Self-Directed Learning in Comparison to Traditional Demonstration/ Prosection Methods for Teaching Anatomy of Viscera among First Year Medical Students in a medical college of Kolkata, West Bengal

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Abstract-
Introduction: The undergraduate curriculum in India has undergone paradigm shift in the last few academic years. Implementation of the new Competency Based Medical Education (CBME) by National Medical Council of India offers challenges to the faculty and students as the primary focus is on acquiring competencies by medical students through self-directed learning (SDL). Dedicated time has been allotted to SDL in CBME curriculum in each specialty. The concept of structured SDL under supervision of teachers is comparatively new in India. Very limited number of studies are there to compare the effectiveness of SDL with those of traditional teaching methods.

Aims: 1) To evaluate the effectiveness of SDL in learning gross anatomy of viscera and to compare it with the effectiveness of traditional method of teaching by demonstration/ prosection. 2) To assess the Self-Directed Learning Readiness of 1st year medical students.

Materials and Methods: This interventional comparative study will be carried out at the department of Anatomy, of a government medical college, Kolkata, West Bengal. 80 willing first-year undergraduate medical students will be included in the study. Institutional ethics committee clearance is obtained. The students will be divided into 2 batches (Batch A and B) of 40 each. On the first day, Batch A will be taught a viscus by traditional method of teaching. Batch B will have a self-directed learning session on the same topic. The pre-test and post-test questionnaire will be given just before and after both sessions. On the second day, the batches will be crossed over and another topic will be dealt similarly. Questionnaires applying Fischer's Self Directed Learning Readiness Scale (SDLRS) will be administered to the students a week after conduction of SDL sessions. The items will be scored on a five-point Likert scale. The students' scores will help us to assess how far are they ready for SDL.

Research Hypothesis: Structured SDL under supervision of teachers will be as effective as traditional teaching methods by demonstration/ prosection in learning anatomy of viscera. SDL readiness of first year medical students will be satisfactory.

Observation and Results: 1) Learning outcomes and knowledge will be assessed by comparing the pre-test and post-test scores on questionnaires in both SDL and Traditional teaching methods. The results will be tabulated and compared; statistical evaluation of results obtained will be done in consultation with statistician. 2) The items of the Fischer's Self Directed Learning Readiness Scale (SDLRS) questionnaire administered to the students will be scored on a five-point Likert scale. The results will assess how far are they ready for SDL.

Discussion: will be on the basis of observation and analysis data.

Conclusion: will be drawn on the basis of observation and results.

Keywords: **self-directed learning, anatomy, traditional teaching, CBME.**

Introduction:

Anatomy has been a cornerstone of medical education for hundreds of years [1]. It is viewed as the "first link in a long chain of events that teach new skills and competencies to tomorrow's physicians" [2]. The undergraduate curriculum in India has undergone paradigm shift in the last few academic years. In the present competency-based medical education (CBME), there are guidelines for teaching and learning methods so that Indian medical graduates can be lifelong learners. The curriculum has been restructured from discipline-based to competency-driven. The new CBME

by National Medical Council of India aims to be more learner-centric, patient-centric, outcome-oriented, and environment- appropriate [3]. Implementation of CBME offers challenges to the faculty and students as there is major restructuring of the traditional pedagogic approaches [4].

Medical Education in India is fast progressing, and the primary focus is on acquiring competencies by medical students through self-directed learning (SDL). SDL is defined by adult education expert Malcolm Knowles as the process by which the students themselves take the initiative to diagnose their learning needs, formulate their learning goals, identify resources for learning, and evaluate their learning outcomes [5].

Need of the study:

Since the implementation of Competency Based Medical Education (CBME) by the National Medical Commission, Self Directed Learning is receiving attention, even dedicated time has been allotted to SDL in CBME curriculum in each specialty. The concept of structured SDL under supervision of teachers is comparatively a new concept in India. Very limited number of studies are there to compare the effectiveness of SDL with those of traditional teaching methods.

Review of literature

Medical Education in India is fast progressing, and the primary focus is on acquiring competencies by medical students by the active learning approaches, which is promoted through self-directed learning (SDL). Despite all reservations, the implementation of SDL has become self-directed learning (SDL). Despite all reservations, the implementation of SDL has become mandatory [6]. Onus of learning lies with the students. Medical students need to be lifelong learners [7].

SDL plays a crucial role in inculcating the habit of reading and learning in medical graduates. It also develops all of the domains of learning: cognitive, psychomotor, and affective.

The number of tutors is less and teaching time for anatomy is reduced. So, teachers must deliver new curriculums to an expanding and increasingly diverse student population through a more learner-centred approach [8].

Wet prosected tissue enables the learner to explore, visualize, and understand the inter-relations of anatomical structures [9]. These are age-old teacher-centric methods of teaching gross anatomy, including viscera. On the other hand, Self-Directed Learning can be considered as an alternate form of learning in knowledge acquisition. This can be interpreted from the scores of SDL tests & the feedbacks given by the students [10].

Aims and objectives:

Aims:

- To evaluate the effectiveness of SDL in learning gross anatomy of viscera and to compare it with the effectiveness of traditional method of teaching by demonstration/ prosection.
- To assess the Self-Directed Learning Readiness of 1st year medical students.

Objectives:

1) To evaluate learning outcomes after exposure to SDL method by pre-test and post-test scores.
2) To evaluate learning outcomes after exposure to traditional demonstration/ prosection method by pre-test and post-test scores.
3) To compare the effectiveness of self-directed learning (SDL) with traditional method of teaching by prosection in learning viscera among first year medical students.
4) To assess the Self Directed Learning Readiness of 1st year medical students.

Materials and Methods:

This comparative study will be carried out at the department of Anatomy, of a government medical college, Kolkata, West Bengal, India from January 2024 to June 2024. 80 first-year undergraduate medical students will be included in the study.

The students willing to participate will be included and those unable to attend will be excluded from the study. The study will be conducted after obtaining institutional ethics committee clearance.

The students will be divided into 2 batches (Batch A and B) of 40 each. On the first day, Batch A will be taught the viscus liver by traditional method of teaching by demonstration/ prosection for one and a half hour. A pre and post-test questionnaire will be administered. The questionnaire will be validated by two subject-experts in Anatomy and two members of Medical Education unit of the medical college.

Batch B will have a self-directed learning session on the same topic for one hour and a half hour. Students will be requested to bring their textbooks, reference materials, and laptops with internet connections to encourage them to do computer-assisted learning. You-tube videos links will be provided, with LCD screens, so that they can learn from the video. The pre-test and post-test questionnaire will be given just before and after the SDL sessions.

On the second day, the batches will be crossed over and the topic kidney will be dealt with traditional method of teaching by demonstration/ prosection for Batch B and Self-directed learning for Batch A. Pre-test and post-test questionnaire will be administered.

Learning outcomes and knowledge will be assessed by comparing the pre-test and post-test scores on questionnaires in both the methods.
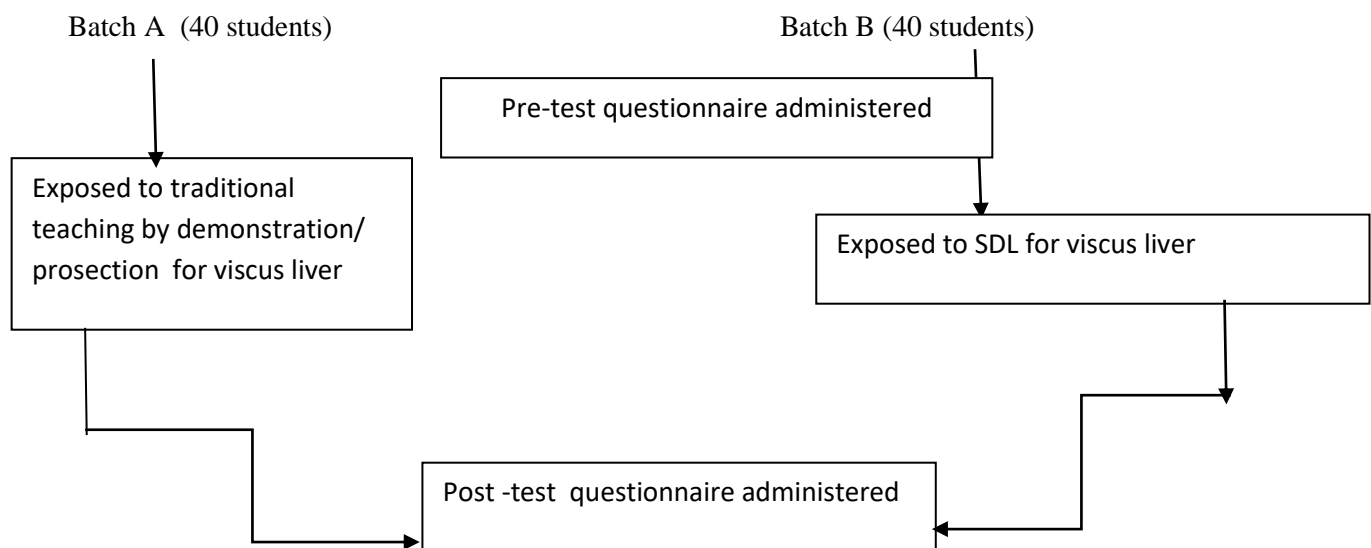
Questionnaires applying Fischer's Self Directed Learning Readiness Scale (SDLRS) will be administered to the students a week after conduction of SDL sessions [11]. The items of the Fisher's SDLRS are scored on a five-point Likert scale from 5 (Completely agree) to 1 (Completely disagree). The students' scores will help us to assess how far are they ready for SDL.

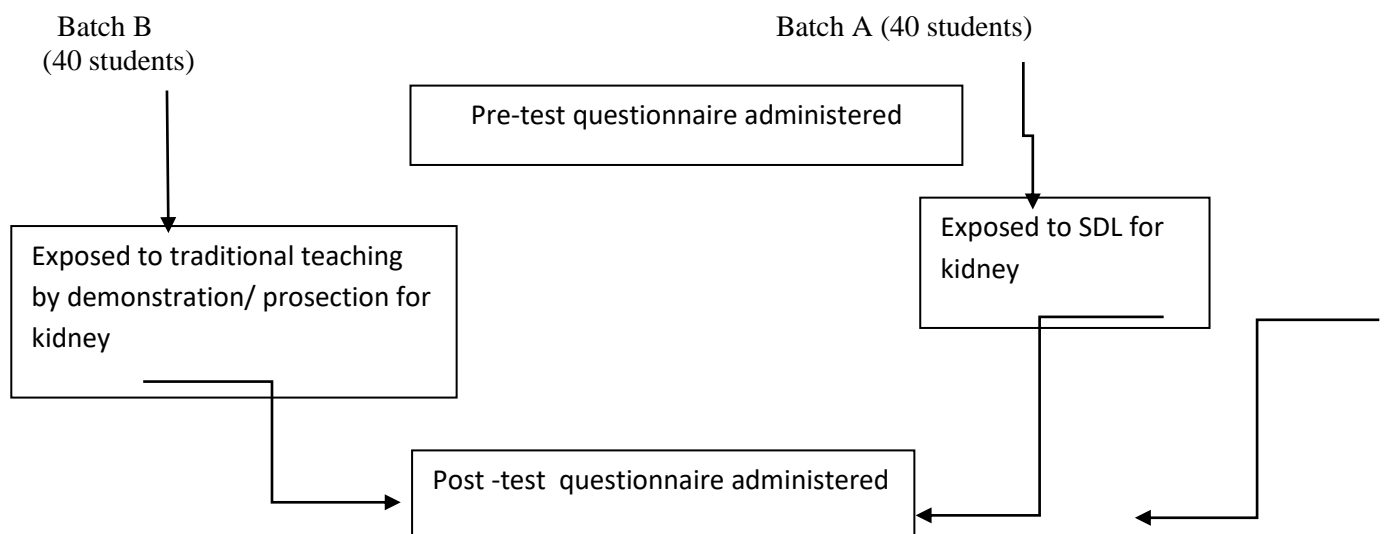### a) Methods of collection of data:

Structured, pre-test and post -test questionnaires, pre-validated by two subject-experts in Anatomy and two members of Medical Education unit of the medical college, will be administered to evaluate learning outcomes of both SDL and traditional teaching methods. The results will be compared.

Flow Chart

Session 1

Batch A (40 students)   Batch B (40 students)

| Pre-test questionnaire administered |

| Exposed to traditional teaching by demonstration/ prosection for viscus liver |

| Exposed to SDL for viscus liver |

| Post -test questionnaire administered |

Session 2

Batch B (40 students)   Batch A (40 students)

| Pre-test questionnaire administered |

| Exposed to traditional teaching by demonstration/ prosection for kidney |

| Exposed to SDL for kidney |

| Post -test questionnaire administered |

- Results of the scores of   pre- and post-test questionnaire for each session will be compared for both methods of teaching.
- Results of post- test questionnaire for both methods of teaching will be compared.

- Questionnaires applying Fischer's Self Directed Learning Readiness Scale (SDLRS) will be administered to the students a week after conduction of SDL sessions. The items of the Fisher's SDLRS will be scored on a five-point Likert scale from 5 (Completely agree) to 1 (Completely disagree). The students' scores will help us to assess how far are they ready for SDL.

b) **Venue of research**: Calcutta National Medical College, Kolkata, W.B.

c) **Sample size** – The present study will include 80 first-year M.B.B.S. students of Calcutta National Medical College.

d) **Inclusive criteria:** First-year M.B.B.S. students willing to participate.

e) **Exclusive criteria:** First-year M.B.B.S. students who could not / not willing to participate.

f) **Study duration:** 06 months.

Statement of Problem

The purpose of this study is to demonstrate the effectiveness of SDL in learning gross anatomy of viscera and to compare it with the traditional method of teaching by demonstration/ prosection among first year medical students in a Government medical college of Kolkata, West Bengal and also assess the Self-Directed Learning Readiness of these students.

Research Hypothesis

Structured SDL under supervision of teachers will be as effective as traditional teaching methods by demonstration/ prosection in learning anatomy of viscera. SDL readiness of first year medical students will be satisfactory.

Parameters for evaluation:

- Pre-test and Post-test
- Questionnaires applying Fischer's Self Directed Learning Readiness Scale (SDLRS)

Observation and Results:

1. Learning outcomes and knowledge will be assessed by comparing the pre-test and post-test scores on questionnaires in both SDL and Traditional teaching methods. The results will be tabulated and compared; statistical evaluation of results obtained will be done in consultation with statistician.

2. The items of the Fischer's Self Directed Learning Readiness Scale (SDLRS) questionnaire administered to the students will be scored on a five-point Likert scale from 5 (Completely agree) to 1 (Completely disagree). The results will assess how far are they ready for SDL.

Discussion: will be on the basis of observation and analysis data.

Conclusion: will be drawn on the basis of observation and results.

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Annexure 1
 Calcutta National Medical College
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Consent Form
For
Self-Directed Learning in Comparison to Traditional Demonstration/ Prosection Methods for Teaching Anatomy of Viscera among First Year Medical Students in a medical college of Kolkata, West Bengal

Consent by the Participant

    I hereby solemnly declare that I am willing to participate in the Research project entitled
"Self-Directed Learning in Comparison to Traditional Demonstration/ Prosection Methods for Teaching Anatomy of Viscera among First Year Medical Students in a medical college of Kolkata, West Bengal" undertaken by **Dr. Sharmistha Biswas,** Professor & HOD**,** Department of Anatomy, Calcutta National Medical College, Kolkata, W.B under the guidance of **Dr. Nilima Thosar,** Professor & HOD, Department of Paediatric & Preventive Dentistry, Sharad Pawar Dental College, Sawangi,Wardha.

Name & Signature