP enough? Or should we use the FLIPPED model instead? *Computers & Education*. 79, 16-27.
- Choi EM.(2013)Applying Inverted Classroom to Software Engineering Education. *International Journal of e-Education, e-Business, e-Management and e-Learning*. 3(2): 121-125.
- Chua Shu Min Joanne & Fatimah Lateef (2014). The Flipped Classroom: Viewpoints in Asian Universities, *Education in Medicine Journal*. 6 (4), 20-26.
- Corrias, A. (2014). Lightening up Mathematics-intensive classes: A case study using a flipped classroom approach. *CDTL Brief*. 17(1),10-13.
- 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.
- Findlay-Thompson, S. ,&Mombourquette, P. (2014). Evaluation of a flipped classroom in an undergraduate business course. *Business, Education & Accreditation*, 6(1), 63-71.
- Jamaludin R. Osman SZ. (2014). The Use of a Flipped Classroom to Enhance Engagement and Promote Active Learning. *Journal of Education and Practice*. 5(2), 124-131.
- Linga, P, Wang CH. (2014). Flipped class learning in a large class setting. *CDTL Brief*. 17(1), 4-9.

- Mason, G., Shuman, T., & Cook, K. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course. *IEEE Transactions on Education*, 56(4), 430-435.
- McLaughlin, J.E., Griffin, L.M., Esserman, D.A., Davidson, C.A., Glatt, D.M., Roth, M.T., Mumper, R.J. (2013). Pharmacy Student Engagement, Performance, and Perception in a Flipped Satellite Classroom. *American Journal of Pharmaceutical Education*, 77(9), 1-8.
- Nisbett R. (2003). *The Geography of Thought: How Asians and Westerners Think Differently...and Why*. Simon & Schuster Inc.
- Ong, P.S. (2014). A hybrid teaching method encompassing didactic lectures, short e-modules and case scenarios to facilitate learning of pharmaceutical care principles. *CDTL Brief*. 17(1), 14-18.
- Strayer, J.F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*, 15(2), 171-193.
- Tucker B.(2012) The flipped classroom. *EducationNext*. Retrieved from [http:// education next.org /the-flipped-classroom/](http://educationnext.org/the-flipped-classroom/)
- Tune, J.D., Sturek, M., &Basile, D. P. (2013, December). Flipped classroom model improves graduate student performance in cardiovascular, respiratory, and renal physiology. *Advance in Physiology Education*. 37(4), 316-320.
- Wang H. (2006). Teaching Asian Students Online: What Matters and Why? *PAACE Journal of Lifelong Learning*. 15, 69-84.
- Zhang Z. (2014). Construction of Online Course based on FCM concept. Atlantis Press.
- Sureka A, Gupta M, Sarkar D, Chaudhary V. (2013). *A Case-Study on Teaching Undergraduate-Level Software Engineering Course Using Inverted-Classroom, Large-Group, Real-Client and Studio-Based Instruction Model*. Cornell University Library.
- Wan HT. (2014). Impact analysis of using OpenCourseWare to Flip the classroom -examples in Taipei Medical University [webpage]. Available from: http://conference.oeconsortium.org/2014/wp-content/uploads/2014/02/Paper_13-Taiwan-Medical.pdf