Section: Anatomy

Original Research Article

IMPACT OF SELF-DIRECTED LEARNING (SDL) IN MEDICAL STUDENTS.

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ABSTRACT

Background: There are various teaching-learning methods, in, medical education amongst them, now a day's self-directed learning (SDL) is an effective and popular method. In accordance with the promoting of student centric education of National Medical council instead of a teacher centric one.
Aim: Aim of the study was to study the effectiveness of self-directed learning (SDL) in a traditional lecture on genetics in the Anatomy Department
Method: 100 students of the 1st year M.B.B.S batch of 2023, were given goggle form of 20 MCQ on genetics as pretest of SDL, conducted and assessed. After a period of interval, another goggle form of same MCQ given as post test of SDL, data was collected, assessed and result prepared.
Result: The result indicates a significant improvement of the performance of undergraduate students that followed the teaching model. 'Mean' value of the pre-test was 9.29. Standard deviation (SD) of the pre-test 2.94. Standard deviation (SD) of the posttest 3.30. 'Mean' difference was 3.12.
t Value was 7.30. p value was <0.001. Mean score increased by 3.12 units from pre SDL to post SDL teaching, with 95% confidence interval of 2.97 to 3.97. High t value (7.30) and p value is <0.001 suggesting statistically significant difference. Therefore the teaching model of SDL appears to be effective in enhancing student learning outcome.
Conclusion: SDL is an effective model in medical education.
Keyword: Anatomy, teaching method, self-directed learning, medical education.

INTRODUCTION

In the old style of teaching, education was teacher centric. Teachers were at the center, they plan, guide, decide, and deliver. Class students were passive learners. It was unidirectional flow of traffic.

But now in this new style of medical education. SDL plays a vital role in medical education.[1,2] Lecturers used to deliver to a class of large audience of students using a blackboard and chalk then an overhead projector with transparencies. Now PowerPoint presentations.

But now in this new method of medical education, Students take initiative, they search and read and they practice in this way, self-directed learning has emerged.[3]

Students taking initiative and responsibility for their own study, is the core of SDL.[4] SDL also helps health professionals for continuous learning and keep updating throughout their careers.[5]

There are many methods to conduct SDL, if goals are fixed, learners achieve them more easily as they are learning themselves.[6] Any SDL has been advocated for efficient and effective training for medical students.[7]

Many studies have shown SDL is valuable in terms of knowledge acquisition for learning anatomy [8] [9]. For medical students SDL is the foundation for lifelong learning,[10,11] so in higher medical education or professional course development of SDL abilities is an important task.

SDL is a process for students to observe, apply learning strategies and adjust their learning

behaviors, make efforts to create and use physical and social resources to improve learning.[12,3]

To develop favorable education and learning environment by using modern day educational technologies is tried in many universities to improve SDL abilities of Medical students.

Many methods for assessment of SDL are available, including, survey method, interview method, teacher's evaluation and behavior observation method.[14,15]

A method proposed by Garrison for SDL ability was divided into three dimensions namely,

- Learning motivation
- Self-monitoring
- Self-management.[16]
- An assessment scale was made by Wang Xiadan Etal for evaluating the SDL ability of medical students.

This scale consists of 2 sub scales (self-motivated beliefs and objective behavior).

And 6 factors,

- Setting learning goals & plans
- Self-monitoring & regulation
- Self-motivation.
- Information processing.
- Communication & cooperation.
- Learning beliefs.

If the teachers motivate students and provide them study design, guide them, students try to follow that easily, enthusiastically, and happily. To improve their performance in medical education.[17]

MATERIALS AND METHODS

For this study 1st year MBBS students of Anatomy department in our college, were selected. The topic for study was the Genetics' syllabus in Anatomy.

Methodology- 100 students of the 1st MBBS 2023 batch were selected, and given a lecture on genetics in the Routine manner.

After a few days, a prepared test of multiple choice questions (MCQ) was taken via Google forms within college hours.

In which each question carried one mark, there were 20 questions carrying 20 marks.

We received the answers from the students, collected on a spreadsheet and assessed their result.

Later students were provided books and soft copies of notes on Genetics to study. Students had also used e-material on Genetics, available on Google and YouTube.

This time we had declared the time and date of the post SDL exam and had asked the students to study the given material on Genetics thoroughly.

We conducted the 2nd post SDL test via Google forms, using the same questions from the pre SDL test.

We collected the response from the students on Google forms, on a spreadsheet and assessed the results.

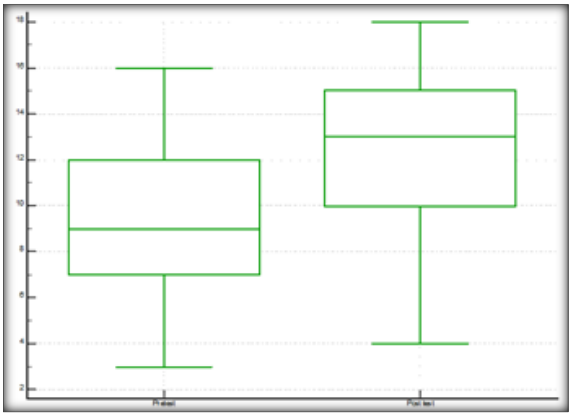
We compared results of both the pre SDL and post SDL tests on a spreadsheet and analyzed the result.

RESULTS

In pretest minimum scored marks were 3, maximum scored marks were 16, 1st quartile scored marks were 7 and 2nd quartile scored marks were 12. Median of both quartiles was 8.5 marks

In posttest minimum scored marks were 4, maximum were 18, 1st quartile scored marks were 10 and 2nd quartile scored marks were 15. Median of both quartile was 12.5.

As in Table1 and Graph1



Graph1: showing marks scored by the students in percentile

Mean of the pretest was 9.29 and posttest was 12.41

Standard Deviation SD calculated for pretest was 2.94 and posttest was 3.30.

Mean difference was 3.12 in Table 1

Mean Score increased by 3.12 units from Pre SDL to Post SDL teaching with 95% confidence interval of 2.27 – 3.97.

+ Value is 7.30

p Value is < 0.001.

Suggesting statically significant difference.

Table 1: Showing the students' score ranking

	Minimum	1st quartile	2nd quartile	Median of both quartiles	Maximum
Pretest	3	7	12	8.5	16
Posttest	4	10	15	12.5	18

Table 2: Showing 'Mean score assessment'

Pre SDL Test (n=100)			Post SDL Test (n=100)
Test Score	Mean	SD	Mean SD
	9.29	2.94	12.41 3.30

P= <0.001 test score when compared between the two groups.

DISCUSSION

The present study is proven as an effective tool for medical college students. It has been stated in the previous studies that SDL is an effective strategy in enhancing students' knowledge. Previous studies have proved that SDL is helpful in self learning for increasing knowledge of medical practice & and so SDL is implemented to improve quality core of patients [17,18].

Though it is advised to use textbooks, other learning resources like handouts from reference books and online learning resources can be included in SDL sessions.[19]

Abraham *et al.* described a self-directed course in physiology that consisted of presentation and group discussion led by medical students: exam score of SDL session was significantly higher than the lecture exam score 76 ± 0.21 vs. 72 ±0.40 p not reported.[20]

Sadaf Zia etal reported result of their study on SDL with lecture and only lecture – Mean score of the lecture with SDL is 6.5 ± 1.47(n=100) and other batch only lecture 4.8 ± 1.38 score of percentage is higher in lecture of SDL and p value is 0.05 which was significant.[21]

Sonar etal reported their result standard error: 2.45 < 0.05 confidence interval is- 95% statistically proved effective learning tool.[22]

In our study mean score of pre SDL test is 9.29 ± 2.94 and post SDL is 12.41 ± 3.30

P value is greater than <0.001 which is highly significant.

All studies on SDL by various different methods have shown effectiveness of SDL as a learning tool.

In our study,

Pretest Mean score was 9.29 ± 2.94

Posttest Mean score was 12.41 ± 3.30

Mean difference was 3.12,

$p < 0.001$.

Confidence off interval was 95%.

CONCLUSION

In lectures students are passive learners. When we guide them to study by their own efforts they become active learners.

This approach improves their learning capacity, confidence, develops interest in studies, and they perform well on exams.

So this a very effective tool to implement in medical education system.

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