



COMPARING THE EFFICACY OF FLIP CLASS OVER DIDACTIC LECTURE IN TEACHING ABSTRACT CONCEPTS OF ANATOMY FOR MEDICAL STUDENTS.

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ABSTRACT **Background:** Flip classroom is a pedagogical approach in which instructions upgrade from the group learning space to individual learning space and the resultant group space is transformed into a dynamic interactive learning environment where the educator guides the students as they apply concepts. In this study we compared the effectiveness of flipped classroom with didactic lectures in teaching abstract concepts of anatomy for undergraduate medical students. **Materials And Methods:** A Comparative study was done in Department of Anatomy, Government Villupuram Medical College for a period of 2 months among 100 undergraduate medical students. Ethical committee approval was obtained. Transgender Attitude and Beliefs Scale (TABS) & validated MCQ questionnaire on knowledge (30 questions) were used. Responses for TABS was answered on a Likert scale with scores ranging from 1 to 7 (Wilcoxon rank-sum test used). MCQs were assessed by scoring one point for one question (Unpaired t-test used). **Results:** After the session, the group which attended flipped classroom had a statistically significantly higher post session score compared to the lecture group. **Conclusions:** Flipped classrooms are better at conveying complex concepts than conventional didactic lectures. Flip classroom provides a good opportunity for teachers to teach through video and clarify the next day in person. It improves the students access to content, potential for family support and a good emphasis on the student.

KEYWORDS : Flip, Pedagogy, Classroom, Transgender, TABS Scale.

INTRODUCTION:

In essence, "flipping the classroom" means that students gain first exposure to new material outside of class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, perhaps through problem-solving, discussion, or debates. In terms of Bloom's revised taxonomy (2001), this means that students are doing the lower levels of cognitive work (gaining knowledge and comprehension) outside of class, and focusing on the higher forms of cognitive work (application, analysis, synthesis, and/or evaluation) in class, where they have the support of their peers and instructor. This model contrasts from the traditional model in which "first exposure" occurs, with students assimilating knowledge through homework; thus, the term "flipped classroom" (Brame, 2013).

To ensure that students do the preparation necessary for productive class time, Walvoord and Anderson propose an assignment-based model in which students produce work (writing, problems, etc.) prior to class. The students receive productive feedback through the processing activities that occur during class, reducing the need for the instructor to provide extensive written feedback on the students' work.

Advantages of the classroom:

- Provide an opportunity for students to gain first exposure prior to class
- Provide an incentive for students to prepare for class.
- Provide a mechanism to assess student understanding.
- Provide in-class activities that focus on higher level cognitive activities (Walvoord et al., 1998)

AIM AND OBJECTIVES:

The aim of this study was to use flipped classroom as teaching learning method to

- Teach abstract topics in anatomy like embryology, genetics, transgender health needs
- To know the effectiveness of flipped classroom in context to student's active participation, perception, self-motivation, time management, and learning material accessibility.
- Also, to assess the impact of flipped classes on in-depth learning and overall understanding of students.

MATERIALS AND METHODS:

Study Design: Comparative study

Study Setting: Department of Anatomy, Government Villupuram Medical College

Study Duration: 2 months (Jan 2020- Feb 2020)

Study Population: 1st year MBBS UGs of 2019-20 batch of GVMCH.

Sample Size; 100 students

Inclusion Criteria: All students with access to internet.

Exclusion Criteria: Any student who remains absent in either of the class.

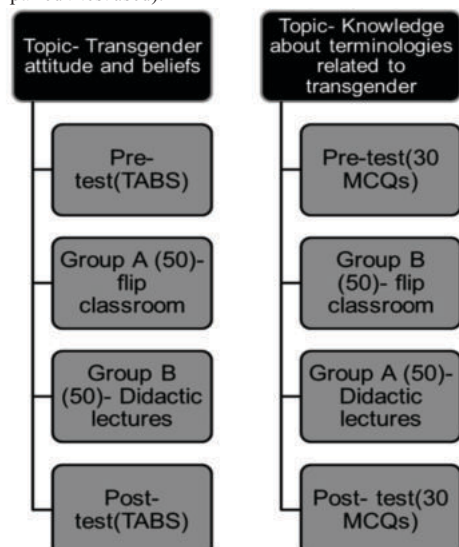
Ethical Committee approval: Obtained

Informed Consent: Received from all the participants.

Ethical Committee Approval: Obtained.

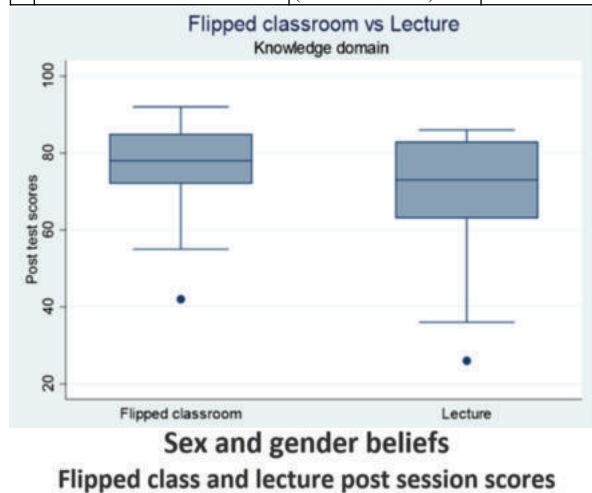
Informed Consent: Received from all participants Study instruments: Transgender Attitude and Beliefs Scale (TABS) & validated MCQ questionnaire on knowledge (30 questions)

- Responses for TABS was answered on a Likert scale with scores ranging from 1 to 7 (Wilcoxon rank sum test used).
- MCQs were assessed by scoring one point for one question (Unpaired t-test used).



OBSERVATION AND RESULTS:

1.	Knowledge (unpaired t-test)	6.64 (Mean Difference)	0.0085
2.	Interpersonal comfort (Wilcoxon rank sum test)	FC = 6.39 DL = 5.92 (Median Score)	<0.001
3.	Human values (Wilcoxon rank sum test)	FC = 7 DL = 6.8 (Median Scores)	0.016
4.	Sex and gender beliefs (Wilcoxon rank sum test)	FC = 5.55 DL = 5.0 (Median Scores)	<0.01

**RESULTS:**

The mean scores in all the domains among both the groups were comparable before the session. There was no statistically significant difference.

After the session, the group which attended flipped classroom had a statistically significantly higher post session score compared to the lecture group.

DISCUSSION:

Proponents of flipped classroom list numerous advantages of inverting teaching and learning in higher education according to the flipped classroom model: it allows students to learn in their own pace, it encourages students to actively engage with lecture material, it frees up actual class time for more effective, creative and active learning activities, teachers receive expanded opportunities to interact with and to assess students' learning, and students take control and responsibility for their learning (Gilboy et al., 2015)

Most research on the flipped classroom employs group-based interactive learning activities inside the classroom, citing student-centered learning theories based on the works of Piaget 1967 and Vygotsky. The exact nature of these activities varies widely between studies. Similarly, there is wide variation in what is being assigned as "homework". The flipped classroom label is most often assigned to courses that use activities made up of asynchronous web-based video lectures and closed-ended problems or quizzes. In many traditional courses, this represents all the instruction students ever get. Thus, the flipped classroom actually represents an expansion of the curriculum, rather than a mere re-arrangement of activities (Bishop & Verleger, 2013)

A "flipped classroom" approach (Baker, 2000), also known as an "inverted classroom" (Lage et al., 2000), is one approach that can be

used to focus teaching activity on what the student actively does. The approach does this very explicitly, by bringing active student engagement with the material (such as problem-solving, case studies, etc., usually in collaboration with other students) directly into the classroom whilst moving more passive activities (such as reading course notes and textbooks and viewing/listening to lectures) outside of the classroom. Conversely, under a traditional didactic lecture structure this active student engagement is left to a single one-hour tutorial each week, and then outside the classroom to individual study and/or informal study groups. To students, the syllabus and teaching material in a flipped classroom may not look particularly different to more traditional approaches, but the form of accessing the syllabus and teaching material is different. As such, a flipped classroom could be seen as a stepping stone to less structured and inquiry-based learning environments such as problem-based learning (Barrows, 1986) (Hmelo-Silver, 2004)

For instance, McLaughlin et al. (2013) and McLaughlin et al. (2014) analysis of pharmacy students' experiences of flipped classroom courses revealed that students prefer learning content prior to class and using class time for applied learning, and that students who learned through a flipped classroom approach considered themselves more engaged than students attending traditional courses. Similar findings were obtained by Davies, Dean, and Ball (2013) who compared three different instructional strategies in an information systems spreadsheet course, and showed that students attending the flipped classroom course also were more satisfied with the learning environment compared to the other treatment groups.

CONCLUSION:

Based on the responses and scores of the assessment, it can be concluded that the flipped classroom approach is better for students, in terms of enhancing learning. It helps students achieve better results in their learning. The results of flipped classroom method will be a better learning tool for CBME.

REFERENCES:

- Brame, C. (2013). Flipping the classroom. Vanderbilt University Center for Teaching. Retrieved [12 December 2022] from <http://cft.vanderbilt.edu/guides-subpages/flipping-the-classroom>.
- Walvoord, B. E., Anderson, V. J., Anderson, J. V., & Angelo, T. A. (1998, February 25). *Effective Grading: A Tool for Learning and Assessment (Jossey Bass Higher & Adult Education Series)* (1st ed.). Jossey-Bass.
- Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015, January). Enhancing Student Engagement Using the Flipped Classroom. *Journal of Nutrition Education and Behavior*, 47(1), 109–114. <https://doi.org/10.1016/j.jneb.2014.08.008>
- Bishop, J., & Verleger, M. A. (2013, June), *The Flipped Classroom: A Survey of the Research*. Paper presented at 2013 ASEE Annual Conference & Exposition, Atlanta, Georgia. 10.18260/1-2--22585
- Baker, J. W. (2000) "The 'classroom flip': Using web course management tools to become the guide by the side." 11th International Conference on College Teaching and Learning, Jacksonville, Florida, United States, April 12-15
- Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the Classroom: A Gateway to Creating an Inclusive Learning Environment. *The Journal of Economic Education*, 31, 30-43. <http://dx.doi.org/10.2307/1183338>
- Barrows, H. S. (1986, November). A taxonomy of problem-based learning methods. *Medical Education*, 20(6), 481–486. <https://doi.org/10.1111/j.1365-2923.1986.tb01386.x>
- Hmelo-Silver, C. E. (2004, September). Problem-Based Learning: What and How Do Students Learn? *Educational Psychology Review*, 16(3), 235–266. <https://doi.org/10.1023/b:edpr.0000034022.16470.f3>
- McLaughlin, J. E., Griffin, L. M., Esserman, D. A., Davidson, C. A., Glatt, D. M., Roth, M. T., Gharkholonarehe, N., & Mumper, R. J. (2013, November 12). Pharmacy Student Engagement, Performance, and Perception in a Flipped Satellite Classroom. *American Journal of Pharmaceutical Education*, 77(9), 196. <https://doi.org/10.5688/ajpe779196>
- McLaughlin, J. E., Roth, M. T., Glatt, D. M., Gharkholonarehe, N., Davidson, C. A., Griffin, L. M., Esserman, D. A., & Mumper, R. J. (2014, February). The Flipped Classroom. *Academic Medicine*, 89(2), 236–243. <https://doi.org/10.1097/acm.0000000000000086>