Flipped Classroom at the Defence University: The Initial Reactions of Students

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Abstrat: Flipped classroom is not new in the education landscape. When an instructor asked the students to read page 4 of the textbook for example and the next class would be dedicated to discussing and debating what page 4 is all about it is considered a flipped concept. This is because the definition of flipped classroom has not changed over time; the only thing that changes is the medium of teaching and learning. Today, flipped classroom suggests that the students are expected to read/watch/listen to the lectures through the Learning Management System (LMS) or an e-Learning portal before coming to the classes. What traditionally was practised is that students were given lectures during face-to-face sessions. Now, students do their 'homework' with the help of the instructors during face-to-face sessions. This study aims at presenting the initial findings of the bigger or main research through data collected during the pilot study. Although, the objectives of the pilot study are to first counter check the items in the survey and second to gauge the understanding of students of the items, the researchers argue that the initial findings are representing some critical issues in order to implement flipped classroom university wide. The 78 respondents were chosen to undergo the pilot study which was divided into two phases. The data were gathered from 58 respondents who completed the survey successfully out of 78 invited respondents. The findings convince the researchers that flipped classroom would allow for the development of critical and analytical thinkers for the nation.

Key words: Digitalt technology, face-to-face sessions, flipped classroom, LMS, analytical

INTRODUCTION

Flipped classroom is not new in the education landscape. When an instructor asked the students to read page 4 of the textbook for example and the next class would be dedicated to discussing and debating what page 4 is all about it is considered a flipped concept. This is because the definition of flipped classroom has not changed over time; the only thing that changes is the medium of teaching and learning. Today, flipped classroom suggests that the students are expected to read/watch/listen to the lectures through the Learning Management System (LMS) or an e-Learning portal before coming to the classes. What traditionally was practised is that students were given lectures during face-to-face sessions. Now, students do their "homework" with the help of the instructors during face-to-face sessions.

The drivers for using flipped classroom which is part of the tools for e-Learning are threefold. The most important one was the national higher education strategic plan which was launched in 2007. This plan has outlined e-Learning as one of its Critical Agenda Projects (CAPs). This suggests that all tertiary education providers must equip their institutions with some forms of online teaching and learning. This was then further strengthened by the launch of the national e-Learning Policy in April 2011. Again, the emphasis is given by the Ministry of Education, Malaysia for all higher learning institutions to incorporate the use of technology in teaching and learning. recently, the launch of the Malaysia Education Blueprint (Higher Education) on 7th April, 2015 has also highlighted the importance of digital technologies in teaching and learning through one of its 10 shifts; shift 9 globalised online learning promotes more quality digital content and an aggressive push towards making Malaysia a renowned higher education hub.

Given this, the National Defence University of Malaysia (NDUM) must also be prepared to rise to this challenge. This study reports only the pilot study's findings of a bigger or main research on the use of flipped classroom at the NDUM. The aim of this research is to examine the perceptions of students on the new concept of classroom learning. For the purpose of this study, the pilot study has two objectives including:

- To cross check the items adopted from previous research for compatibility of the bigger or main research
- To gauge respondent's understanding of the items adopted in the online survey

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Assumption of the pilot study: Flipped classroom is new to the NDUM but the researchers argue that it has huge potential to assist students in their learning process. Therefore, it is assumed that students can rely on flipped classroom specifically to prepare them before coming to the face-to-face sessions.

This introduction ends with the outline of the overall paper. There are five sections including this introduction which covers some background of the study and its objectives. The second section analyses critical literature on flipped classroom and relevant concepts. The third section briefly explains the methodology of the study. The fourth and last sections analyse and discuss the data of the pilot study and conclude this study respectively.

Literature review

Selected literature: Research on flipped classroom demonstrates that the concept can empower students to take charge of their own learning. There is nothing new about flipped classroom (Lancaster and Read, 2013). In the past, students were expected to read a paragraph or a chapter before coming to class and further discussion on the reading material will be facilitated by instructors in the classroom. The difference is just the delivery method or medium of "flipping" and the time spent on delivering lectures during face-to-face sessions. With the need to use e-Learning in the Malaysian higher learning environment, flipped classroom through the LMS may encourage instructors and students alike to adopt technology in teaching and learning. Since, flipped classroom could also foster learner autonomy, the technology can further assist in this effort (Cullen *et al.*, 2012).

Hamdan *et al.* (2013) argued that there are four pillars of flipped learning. Firstly, the flipped concept requires a flexible learning environment. This suggests that the instructors will engage the students using various methods of learning; all of which involve active participation from all students. Secondly, flipped classroom involves a shift in the learning culture. This is where the students are empowered to take control of their learning; how and what to explore depend on student's desires to learn and the directions of learning.

Thirdly, flipped learning requires intentional content. According to Hamdan *et al.* (2013), instructors use intentional content to ensure that students master "conceptual understanding together with procedural fluency". Lastly, the concept expects that the instructors become professional educators who are reflective educators and constantly finding ways to improve the learning environment in flipped classroom. Further,

students who are in flipped classes progress faster because they understand the lessons better. Perez and Dong also found that flipped classroom allows students to master design skills effectively. Other researchers suggest that flipped classroom also assists student's understanding of lessons in law, physics and thus, improves their retention of knowledge (Bates and Galloway, 2012; Lemmer, 2013).

In Malaysia, some areas of flipped classroom have been studied by various scholars. Embi, Hussin and Panah (Embi *et al.*, 2014) found in their study that students at Universiti Kebangsaan Malaysia have an acceptable readiness to adopt the flipped classroom approach. Their study looked at technology access, online skills and relationships, motivation and the Internet discussion, amongst others. Further, another study by scholars in universiti Malaysia Sabah found that there is a need to evaluate the contribution of flipped classroom in higher education, particularly when it is used as a complementary approach to the face-to-face sessions (Wah *et al.*, 2014). In addition, at the international medical University, it was found that the most successful faculty in implementing flipped classroom is the school of Pharmacy (Alsagof *et al.*, 2014). The other faculties, nonetheless are also reported to be doing their best in offering unique ways to engage students through flipped classroom.

Notwithstanding this increase popularity of flipped classroom there are also concerns about this concept. Amongst the critical ones is the fact that flipped classroom as an approach can be poorly executed. Bergmann and Sam (2012) argued that some instructors would totally replace themselves with videos uploaded online.

Further, the skills of presenting through videos can vary between one instructor to the other and the different styles of presenting will have to serve various needs of the students. In addition to this, concerns are also heard on the access of the internet (Mike, 2013; Schmidt and Ralph, 2014) this suggests that whether students are having the same amount of access at home or wherever they choose to view the online materials before coming to class.

MATERIALS AND MEHODS

As part of a bigger research project, this study focuses on the results of the pilot study of the research. Although, the data came from a pilot study, the researchers argue that the data pose significant initial findings for further deliberation. As data come from the pilot study, the analysis conducted is descriptive in

nature. The 78 foundation year students were chosen to be the respondents of the pilot study. They were from three different groups taught by one of the researchers. The total population of the foundation year students was about 700 thus the respondents were approximately 11% of the foundation year total student population. The pilot study was conducted in two phases as explained below.

The first phase: This phase focussed on two aspects of the study. Firstly, it focussed on designing and developing the electronic content or e-Content for the purpose of applying the flipped classroom concept. Two Web 2.0 tools were used, iSpring and video scribe. Secondly, the researchers focussed on developing the items for the online survey. The items in the questionnaires were adopted from various sources including Perkins (2011) and Bates and Galloway (2012) and MHS flipping classroom-student survey from surveymonkeys.com available online. All questionnaire items used 5 Point likert scale with 1 (strongly disagree) 2 (disagree) 3 (not sure) 4 (agree) and 5 (strongly agree). Online Google survey was used as the platform for the survey.

The second phase: Similarly, this phase replicated two aspects as the ones in the first phase. First, the researchers invited the respondents to explore the flipped concept through the LMS. All e-Contents developed were uploaded to the LMS for the respondents to access. The e-Content materials were uploaded in stages of three, whereby in between the upload, the researchers conducted face-to-face sessions to facilitate respondent's understanding of the materials.

Second, after the respondents had explored all the e-Contents and had attended all three face-to-face sessions, the respondents were asked to answer the online survey. They were given two weeks to respond to the survey.

RESULTS AND DISCUSSION

The findings originate from the online survey completed by 58 foundation year students. The online survey consists of three sections. The discussion in this section will start first with the review of the demographic data of the respondents, followed by the data from the second section which scrutinises the perceptions of the respondents on flipped classroom. An overall analysis of the assumption will use also data from the third section of the online survey in which respondents shared their opinions about and of flipped classroom.

Data from Section A of the online survey: Based on the above two figures, it can be summarised that the respondents were mostly male students (72.4%) and the
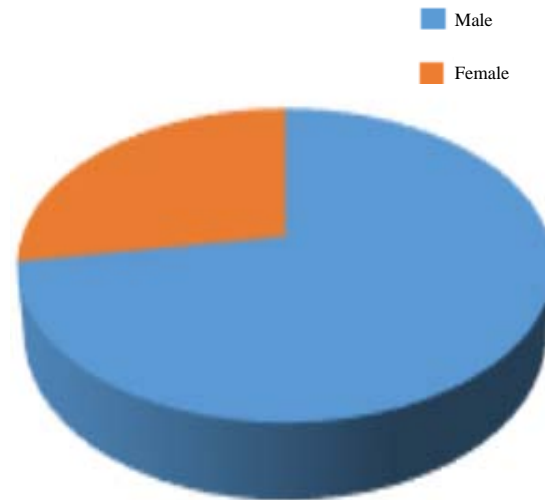

Fig. 1: The number of respondents

Fig. 2: The experience of students with the LMS

rest were female students. This is undisputable since the defence university is preparing for the future defenders of the nation and thus, there is a positive discrimination against the number of female cadets and officers in the Malaysian armed forces. This is due to the limitations of posting areas and positions in the three military services in Malaysia (Fig. 1 and 2).

Data from Section B of the online survey: There are 30 questions in this section and they are divided into several themes. All items seek respondent's viewpoints of flipped classroom. Table 1 illustrates the findings from selected items of Section B.

Overall, the respondents were positive about the flipped classroom concept. Based on Table 1, > 85% of the respondents chose to agree to these selected and critical items. The item the activities during flipped classroom session increase my understanding of

Table 1: Selected Items and the responses (in percentage)

Items	Agree/Strongly agree	Disagree/Strongly disagree
The activities during flipped classroom session increase my understanding of the course key concepts	96.6	3.40
The flipped classroom session inspires me to pursue further learning for the course	91.4	8.60
My level of engagement for this course increases when it is done through flipped classroom	93.2	6.90
Flipped classroom allows me to participate more actively in class when compared to traditional lectures	84.4	15.5
I think more lectures/classes should be conducted in the flipped classroom mode	91.4	8.60
Flipped classroom encourages me to read/find additional materials outside of class	89.6	10.3
Flipped classroom gives me more opportunity to discuss with the lecturer	91.4	8.60
I am more motivated to learn through flipped classroom	86.2	13.7
Flipped classroom has not enhanced my learning process	39.6	60.4
Flipped classroom is more engaging than the traditional classroom	75.9	24.1
Viewing the video lectures/online materials before coming to class allows me to be ready with the class activity	96.5	3.40
Flipped classroom allows me to make use of the class time more effectively with the lecturer	89.6	10.3
I would rather be involved in a class discussion than sitting and listening to the lecture the whole time	86.3	13.8

the course key concepts was positively chosen by 96.6% of the respondents. Notwithstanding this, the respondents were also quite divided between their preferences of the flipped classroom concept. This is because 39.6% of the respondents agreed that the concept has not enhanced their learning process. The researchers argue that this is expected since the concept is relatively new at the defence university.

Aligning the assumption: It is assumed that flipped classroom helps students to learn better and effectively. Based on the pilot study data, this assumption could be accepted but not without its consequences. These consequences fulfil the objectives of this study; nonetheless they are impactful to the bigger or major research on flipped classroom at the defence university.

These consequences are twofold as explained below. First, based on the data gathered, the respondents admitted that the second phase of the pilot study was their first encounter with the flipped classroom concept. This is supported by the respondent's comments in Section C of the online survey where they implied that they were not able to comment because they have no ideas on the concept. This further highlights the importance of conducting further research into this area simply because there is not much information about flipped classroom at the defence university. This poses another question whether the academic staff are aware of the flipped classroom concept and whether they are prepared to apply this concept in their teaching practices. This could perhaps be addressed in the bigger or main research project or in another new research study.

Second, the respondents were also critical about the e-Content materials designed, developed and uploaded as part of the process to complete flipped classroom. Some respondents suggested that the questions/quiz at the end

of each lesson should be replaced with educational games instead. The researchers justify this "request" as a critical requirement of the 21st century learners who are mostly digital natives. Apart from that the respondents also suggested that the e-Content materials are developed through film making or creative animations. This, unquestionably, could retain the student's interest in learning. On top of that the researchers would have to validate all materials and retest the flow and activities of the e-Content materials.

In short for the next stage of this bigger or main research, the researchers will have to reedit the e-Content materials, taking into consideration the suggestions by the respondents. In terms of the two objectives posed earlier, the researchers are adamant that the items in the online survey are compatible and the respondents were able to understand the questions. Nonetheless, the researchers have overlooked the importance of the e-Content materials designed and developed for the second phase of this study. Therefore, the actual data collection will have to ensure that the e-Content materials designed and developed are also checked for reliability and validity.

CONCLUSION

This study only reports on the data of the pilot study on flipped classroom. As the youngest public university in Malaysia, the NDUM is ready to evolve in providing the best learning environment and experience for the students. Flipped classroom is just another way of learning that can be successfully implemented. Its strength is that it is able to assist students to understand and prepare for their next classes and thus come equipped to classes with questions and arguments to be discussed and debated with friends and instructors.

REFERENCES

Alsagof, Z., H. Baloch and N. Hashim, 2014. Flipping Large Lectures @ IMU. In: Blended and Flipped Learning: Case Studies in Malaysia HEIs, Embi, M.A. (Ed.). Universiti Kebangsaan Malaysia, Bangi, Malaysia, pp: 255-274.

Bates, S. and R. Galloway, 2012. The inverted classroom in a large enrolment introductory physics course: A case study. Higher Education Academy, UK.

Bergmann, J. and A. Sams, 2012. Flip Your Classroom: Reach Every Student in Every Class Every Day. ISTE Publisher, London, England, ISBN:9781564844682, Pages: 120.

Cullen, R., M. Harris and R.R. Hill, 2012. The Learner-Centred Curriculum: Design and Implementation. John Wiley & Sons, San Francisco, California, ISBN:978-1-118-17100-4, Pages: 125.

Embi, M.A., S. Hussin and E. Panah, 2014. Flipped Learning Readiness Amongst Graduate and Postgraduate Students in UKM. In: Blended and Flipped Learning: Case Studies in Malaysia HEIs, Embi, M.A. (Ed.). Universiti Kebangsaan Malaysia, Bangi, Malaysia, pp: 209-223.

Hamdan, N., P. McKnight, K. McKnight and K. Arfstrom, 2013. A review of flipped classroom. Master Thesis, George Mason University, Fairfax, Virginia.

Lancaster, S.J. and D. Read, 2013. Flipping lectures and inverting classrooms. Educ. Chem., 50: 14-17.

Lemmer, C.A., 2013. A view from the flip side: Using the inverted classroom to enhance the legal information literacy of the international LL. M. student. Law Libr. J., 105: 461-491.

Mike, M., 2013. 10 Pros and cons of a flipped classroom. Teachthought, USA. http://www.teachthought. com/trends/10-pros-cons-flipped-classroom/.

Perkins, R., 2011. An evaluation of the flipped classroom. Christi Camel. https://camelportfolio.files. wordpress.com/2012/03/camel-c-final-epd-for-the-fli pped-classroom.pdf.

Schmidt, S.M.P. and D.L. Ralph, 2014. The flipped classroom: A twist on teaching. Proceedings of the International Academic Conference on Clute Institute, June 8-12, 2014, Clute Institute, San Antonio, Texas, pp: 98-104.

Wah, L.K., N.S. Ing, T.C. Keong and Y.S. Jhee, 2014. To Flip or Not to Flip the Classroom? Findings from a Malaysian Undergraduate Course in UMS. In: Blended and Flipped Learning: Case Studies in Malaysia HEIs, Embi, M.A. (Ed.). Universiti Kebangsaan Malaysia, Bangi, Malaysia, pp: 227-252.