

INNOVATION IN HISTOLOGY PRACTICAL DEMONSTRATION: STUDENTS AND TEACHERS VIEW POINT

Acharya Veena Anand *, Pushpa N B.

Assistant Professors, JSS Medical College, JSS University, Mysuru, Karnataka, India.

ABSTRACT

Introduction: Practical demonstration for histology is still being done using traditional methods in most of the medical colleges in this digital era. Teacher begins the class with pre-practical briefing, and then draws diagram on the board, discuss slide in small groups & finally correct record books. Teacher attends student individually for any clarifications. Time constraints often may not permit the teacher to attend everyone. The present study evaluates the development & evaluation of combined use of pre-practical briefing, conventional microscopy, flex-board image & electronic slide display that make practical demonstration easy and effective.

Objective: To evaluate students & teachers perception regarding the new histology practical teaching approach by analysing responses to Likert scale based questionnaires.

Methodology: Questionnaire based survey was undertaken on 1st MBBS students with sample size of 60 students & 4 teachers from Department of Anatomy, JSS Medical College, Mysuru, Karnataka, India. Exam slides procured from the department were photographed using camera while focussed under light microscope. These slides were presented in demo class electronically. Grading of parameters was done with structured Likert scale. Data was collected & analysed for results.

Results: Survey stated that encouraging results were found among teachers & students while using electronic media for slide display & flex board images for pre-practical briefing.

Conclusion: Time management was found to be very effective during histology practicals. Technical problems may be there while using electronic media but student acceptance is wonderful with this method. Further ease of demonstration with more advanced equipment like trinocular microscopes is already used in few colleges while other medical colleges need upgradation.

KEY WORDS: Pre- practical briefing, Flex board image, Electronic slide display, Conventional microscopy.

Address for Correspondence: Dr Acharya Veena Anand, Assistant Professor, Department of Anatomy, JSS Medical College, Mysuru- 570015, Karnataka, India.

E-Mail: veenaroopesh09@gmail.com

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INTRODUCTION

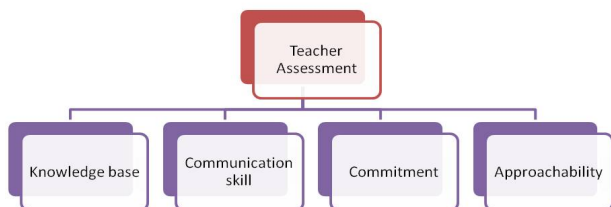
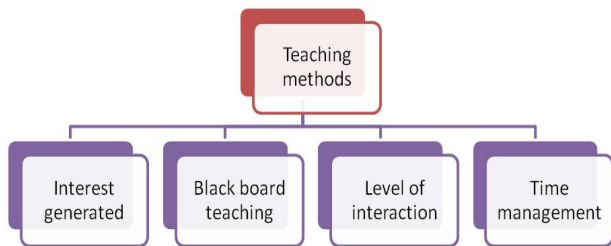
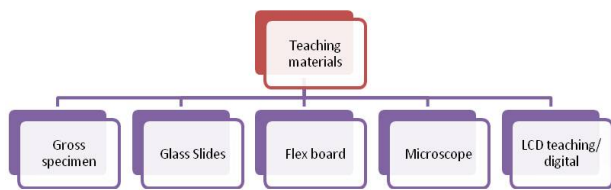
Histology is a branch of Anatomy to visualise the microscopic characteristic of the tissues in human body. It is taught to I MBBS students by theoretical lectures and by practical demonstrations of slides by microscopy. Medical colleges upgrade the syllabus with the introduction of

new curriculum as and when required. Hence it becomes necessary for the faculty to adapt to new teaching approaches. Recently with the introduction of information and communication technologies, digital image of the tissues are available. These are displayed as flexboard images in the practical hall. The present study

is done with an objective to simplify histology teaching and improvise learning and understanding.

METHODOLOGY

Questionnaire based survey was undertaken in the Department of Anatomy, JSS Medical College, Mysuru with the sample population of 60 students of I MBBS students & 4 Demonstrators. Two sets of questionnaire were framed for students & demonstrators based on Likert scale of 5 points. The questionnaire was about different teaching materials, teaching methods and about teacher assessment as shown in the flow charts below. The best quality glass slides were focussed under low (10X) & high power (40X) magnification using light microscope and were photographed. These slides were presented in demo class electronically by LCD display at pre-practical briefing.



OBSERVATION AND RESULTS

The student response to different teaching materials is tabulated. Students rated as Fair to Very Good to the use of glass slides, flex board, microscopes & LCD display of slides as suggested in the Table 1.

Table 1: Rating of the teaching materials by students.

Teaching materials	Poor	Fair	Good	Very good	Excellent
Gross specimen	2	5	35	11	7
Glass Slides	8	16	26	8	2
Flex board	7	8	28	15	2
Microscope	2	15	30	11	2
LCD teaching/digital display	5	15	19	18	3

The usefulness of LCD/ digital display of slides for pre- practical briefing during histology practicals were rated as fair to very good by 87% of the respondents as suggested in Fig 1.

Fig. 1: Students rating about the LCD/ digital display of glass slides.

LCD/ digital display

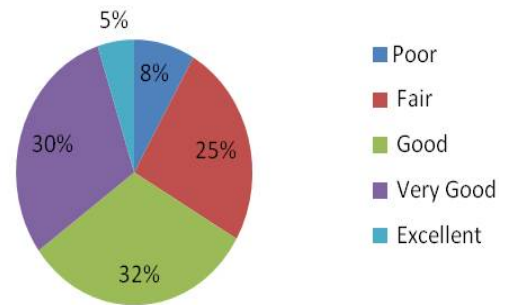
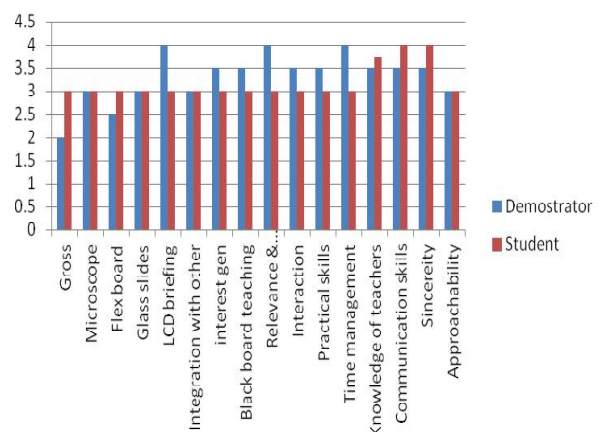


Fig. 2: Median of the parameters rated by students (n=60) & demonstrators (n=4).



Among demonstrators 3out of 4(75%) graded LCD display for pre-practical briefing as Very good teaching tool.

The interest generated for the use of blackboard to draw colourful histological diagram during teaching were rated as fair to very good by 88%

of the students. Student teacher interaction & time management was graded to about 77% & 75% respectively.

Students rating of teacher's abilities including knowledge, communication skills, sincerity & approachability were rated between good to excellent by 86%, 75%, 80% & 71% respectively. Median of all the parameters assessed by students & demonstrators is presented in Fig. 2.

DISCUSSION

Histology is a branch in Anatomy, where in the structure of the cells, tissues & organs of the body are studied by observing under microscope. Teaching & learning histology is based on traditional method by microscope with glass slides. Recently virtual microscopy is progressively expanding in histology and pathology.

Virtual microscopy has been introduced as a new aid for demonstration of histology slides for teaching purposes at several medical schools [1-3]. Virtual microscopy has advantage over traditional microscope in its accessibility, easy to use, can be used over long term without losing their staining quality, images can be shared and annotations are possible. The negative aspect about virtual microscopy is one has to spend large amount of time in digitalisation of glass slides and thus complicating the method.

Students at histology have accepted the use of LCD for pre-practical briefing for observation of slides. They were of the opinion that if they get those images that would help for self revision. This is more beneficial when there are large group of students for histology practical. Demonstrator can guide all the students at the same time through series of images of tissues that has to be studied with pointer on the images. LCD display also provides environment for repeated spotter testing for large group students without setting series of individual microscopes.

Learning is also done with preset microscopes where in slides are focussed by demonstrator with good field at an appropriate magnification of the tissue to be studied after briefing. The student is expected to observe the slide with

supplemental illustration and is instructed not to move slide or change magnification. Since the use of light microscopes encourage students to do personal search of structures thus considered as the best learning strategy. Hence students are also provided with slides & microscopes to allow them to focus & hunt for structures they have seen in preset microscopes.

To enhance student appreciation of histology, a combination of multiple teaching modalities are created and followed by several universities [4]. This is possible by excellent teachers who serve as role models, influencing students and enabling to reach their potential [5].

In the present study 62 % students rated good to very good and 3 out of 4 demonstrators rated very good regarding the use of LCD in histology practical. Since the sample size is small & hence it is difficult to generalise results. If this teaching method is followed over an academic year and the academic performance of students during histology practical university exams are compared with the previous batches. This would possibly provide the outcome of new teaching method.

CONCLUSION

This study emphasizes the use of multiple teaching methods like pre practical briefing, conventional microscopy, flex-board image & LCD display that make practical demonstration easy and effective. This new teaching approach has enabled large teaching groups with equal opportunity to see high quality slides. Time management was found to be effective while conducting practical & spotter exams.

Conflicts of Interests: None

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